APPROVED MINUTES
Institutional Biosafety Committee
Microsoft Teams
May 13, 2020

Check if Attending (Members):	Check if Attending (Alternate Members):
☒ Jessica Ayers, Animal expert	☐ Lon Kendall, Director LAR
☒ Donald Bade, Unaffiliated, joined at 12:23PM	☒ Robert Ellis, Director of Biosafety*
☐ Richard Bowen, Associate Chair	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large*
☒ Patrick Byrne, Plant expert	
☒ Chaoping Chen, Chair	*non-voting at this meeting
☒ Sara Cope, Assistant Biosafety Officer	
☒ Angelo Izzo, Mycobacteria Immunology	
☒ June Medford, Plant/syn bio expert	
☒ Edwin Neas, Unaffiliated	
☒ Ken Olson, Virology	
☐ Ann Powers, Virology	
☐ Bernard Rollin, Bioethicist	
Non-Voting Members:	
☒ James Graham, EHS Director	
RICRO Staff (non-voting):	Regular Guests (non-voting):
☒ Karen Dobos, RICRO Director	☒ Heather Blair, Associate Biosafety Officer
☐ Christa Johnson, Associate VP for Research	☒ Joni Van Sickle, Occupational Health Coord.
☒ Joanie Ryan, IBC Intern ☐ Angie Chromiak, Admin Staff	
Other:	

This meeting was convened at 12:03PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted item.

I. Review of April 8, 2020 and April 17, 2020 IBC meeting minutes.
The committee approved of both April minutes without correction.

II. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco)**.**

1. **Moreno, Julie**

Agent: Prion – Strain: RML, 22L, and CWD; BSL2

The committee unanimously approved of the above agent with the following to be addressed:

1. The IBC requests that the specific prions be identified under the strain; for example Scrapie, CWD, etc.,
2. The IBC requests the room number for the storage location.

Project: Cell therapeutics for prion diseases (20-060B); BSL2 in vitro and in vivo in mice. NIH Guidelines category non-exempt rDNA: III-D-4

The committee unanimously approved of the above project with the following to be addressed:

1. The IBC requests that the specific prion strains be added under the list of infectious agents.

2. **Jackson, Mary**

Project: Recombinant BCG-based SARS-CoV-2 vaccine (20-061B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA: III-D-2

The committee unanimously approved of the above project without changes.

3. **MacNeill, Amy**
   Project: Poxvirus vaccine vectors (20-062B); BSL2 in vitro and in vivo in rodents, cats, and dogs. NIH Guidelines category non-exempt rDNA: III-D-3

The committee unanimously approved of the above project with the following to be addressed:

1. The IBC requests that the Project Overview be revised. Currently it states: Poxviruses are classified as biosafety level-2 organisms. However there are several which are BSL3 agent, thus this statement should be modified.
2. The IBC requests that the question "Does any part of the molecule(s) or construct(s) encode a gene product from a Select Agent or Toxin?" be changed from YES to NO.
3. The IBC recommends that when the PI completes the ABSL2 form, they should allow plenty of time to talk with LAR and biosafety regarding ABSL2 for dogs and cats as these procedures are not currently in place.
4. The IBC requests confirmation of investigators on the project.

4. **Chen, Chaoping**
   Project: HTS for Inhibitors Targeting 3C-like Protease Maturation of SARS-CoV-2 (20-063B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA: III-D-2

The committee unanimously approved of the above project without changes.

5. **Medford, June**
   Project: Functional Engineering of a Photosynthetic Desalination Flow Circuit – CSU (20-064B); BSL1P in Arabidopsis, watermelon, and tomato. NIH Guidelines category non-exempt rDNA: III-E-2

The committee unanimously approved of the above project without changes.

Project: Functional Engineering of a Photosynthetic Desalination Flow Circuit – Phytodetectors (20-065B); BSL1P in Arabidopsis, watermelon, and tomato. NIH Guidelines category non-exempt rDNA: III-E-2

The committee unanimously approved of the above project with the following to be addressed:

1. The IBC requests clarification regarding where Phytodetectors work versus CSU work will be conducted.

Two PARFs were submitted to distinguish between the PI's company vs. their CSU work.

III. Review of Coronavirus Agent and Project Request Forms reviewed/approved by Biosafety Officer

1. **Kendall, Lon**
   Project: Resterilization of PPE by VHP (20-047B); BSL3 in vitro, human samples. NIH Guidelines category non-exempt rDNA: N/A
2. **Kruh-Garcia, Nicole**
   Agent: Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV-2) – Strain: any; BSL3
   Project: Testing Antimicrobial Textiles for Efficacy Against SARS-CoV-2 (20-051B); BSL3 in vitro. NIH Guidelines category non-exempt rDNA: N/A
3. **Bowen, Richard**
   Project: Pathogenesis and Vaccine Efficacy for SARS-CoV-2 Infection in Cats (20-052B); BSL3 in vitro and in vivo in cats. NIH Guidelines category non-exempt rDNA: N/A
4. **Akkina, Ramesh**
   Agent: SARS-CoV-2 – Strain: any; BSL3
   Project: SARS-CoV-2 human immune response and pathogenesis in UCB-humanized mice (20-055B); BSL3 in vitro and in vivo in mice. NIH Guidelines category non-exempt rDNA: N/A
5. **Ryan, Elizabeth**

Agent: SARS-CoV-2 isolates from human patients – Strain: any; BSL3
Project: Biorepository for evaluating immune responses and gut microbiota composition in acute and convalescent Coloradans infected with SARS CoV-2 (20-057B); Human samples. NIH Guidelines category non-exempt rDNA: N/A

6. **Nett, Terry**
   Project: Development of a Radioimmunotitration Assay to Measure IgG/IgM in Serum from COVID19 Patients, for Surveillance (20-038B); BSL2 in vitro, Human samples. NIH Guidelines category non-exempt rDNA: N/A

The committee had no comments or clarifying questions for the above submissions.

IV. Amendments to be reviewed by full committee

1. **Schountz, Tony**
   Project: Experimental infection of Jamaican fruit bats with MERS-CoV coronavirus (12-104B); BSL3 in vitro and in vivo in bats. NIH Guidelines category non-exempt rDNA: III-D-4
   Amended to add rDNA section during renewal process.

The committee unanimously approved of the above project amendment without changes.

V. Unfinished business

1. **IBC Membership update and nominations**

a. Jason Cummings – Jason was nominated to replace Nikk,i who is now a biosafety officer.
The committee unanimously approved of the above candidate as a laboratory representative.

b. Stephen Pearce – Stephen was nominated to replace Pat, who is retiring.
The committee unanimously approved of the above candidate as a plant expert.

c. Nikki Marlenee – Nikki will replace Sara as the Biosafety Officer for FY21.

d. Heather Blair – Heather will replace Dr. Ellis as Alternate BSO upon his retirement.

e. Renewing IBC Members – Chaoping Chen, Richard Bowen, Angelo Izzo, June Medford, Ann Powers

VI. New Business

None

VII. Reports

1. **Coordinator's report**
   a. **Next IBC meeting**: Wednesday, June 10, 2020 through Microsoft Teams
   b. **Save the Date** -- Biosafety and Biosecurity Fair – October 20, 2020- moving ahead cautiously due to current uncertainty about return to campus for the fall.

2. **Biosafety Officer's report**
   a. **Incident reports:**
      - Near miss: [redacted] airflow went down due to humidity while a PI was in an animal room. The PI was wearing a PAPR at the time and followed proper protocols.
      - Laboratory acquired infection: While research was being ramped down and stopped for change to critical operations only in March, an individual had cold symptoms and a rash. The individual believed the cold was passed from their partner, and the rash was not uncommon for this individual during stressful times. Some time later the individual realized this could have been a Zika infection because the individual

did manipulations with infected mosquitoes before the symptoms occurred. The individual contacted Biosafety and Occupational Health for diagnostic testing. While waiting for the results the individual was feeling better and receive the go ahead to return to work. The initial PCR test was negative, but further testing confirmed Zika infection. The individual does not recall any off counts of mosquitoes, and typically does not experience symptoms of a mosquito bite. There were no reports of loose mosquitoes at the time and other people working in the area during this time frame were asked about symptoms with none reported. Most likely this was a mosquito bite that went undetected during a chaotic time due to COVID-19 shut downs and changes.

- Near miss: Autoclave bags were breaking during the autoclave cycle out from [redacted]. The bags were double bagged but fell apart upon removal. The autoclave cycles were successful, so this is not considered an exposure or spill. It was determined that the bags were of poor construction and changing the bags out has solved the problem.
- Protocol breach: An individual entered the [redacted] for work during the shutdown. At the time the work involved with the shutdown was not occurring in or impacting the area in which the individual went, and the individual wore a PAPR and used a biosafety cabinet. Because there have been three incidents like this, biosafety is reviewing the process to prevent another incident.
- Animal bite: An individual was working with an SARS-CoV-2 infected hamster and was bitten. The individual followed proper procedures and contacted biosafety and occupational health. Because of the transmission routes for the agent, it is considered a low risk incident but follow up is occurring. No outside reporting required.
- Protocol breach: An individual forgot to don an N95 when entering to dust the deer facility. The individual had noticed eye irritation and donned eye protection then forgot about the N95 before entering the infected deer room; when realized, exited and put on mask and entered to finish work. The individual is doing well. The agent used in the deer is very low risk for human infection, but the individual is being monitored.
- Cut: An individual was mincing infected tissue with a razor blade when they cut their finger. This happened today so biosafety and occupational health are currently investigating the incident and helping the individual.

The increase in incident frequency was discussed by the committee. It seems that an increase in stress due to COVID-19 situations both at home and at work may be impacting this. There is also a mandate to be on campus as little as possible for critical research functions, which may be causing people to rush. Changes from N95 to PAPR use in these environments can interfere with peoples' normal functioning, and has impacted the process of entering and exiting the area including lines building up to allow social distancing in the locker rooms. The committee discussed the IBC and biosafety working together to get feedback from users and addressing any issues, as nothing has been reported to biosafety. It was discussed that people may be hesitant to come forward because they do not want to have already restricted research limited further. Some suggestions for managing this include requesting researcher feedback, posting helpful guidance, and potentially starting a scheduling system to prevent locker room buildup. It was also discussed that in looking toward reopening, these challenges may increase and it is important that administrators be involved in the return to research process understand the limitations.

b. Inspections: None

c. Laboratory audit reports: Ms. Blair is planning to do a [redacted] lab audit walk through. She will have PIs or lab managers fill out a form instead of going in together with each group. Select Agent inventory audits are needed for [redacted] and [redacted] Dr. Ellis and Nikki will be working on

this with the labs, PIs, and managers starting the last full week of May into the first week of June.

VIII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. **Bosco-Lauth, Angela**
   Agent: Influenza virus – Strain: any; BSL3
   Project: Transmission of H7N9 in an artificial barnyard setting (20-034B); BSL3 in vitro and in vivo in poultry and rabbits. NIH Guidelines category non-exempt rDNA: N/A
2. **Kading, Rebekah**
   Agent: Enterobacter asburiae – Strain: any; BSL2
3. **Jackson, Mary**
   Project: Inhibitors of Mycobacterium tuberculosis FAS-II dehydratases (20-046B); BSL3 in vitro. NIH Guidelines category non-exempt rDNA: III-D-2
4. **Dean, Gregg**
   Project: RECOMBINANT LACTOBACILLUS AS AN ORAL MUCOSAL VACCINE AGAINST HUMAN CORONAVIRUS SARS-CoV-2 (20-048B); BSL2 in vitro and in vivo in mice. NIH Guidelines category non-exempt rDNA: III-D-2
5. **Geiss, Brian**
   Project: Expression and purification of recombinant SARS-CoV-2 proteins (20-050B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA: III-E-1

IX. Amended Project or Agent approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

X. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

XI. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

1. **Robertson, Gregory**
   Project: Inhibitors of Mycobacterium tuberculosis FAS-II dehydratases (20-049B); BSL3 in vivo in mice. NIH Guidelines category non-exempt rDNA: N/A
2. **Ordway, Diane**
   Project: Adjunct therapeutic potential of a repurposed drug inhibiting Mycobacterium abscessus biofilm formation (20-054B); BSL2 in vitro and in vivo in mice. NIH Guidelines category non-exempt rDNA: N/A
3. **Geiss, Brian**
   Agent: E. coli BL21 – Strain: any; BSL1

Meeting adjourned: 1:35 PM
Minutes recorded by C.Johnson

APPROVED MINUTES
Institutional Biosafety Committee
Microsoft Teams
June 10, 2020

Check if Attending (Members):	Check if Attending (Alternate Members):
☒ Jessica Ayers, Animal expert	☐ Lon Kendall, Director LAR
☒ Donald Bade, Unaffiliated, joined at 12:23PM	☒ Robert Ellis, Director of Biosafety
☒ Richard Bowen, Associate Chair	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large*
☒ Patrick Byrne, Plant expert	
☒ Chaoping Chen, Chair	*non-voting at this meeting
☐ Sara Cope, Assistant Biosafety Officer	
☒ Angelo Izzo, Mycobacteria Immunology	
☒ June Medford, Plant/syn bio expert	
☒ Edwin Neas, Unaffiliated	
☒ Ken Olson, Virology	
☒ Ann Powers, Virology	
☒ Bernard Rollin, Bioethicist	
Non-Voting Members:	
☒ James Graham, EHS Director	
RICRO Staff (non-voting):	Regular Guests (non-voting):
☒ Karen Dobos, RICRO Director	☒ Heather Blair, Associate Biosafety Officer
☐ Christa Johnson, Associate VP for Research	☒ Nicole Marlenee, Assistant Biosafety Officer
☒ Joanie Ryan, IBC Intern ☒ Angie Chromiak, Admin Staff	☒ Joni Van Sickle, Occupational Health Coord.
Other:	

This meeting was convened at 12:03PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted item.

I. Review of May 13, 2020 meeting minutes.
The committee approved of May minutes without correction.

II. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco)**.**

1. **Nishimura, Erin**

Project: Mechanisms and dynamics of gene expression during cellular differentiation and development (20-068B); BSL1 in vitro. NIH Guidelines category non-exempt rDNA: III-D-4

The committee unanimously approved of the above project with the following to be addressed:

1. The IBC requests the concentration of bleach used for 10 minutes of bleach soaking.
2. The IBC requests the E. coli strains used for C. elegans to feed on.
3. The IBC requests that all individuals working on this project complete the statement of experience and IBC at CSU online training through the IBC Database.

Project: Deciphering the molecular hallmarks of cellular differentiation in animal and cancer models (20-069B); BSL1 in vitro. NIH Guidelines category non-exempt rDNA: III-D-4

The committee unanimously approved of the above project with the following to be addressed:

1. The IBC requests the concentration of bleach used for 10 minutes of bleach soaking.

2. The IBC requests the E. coli strains used for C. elegans to feed on.
3. The IBC requests that all individuals working on this project complete the statement of experience and IBC at CSU online training through the IBC Database.

2. **Geiss, Brian**

Agent: SARS-CoV-2 – Strain: any; BSL3

The committee unanimously approved of the above agent with the following to be addressed:

1. The IBC requests clarification on what samples, if any, will be moved from BSL3 to BSL2.
2. The IBC requests clarification of the statement regarding verification of inactivation for autoclaved material as this is typically not required.
3. The IBC requests more information for the TCID50 assay including what the material is and the limits of sensitivity of the assay.

Project: Development of an SARS-CoV-2 reporter cell line (20-072B); BSL3 in vitro. NIH Guidelines category non-exempt rDNA: III-D-3

The committee unanimously approved of the above project with the following to be addressed:

1. The IBC requests the PI contact the lab manager of the BSL3 spaces to coordinate research activities.
2. The IBC requests that PAPR, back closing gown, and facility socks and shoes/clogs be added to PPE use

3. **Kruh-Garcia, Nicole**

Agent: Influenza virus type A – Strain: BSL2 strains only; BSL2

The committee unanimously approved of the above agent with the following to be addressed:

1. The IBC requests clarification of the use of 60-95% ethanol when typically 70% is used.

Agent: Influenza virus B – Strain: any; BSL2

The committee unanimously approved of the above agent with the following to be addressed:

1. The IBC requests a brief statement regarding the type of disease caused by this virus.
2. The IBC requests that pathogenic for animals including humans be changed from NO to YES.
3. The IBC requests clarification of the use of 60-95% ethanol when typically 70% is used.

Agent: enterovirus – Strain: any; BSL2

The committee unanimously approved of the above agent with the following to be addressed:

1. The IBC requests the name of the agent be changed as there are about 50 different enteroviruses. Please specify what/which enterovirus(es) will be used. If using multiple enteroviruses may need to submit separate AARFs.
2. The IBC requests that pathogenic for animals including humans be changed from NO to YES.
3. The IBC requests clarification of the use of 5% bleach.

Agent: Candida albicans – Strain: any; BSL2

The committee unanimously approved of the above agent without changes.

Agent: Streptococcus pyogenes – Strain: any; BSL2

The committee unanimously approved of the above agent without changes.

Agent: Streptococcus pneumoniae – Strain: any; BSL2

The committee unanimously approved of the above agent without changes.

Agent: Rhinovirus – Strain: any; BSL2

The committee unanimously approved of the above agent with the following to be addressed:

1. The IBC requests that the human risk group be changed from 1 to 2.
2. The IBC requests that the minimum biosafety level be changed from 1 to 2.

Agent: Human Parainfulenza virus – Strain: any; BSL2

The committee unanimously approved of the above agent with the following to be addressed:

1. The IBC requests that the spelling be corrected to Human Parainfluenza virus

Agent: Human Coronavirus – Strain: 229E, NL63, OC43; BSL2

The committee unanimously approved of the above agent without changes.

Agent: Adenovirus – Strain: any; BSL2

The committee unanimously approved of the above agent without changes.

Agent: Haemophilus influenzae – Strain: any; BSL2

The committee unanimously approved of the above agent without changes.

Agent: Respiratory syncytial virus – Strain: any; BSL2

The committee unanimously approved of the above agent without changes.

Project: Optimization of SARS-CoV-2 diagnostic assay (20-073B); BSL3 in vitro. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the above project with the following to be addressed:

1. The IBC requests that the Project Overview include a statement indicating that challenges with SARS-CoV-2 will be done at BSL3.

4. **Thamm, Douglas**

Agent: Salmonella typhimurium – Strain: VPN20009 (msbB-, Purl-); BSL2

The committee unanimously approved of the above agent with the following to be addressed:

1. The IBC requests clarification as to whether the antibiotic resistance is naturally occurring or if the agent has been modified.

Project: Evaluation of tumor-targeted Salmonella efficacy. (20-078B); BSL2 in vivo in mice. NIH Guidelines category non-exempt rDNA: III-D-1

The committee unanimously approved of the above project with the following to be addressed:

1. The IBC requests that in vitro uses be changed from NO to YES under infectious agents list.
2. The IBC requests confirmation of spelling for additional investigator's EID.
3. The IBC recommends that infected mice be handled in a biosafety cabinet

5. **Kading, Rebekah**

Agent: Rocky Mountain bat coronavirus – Strain: any; BSL2

The committee unanimously approved of the above agent with the following to be addressed:

1. The IBC requests that pathogenic for animals including humans be changed from NO to YES

Project: Isolation and detection of coronaviruses in Colorado bats and other wildlife (20-075B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the above project with the following to be addressed:

1. The IBC requests clarification regarding the biosafety level for in vitro work.
2. The IBC requests that rabies virus be removed from the infectious agent list because the work does not involve manipulating this virus.
3. The IBC requests that all individuals complete the IBC at CSU online training.

6. **Bosco-Lauth, Angela**

Agent: Rabbit hemorrhagic disease virus 2 – Strain: any, BSL3

The committee unanimously approved of the above agent with the following to be addressed:

1. The IBC requests that pathogenic for animals including humans be changed from NO to YES

Project: RHDV2 pathogenesis and vaccine efficacy (20-076B); BSL3 in vitro in rabbits. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the above project with the following to be addressed:

1. The IBC asks whether the virus will be propagated in vitro.
2. The IBC requests that all investigators register with the IBC database, fill out a statement of experience, and complete the IBC at CSU online training.

7. **Bowen, Richard**

Project: Project: Shed-spread and safety testing for Coccidioides vaccine in dogs (20-066B); BSL2 in vitro and in vivo in dogs. NIH Guidelines category non-exempt rDNA: III-D-4

The committee unanimously approved of the above project with the following to be addressed:

1. The IBC requests clarification of use of N95 or PAPR during in vitro work and in vivo work.

8. **Schountz, Tony**

Agent: PMV11 (Myotis bat morbillivirus) – Strain: any; BSL2

The committee unanimously approved of the above agent with the following to be addressed:

1. The IBC requests a chemical method of inactivation.

There was a discussion regarding the BSL; the risk group is indicated as RG1 however the agent will be handled at BSL2.

Project: Infection of Jamaican fruit bats with bat morbillivirus PMV11 (20-077B); BSL2 in vitro and in vivo in bats. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the above project with the following to be addressed:

1. Respiratory protection is recommended while working with bats to protect the bats from potential SARS-CoV-2 human carriers. The IBC requests the PI indicate whether N95s or PAPRs will be used.

III. Review of Coronavirus Agent and Project Request Forms reviewed/approved by Biosafety Officer

1. **Wilusz, Carol (APPROVED)**

Project: Extraction of RNA from wastewater for SARS CoV 2 quantification (20-067B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA: N/A

2. **Schaeffer, Joshua (SUBMITTED)**

Project: Characterization and Assessment of SARS-2 Aerosols During In-Patient Surgical Procedures (20-070B); BSL3 in vitro. NIH Guidelines category non-exempt rDNA: N/A

3. **Tjalkens, Ronald (SUBMITTED)**

Agent: Coronavirus, 2B β-coronavirus – Strain: SARS-CoV-2, USA-WA1-2020; BSL3

Project: Neuroinvasion of SARS-CoV2 (20-052B); BSL3 in vitro and in vivo in mice. NIH Guidelines category non-exempt rDNA: N/A

The committee requests clarification for items 2 and 3. For item 2, clarification regarding shipping was requested, ie, will samples be shipped as dangerous goods. For item 3, more details are needed regarding who is doing what work and where, where the virus is coming from, and the experience and training of one of the investigators. It is recommended that the PI collaborate with one of the other researchers in the BSL3.

IV. Amendments to be reviewed by full committee
None

V. Unfinished business

1. **BSL3 ingress/egress issues**
   Dr. Ellis is working on gathering information from PIs and researchers regarding current issues and concerns for research restart.

VI. New Business

1. **IBC Meetings for FY21**
   Due to uncertainty regarding future public health guidelines and budget reductions as a result of COVID-19, meetings will continue to be held via Microsoft Teams through fiscal year 2021.

VII. Reports

1. **Coordinator's report**
   a. **Next IBC meeting**: Wednesday, July 8, 2020 through Microsoft Teams
   b. **Save the Date** -- Biosafety and Biosecurity Fair – October 20, 2020- this event will be virtual. All suggestions and ideas for this event are welcome and encouraged to be shared with the senior coordinator.

2. **Biosafety Officer's report**
   a. **Incident reports:**
      - There have been issues with people not signing out PAPRs and using other people's hoods. The PI investigated and determined who was responsible, then set up a calendar for people to sign out PAPRs for use. No outside reporting required.
      - During a shipment of potentially SARS-CoV-2 infected PPE from a healthcare facility to CSU, there was no secondary containment and PPE was sticking out. Couriers were reminded to check for proper packaging of material before transport. No outside reporting required.
      - An individual entered a non-respiratory protection area of BSL3 without a cloth face mask or social distancing. Additional cloth masks have been received for the area and the requirements for social distancing re-communicated. No outside reporting required.
      - An individual noticed that the clean side door of an MTA was open. After egressing from the BSL3 they closed the door and contacted biosafety. No outside reporting required.
   b. **Inspections:** There have been none recently, and there are not any expected for some time though unannounced inspections are always possible.
   c. **Laboratory audit reports:** Dr. Ellis and Dr. Marlenee are doing select agent inventory audits, which are going well.
   d. **Dr. Ellis' retirement:** This being Dr. Ellis' last IBC meeting, the RICRO staff put together a slide show and had virtual celebration to honor Dr. Ellis' 30+ years of service with biosafety and the IBC.

VIII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. **Moreno, Julie**
   Agent: Prion – Strain: RML, 22L, and CWD; BSL2
   Project: Cell therapeutics for prion diseases (20-060B); BSL2 in vitro and in vivo in mice. NIH Guidelines category non-exempt rDNA: III-D-4

2. **MacNeill, Amy**

   Project: Poxvirus vaccine vectors (20-062B); BSL2 in vitro and in vivo in rodents, cats, and dogs. NIH Guidelines category non-exempt rDNA: III-D-3

IX. Amended Project or Agent approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

X. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

XI. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

Meeting adjourned: 1:51 PM
Minutes recorded by C.Johnson

APPROVED MINUTES
Institutional Biosafety Committee
Special Meeting
Microsoft Teams
June 29, 2020

Check if Attending (Members):	Check if Attending (Alternate Members):
☐ Jessica Ayers, Animal expert	☐ Lon Kendall, Director LAR
☒ Donald Bade, Unaffiliated	☐ Robert Ellis, Director of Biosafety
☐ Richard Bowen, Associate Chair	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large*
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☒ Karen Dobos, RICRO Director	☒ Heather Blair, Associate Biosafety Officer
☐ Christa Johnson, Associate VP for Research	☒ Nicole Marlenee, Assistant Biosafety Officer, joined at 1:05 PM
☒ Joanie Ryan, IBC Intern ☒ Angie Chromiak, Admin Staff	☒ Joni Van Sickle, Occupational Health Coord.
Other:	

This meeting was convened at 1:03PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted item.

A special IBC meeting was called to review a COVID19 related project that involves non-exempt rDNA.

I. Review of June 10, 2020 meeting minutes
The minutes are not yet available.

II. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco)**.**

1. **Tjalkens, Ronald**

Agent: Adeno-associated virus (AAV) – Strain: any; BSL1

The committee unanimously approved of the above agent with the following to be addressed:

1. The IBC requests the concentration of bleach be increased to 10%.

Project: Stereotactic injection of adeno-associated virus (20-080B); BSL1 in vitro and in vivo in mice. NIH Guidelines category non-exempt rDNA: III-D-4

The committee unanimously approved of the above project with the following to be addressed:

1. The IBC requests a description of the project goals.

2. The IBC requests that 10% bleach be used.
3. The IBC requests clarification that work with AAV will be conducted in a biosafety cabinet and not a laminar flow hood.

2. **Duval, Dawn**

Project: Development of a comparative oncology functional genomics screening platform using a CRISPR-Cas9 library to identify critical dependencies and mechanisms of treatment resistance in canine cancers (20-081B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA: III-D-3

The committee unanimously approved of the above project with the following to be addressed:

1. The IBC requests that lentivirus be added to the list of infectious agents.
2. The IBC requests clarification regarding whether the guide RNA and Cas9 endonuclease will be on the same plasmid or separate plasmids.
3. The IBC requests the species of origin for the Cas9 endonuclease.
4. The IBC requests all individuals listed on this project complete biosafety cabinet training.

3. **Bowen, Richard**

Project: COVID vaccine testing (20-083B); BSL3 in vitro and in vivo in hamsters and ferrets. NIH Guidelines category non-exempt rDNA: III-D-2

The committee unanimously approved of the above project with the following to be addressed:

1. The IBC requests that a list of the specific vectors be given and updated with each new vaccine candidate.
2. The IBC requests that under in vitro PPE the PAPR be marked Y and the N95 marked N.

This is somewhat of a blanket PARF, the PI is testing vaccines in animal models from several different sources. The PI is not making the vaccines. Each time a new vaccine candidate is received, the PI will amended the PARF to include the specific vectors and funding source.

III. Review of Coronavirus Agent and Project Request Forms reviewed/approved by Biosafety Officer

The following submissions have not yet been reviewed by the BSO and thus the full IBC will review.

1. **Fahrner, Scott (SUBMITTED)**

Project: RESTARtT Colorado: Rational Effective Surveillance Testing Accelerating Return to Tasks (20-084B); Human Samples. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the above project with the following to be addressed:

1. The IBC requests more information regarding "self-collection of nasal swab samples." How is this done and is it less cough inducing than the usual method? If participants are likely to cough, it is recommended for lab personnel to wear a face shield.
2. The IBC requests that a specific room number be given for each location of work.
3. The IBC requests that all individuals listed on the project provide a statement of experience working with biohazardous materials.

2. **Goodrich, Raymond (SUBMITTED)**

Agent: SARS-CoV-2 – Strain: USA-WA 1/2020; BSL3

The committee unanimously approved of the above agent with the following to be addressed:

1. The IBC requests the concentration of Neutral Q used to inactivate the agent for disposal.

Project: COVID-19: Vaccine Development for COVID-19 Using SolaVAX (20-086B); BSL3 in vitro. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the above project with the following to be addressed:

1. The IBC requests more information regarding the upper limit of live/infectious SARS-CoV-2 to be tested.
2. The IBC requests clarification regarding the use of Tyvec coveralls versus a back closing gown.

IV. Amendments to be reviewed by full committee

1. **Clay, Colin**

   Project: Role of estrogen in regulating of GnRH receptor expression (10-047B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA: III-D-3

   Amendment request to add lentivirus as a vector

The committee unanimously approved of the above amendment request without changes.

The PI has several other projects working with this vector.

V. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. **Kruh-Garcia, Nicole**

   Agent: Influenza virus type A – Strain: BSL2 strains only; BSL2
   Agent: Influenza virus B – Strain: any; BSL2
   Agent: enterovirus – Strain: any; BSL2
   Agent: Rhinovirus – Strain: any; BSL2
   Agent: Human Parainfulenza virus – Strain: any; BSL2
   Project: Optimization of SARS-CoV-2 diagnostic assay (20-073B); BSL3 in vitro. NIH Guidelines category non-exempt rDNA: N/A

2. **Thamm, Douglas**

   Agent: Salmonella typhimurium – Strain: VPN20009 (msbB-, Purl-); BSL2
   Project: Evaluation of tumor-targeted Salmonella efficacy. (20-078B); BSL2 in vivo in mice. NIH Guidelines category non-exempt rDNA: III-D-1

3. **Kading, Rebekah**

   Agent: Rocky Mountain bat coronavirus – Strain: any; BSL2
   Project: Isolation and detection of coronaviruses in Colorado bats and other wildlife (20-075B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA: N/A

4. **Bosco-Lauth, Angela**

   Agent: Rabbit hemorrhagic disease virus 2 – Strain: any, BSL3
   Project: RHDV2 pathogenesis and vaccine efficacy (20-076B); BSL3 in vitro in rabbits. NIH Guidelines category non-exempt rDNA: N/A

5. **Bowen, Richard**

   Project: Shed-spread and safety testing for Coccidioides vaccine in dogs (20-066B); BSL2 in vitro and in vivo in dogs. NIH Guidelines category non-exempt rDNA: III-D-4

6. **Schountz, Tony**

   Agent: PMV11 (Myotis bat morbillivirus) – Strain: any; BSL2
   Project: Infection of Jamaican fruit bats with bat morbillivirus PMV11 (20-077B); BSL2 in vitro and in vivo in bats. NIH Guidelines category non-exempt rDNA: N/A

VI. Amended Project or Agent approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

VII. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

VIII. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

1. **Georgnaras, Ifigenia**

   Project: The impact of supplementing cattle diets with direct-fed microbial products on Salmonella prevalence in lymph nodes (20-074B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA: N/A

2. **Slayden, Richard**

   Project: Efficacy evaluation of Novel therapeutics against Biodefense Pathogens (17-095B); BSL3 in vitro and invivo in mice. NIH guidelines category non-exempt rDNA: N/A
   Amendment to change location.

Meeting adjourned: 1:41 PM
Minutes recorded by C.Johnson

APPROVED MINUTES
Institutional Biosafety Committee
Microsoft Teams – REMOTE
July 29, 2020

Check if Attending (Members):	**Check if Attending (Alternate Members):**
☒ Jessica Ayers, Animal expert	☐ Lon Kendall, Director LAR
☒ Donald Bade, Unaffiliated	☒ Heather Blair, Interim Biosafety Director*
☒ Richard Bowen, Associate Chair	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large*
☒ Chaoping Chen, Chair	
☒ Jason Cummings, lab rep	*non-voting at this meeting
☒ Angelo Izzo, Mycobacteria Immunology	
☒ Nicole Marlenee, Assistant Biosafety Officer	
☒ June Medford, Plant/syn bio expert	
☒ Edwin Neas, Unaffiliated	
☒ Ken Olson, Virology	
☒ Stephen Pearce, Plant expert	
☒ Ann Powers, Virology	
☒ Bernard Rollin, Bioethicist	
Non-Voting Members:	
☐ James Graham, EHS Director	
RICRO Staff (non-voting):	**Regular Guests (non-voting):**
☒ Karen Dobos, RICRO Director	☒ Sara Cope, Assistant Biosafety Officer
☐ Christa Johnson, Associate VP for Research	☒ Joanie Ryan, Biosafety Office Intern
☒ Angie Chromiak, Admin Staff	☒ Joni Van Sickle, Occupational Health Coord.
☒ Adrianna Burney, IBC Intern	
Other:	

This meeting was convened at 12:03PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted item.

I. Review of June 10, 2020 and June 29, 2020 IBC meeting minutes.
The committee approved of both sets of June minutes without correction.

II. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco)**.**

1. **Peccoud, Jean**
   Agent: SARS-CoV-2 – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:
To indicate that lab is not receiving isolated virus, the IBC requests the Strain be changed from ANY to Clinical Samples.

Project: Pooled saliva COVID-19 testing at CSU (20-087B); Human Samples, BSL2. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the above project with the following modifications:

1. The IBC requests that a statement be added to the Project Overview confirming that there will be no attempt to isolate or grow SARS-CoV-2.
2. The IBC requests that one of the Biosafety Officers watch the first time samples are processed and pooled.
3. The IBC requests that all individuals update their Statement of Experience in the Online IBC Database to reflect any recent trainings that have been completed.

2. **Karoly, Hollis**

Project: Exploring the Effects of Cannabinoids on Alcohol Consumption and the Microbiota-Gut-Brain Axis (20-088B); Human Samples. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the above project with the following modifications:

1. Additional personnel working on the project need to be added to the PARF.
2. All personnel working on the project will need to complete online BSL1/BSL2 training, Blood Borne Pathogen training, and an Occupational Health Risk Assessment.
3. The IBC requests more details on what sample collections/work is being done in which locations.

The IBC requests the following clarifications on procedure:

4. Who will be doing the blood draws?
5. How will the samples (blood and fecal) be processed? And what equipment will be used? What PPE will be worn (gloves, lab coat, safety glasses, etc) for protection against unknown infectious materials?
6. Will the samples be inactivated?
7. How and where will samples be disposed of?
9. What is the anticipated start date for the project?

3. **Jackson, Mary**

Project: Assembly and export of mycobacterial lipoglycans (20-089B); BSL3 in vitro. NIH Guidelines category non-exempt rDNA: III-D-1

The committee unanimously approved of the above project with the following modifications:

1. The IBC request the Locations of work be updated.
2. Under in vitro PPE please specify the difference in PPE used at BSL2 and BSL3.
3. All individuals listed needs to provide a statement of experience in the online IBC database, and complete the IBC at CSU online training.
4. Additionally, all individuals listed must complete BSL3 training, and the Occupational Health Risk assessment.

4. **Bowen, Richard**

Project: Protective Function of GreFlueVie Influenza Vaccine in Ferrets. (20-092B); BSL3 in vitro and in vivo in ferrets. NIH Guidelines category non-exempt rDNA: III-D-2 and III-D-4

The committee unanimously approved of the above project with the following modifications:

1. Under the list of PPE used, the in vitro section indicates PAPR and the in vivo section indicates N95. Please verify which one is correct.
2. One of the work locations is not approved for HPAIV and should be removed.

Project: Ecology and Transmission of Burkholderia pseudomallei in Fish Tanks (20-095B); BSL3 in vitro and BSL3 in vivo in fish. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the above project with the following modifications:

All individuals listed must complete the IBC at CSU online training.

5. **Nalam, Vamsi**

Agent: Potato Virus Y – Strain: any; BSL1
Agent: Potato Mop-top virus – Strain: any; BSL1
Agent: Tobacco rattle virus – Strain: any; BSL1
Project: Development of molecular tools to study movement of Potato virus Y in susceptible and resistant varieties (20-093B); BSL1P in vitro and in vivo. NIH Guidelines category non-exempt rDNA: III-E-1

The above agents and projects have been TABLED pending additional information, specifically:

1. For each of the three Agent Approval Requests, Pathogenic for plants? Should be changed from NO to YES; the plant biosafety level should be indicated; and the chemical disinfectant and the percentage used should be provided.
2. The IBC requests more details about how the agents will be contained, and as well as whether there are concerns regarding aphids or nematodes and transmission outside of the lab.
3. The IBC requests that the PI meet with a Biosafety Officer and IBC plant members to review the project and containment procedures.
4. All individuals listed on the approval need to provide a Statement of Experience and complete the IBC at CSU online training.

6. **Ehrhart, Nicole**

Project: The Combination of Coacervate Technology and Adult Muscle Stem Cells as a new Drug Delivery System for Articular Cartilage Repair (20-094B); Human Samples. NIH Guidelines category non-exempt rDNA: III-D-4

The committee unanimously approved of the above project with the following modifications:

1. Lentivirus infection of stem cells should be handled at BSL-2 unless already stably transduced. Please specify whether you will be receiving the cells already stably transduced or making them yourselves.
2. Delivery of stem cells transfected with lenti-viral techniques to express GFP falls under III-D-4 of the NIH Guidelines; the rDNA questions need to be filled out.

7. **Dean, Gregg**

Agent: Bacillus Calamette – Guerin – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

The IBC requests the agent name be changed to Mycobacterium bovis BCG.

Project: Recombinant BCG as a vaccine against SARS-CoV-2 (20-097B); BSL2 in vitro and in vivo in dogs. NIH Guidelines category non-exempt rDNA: III-D-2

The committee unanimously approved of the above project with the following modifications:

1. Under Mechanisms in place for containment and disposition of infected animals or plants, the statement should be changed to indicate that infected animals should be handled under BSL2 precautions for the duration of the infection, cages should be opened in a BSC, and bedding discarded as BSL2 waste.
2. All individuals listed should register with the Online IBC Database, fill out a Statement of Experience, and complete the IBC at CSU online training.
3. All individuals working with M. bovis BCG, including samples and mice infected with M. bovis, BCG should update their Occupational Health Risk Assessment to include this agent.

8. **Wiese, Claudia**

Agent: Third-generation lentiviral packaging vectors (Dull et al., 1998) – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

The IBC asks for clarification on whether autoclave will be use as a method of inactivation and disposal.

Project: Production of replication-incompetent lentivirus particles (20-098B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA: III-E-1

The committee unanimously approved of the above project with the following modifications:

1. The description of PPE mentions safety goggles, thus safety goggles should be added to the list of PPE.
2. Has a biosafety lab audit been conducted within the last 3 years?
4. All individuals listed should register with the Online IBC Database, fill out a Statement of Experience, and complete the IBC at CSU online training.

9. **Moreno, Julie**

Agent: HSV1 – Strain: MacIntyre; BSL2

The committee unanimously approved of the above agent with the following modifications:

The IBC requests the percentage of bleach that will be used for inactivation.

Project: Misfolded neurotoxic proteins in HSV1 induced Alzheimer's disease (20-101B); BSL2 in vitro and in vivo in mice. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the above project with the following modifications:

1. The IBC requests information regarding the source of AdMSC-EV and confirmation no rDNA is involved.
2. Under in vivo PPE, use of N95 was marked YES. The IBC requests confirmation whether this is correct.
3. The IBC requests information regarding how animal bedding and waste should be handled? For example, is there a risk of viral shedding? Should cage changes be performed in the biosafety cabinet and bedding/waste be autoclaved?
4. All individuals listed should register with the Online IBC Database, fill out a Statement of Experience, and complete the IBC at CSU online training.

10. **Mayo, Christie**

Agent: Epizootic hemorrhagic disease virus – Strain: US prototype strains and multiple US field strains; BSL2

The committee unanimously approved of the above project with the following modifications:

1. The IBC requests more information be added to the agent description, including its virulence, host range and what type of disease it causes.
2. Additionally, a comment regarding whether the agent is pathogenic for animals.

III. Review of Coronavirus Agent and Project Request Forms reviewed/approved by Biosafety Officer

1. **Bowen, Richard**

APPROVED Project: Transfusion transmission risk assessment for SARS-CoV-2 (20-090B); BSL3 in vitro and in vivo in hamsters. NIH Guidelines category non-exempt rDNA: N/A
APPROVED Project: Antiviral therapy for COVID-19 (20-099B); BSL3 in vitro and in vivo in hamsters. NIH Guidelines category non-exempt rDNA: N/A

2. **Geiss, Brian**

PENDING Project: Testing of SARS-CoV-2 antigen and RNA diagnostic assays (20-100B); BSL2 in vitro, human samples. NIH Guidelines category non-exempt rDNA: N/A

IV. Amendments to be reviewed by full committee

1. **Wilusz, Carol**

APPROVED Project: Extraction of RNA from wastewater for SARS-CoV-2 quantification (20-067B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA: N/A
Amendment request: We wish to expand the project to include collection of wastewater from sites on campus using the following procedure.

- Personnel will don PPE including face shield, surgical face mask, tyvek suit, gloves.
- Retrieve autosampler containing 2.5L bottle of wastewater from manhole.
- Remove wastewater collection bottle from sampler. Put lid on and invert to homogenize the sample.
- Use a disposable ladle to remove 3 x 40ml of sample from the bottle into 50ml falcon tubes.

- Seal the tube and spray outside with 10% bleach. Wipe with paper towel.
- Place the tubes into a cooler containing absorbent material and ice pack for transportation.
- Dispose of the remaining liquid into the sewer by pouring.
- Rinse the bottle with 10% bleach and then with water - disposing liquid into the sewer.
- Insert into autosampler and lower sampler into the manhole.
- Remove gloves, face shield before entering vehicle to move to next location or to lab.
- After all samples are collected, the technician will deliver samples to the lab for processing.
- At end of day, remove tyvek suit, spray down vehicle seats and steering wheel etc with disinfectant.
- Technicians will complete BBP, BSL1/2 training and training in hazards of sanitary sewers/manholes.

The committee conditionally approved of the above amendment request, on the condition that the members of the Biosafety Office are present during the first sample collection.

V. Unfinished business

None

VI. New Business

1. **SARS-CoV-PPE recommendations**
    1. BSL3 in vitro and in vivo – There was a discussion regarding when surgical gowns are required for SARS-CoV-2 work in the BSL3. Gowns are required for in vivo work, but not in vitro work. Bowen's group using back closing gowns for everything.
    2. BSL2 clinical samples – due to the N95 shortage, individuals working with clinical samples at BSL2 and in a BSC have not been using N95s. However many are asking for them because of high volume/concentration they are working with. Now that N95s are being decontaminated, these individuals can use N95s.
2. **Use of barrier/ filter tips for work in the BSL3**
   There was a discussion whether the use of barrier tips should be a requirement in the BSL3. It is a good idea for protection of the samples, the equipment, and the personnel. Most groups are using them, but one is not citing cost as the reason. The IBC voted and approved making the use of barrier tips a requirement in the BSL3.
3. **Letter to VPR with concerns regarding SARS-CoV-2 research and resources**
   A draft letter was presented to the IBC for review. The letter identifies concerns raised regarding the large number of research projects involving SARS-CoV-2 which has put strains on resources such as PPE, lab space, and personnel. The IBC discussed that and its intent and supported sending it the VPR. The committee members will send their edits/comments to the IBC Coordinator by Monday, and the updated letter will be sent to the VPR.

VII. Reports

1. **Coordinator's report.**

1. **Open records request(s) –**
    1. Jessica Blake/Allison Young – NIH Incident Reports (2015-June 2020) – these have been sent
    2. Prickly Research (Ed Hammond) – IBC Minutes (July 2019-July 2020) – these are being prepared
2. **Next IBC meeting:** Wednesday, August 12, 2020
3. **Save the Date** – 2020 Biosafety and Biosecurity Fair – October 20, 2020 – this will be an online event

2. **Biosafety Officer's report.**
    a. **Incident reports –** There was a report of loose mouse found in [redacted] It was confirmed to be a wild mouse and all research mice were accounted for.
    b. Inspections
    c. Laboratory audit reports

VIII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. **Tjalkens, Ronald**
    Agent: Adeno-associated virus (AAV) – Strain: any; BSL1
    Project: Stereotactic injection of adeno-associated virus (20-080B); BSL1 in vitro and in vivo in mice and chickens. NIH Guidelines category non-exempt rDNA: III-D-4
2. **Duval, Dawn**
    Project: Development of a comparative oncology functional genomics screening platform using a CRISPR-Cas9 library to identify critical dependencies and mechanisms of treatment resistance in canine cancers (20-081B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA: III-D-3
3. **Bowen, Richard**
    Project: COVID vaccine testing (20-083B); BSL3 in vitro and in vivo in hamsters and ferrets. NIH Guidelines category non-exempt rDNA: III-D-2
4. **Fahrner, Scott**
    Project: RESTARtT Colorado: Rational Effective Surveillance Testing Accelerating Return to Tasks (20-084B); Human Samples. NIH Guidelines category non-exempt rDNA: N/A
5. **Goodrich, Raymond**
    Agent: SARS-CoV-2 – Strain: USA-WA 1/2020; BSL3
    Project: COVID-19: Vaccine Development for COVID-19 Using SolaVAX (20-086B); BSL3 in vitro. NIH Guidelines category non-exempt rDNA: N/A
6. **Nishimura, Erin**
    Project: Mechanisms and dynamics of gene expression during cellular differentiation and development (20-068B); BSL1 in vitro. NIH Guidelines category non-exempt rDNA: III-D-4
    Project: Deciphering the molecular hallmarks of cellular differentiation in animal and cancer models (20-069B); BSL1. NIH Guidelines category non-exempt rDNA: III-D-4

IX. Amended Project or Agent approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

X. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

XI. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

1. **VandeWoude, Sue**
   Project: Impacts of antiretroviral therapy on oral cavity homeostasis in an FIV animal model (20-085B); BSL2 in vitro and in vivo in cats. NIH Guidelines category non-exempt rDNA: N/A
2. **Funk, W.**
   Agent: Batrachochytrium dendrobatidis (Bd; aka – Strain: any; BSL1
   Project: Understanding intraspecific variation in boreal toad response to amphibian chytrid fungus (20-079B); BSL1 in vivo in toads. NIH Guidelines category non-exempt rDNA: N/A
3. **Pearce, Stephen**
   Project: Wheat Streak Mosaic Virus Resistance in wheat (20-053B); BSL1 in vivo in Brachypodium distachyon and Trit. NIH Guidelines category non-exempt rDNA: N/A
4. **Bowen, Richard**
   Project: Three year duration of immunity to rabies in dogs and cats (20-091B); BSL2 in vitro and in vivo in dogs and cats. NIH Guidelines category non-exempt rDNA: N/A

Meeting adjourned: 2:08 PM
Minutes recorded by C.Johnson

APPROVED MINUTES
Institutional Biosafety Committee
Microsoft Teams – REMOTE
August 12, 2020

Check if Attending (Members):	**Check if Attending (Alternate Members):**
☒ Jessica Ayers, Animal expert	☐ Lon Kendall, Director LAR
☒ Donald Bade, Unaffiliated	☒ Heather Blair, Interim Biosafety Director*
☐ Richard Bowen, Associate Chair	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large*
☒ Chaoping Chen, Chair	
☒ Jason Cummings, lab rep	*non-voting at this meeting
☒ Angelo Izzo, Mycobacteria Immunology	
☒ Nicole Marlenee, Assistant Biosafety Officer	
☒ June Medford, Plant/syn bio expert	
☒ Edwin Neas, Unaffiliated	
☒ Ken Olson, Virology	
☐ Stephen Pearce, Plant expert	
☐ Ann Powers, Virology	
☐ Bernard Rollin, Bioethicist	
Non-Voting Members:	
☒ James Graham, EHS Director	
RICRO Staff (non-voting):	**Regular Guests (non-voting):**
☒ Karen Dobos, RICRO Director	☒ Sara Cope, Assistant Biosafety Officer
☐ Christa Johnson, Associate VP for Research	☒ Joanie Ryan, Biosafety Office Intern
☒ Angie Chromiak, Admin Staff	☒ Joni Van Sickle, Occupational Health Coord.
☒ Adrianna Burney, IBC Intern	
Other:	

This meeting was convened at 12:03PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted item.

I. Review of July 29, 2020 IBC meeting minutes.
The minutes are not yet available for review.

II. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco)**.**

1. **Mehaffy, Martha**

Agent: Non-Tuberculous Mycobacteria – Strain: Isolated from environment; BSL2

The committee unanimously approved of the agent project with the following modifications:
The IBC requests a chemical disinfectant be added to the methods of inactivation.

Project: Isolation of Non-Tuberculous Mycobacteria from soil and water (20-103B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the above project with the following modifications:

The IBC requested that a statement be added regarding how/when the students will receive biosafety training.

This PARF is for work that will be done in a class. The PI has been in contact with biosafety, the biosafety office will be teaching biosafety in the first week of class. There was discussion regarding the possibility of isolating an Mtb type agent; it was determined to be highly unlikely.

2. **Gutierrez-Rodriguez, Eduardo**

Agent: Shigella sonnei – Strain: any; BSL2
Agent: Shigella flexneri – Strain: any; BSL2
Agent: Pseudomonas fluorescens – Strain: any; BSL2
Agent: Escherichia coli 0145 – Strain: any; BSL2
Agent: Shigella dysenteriae type 1 – Strain: any; BSL2
Agent: Citrobacter freundii – Strain: any; BSL2
Agent: Citrobacter youngae – Strain: any; BSL1
Agent: Shigatoxin Producing Escherichia coli – Strain: any; BSL2
Agent: Staphylococcus aureus – Strain: any; BSL2
Agent: Clostridium perfringens – Strain: any; BSL2
Agent: Clostridium botulinum – Strain: any; BSL2
Agent: Escherichia coli 0121 – Strain: any; BSL2
Agent: Escherichia coli 0111 – Strain: any; BSL2
Agent: Listeria innocua – Strain: any; BSL1
Agent: Listeria monocytogenes – Strain: any; BSL2
Agent: Salmonella enterica – Strain: any; BSL2
Agent: Salmonella Typhi – Strain: any; BSL2
Agent: Avirulent Samonella enterica – Strain: any; BSL2
Agent: Escherichia coli – Strain: any; BSL2
Agent: Avirulent E. coli O157:H7 – Strain: any; BSL2
Agent: Escherichia coli O157:H7 – Strain: any; BSL2
Agent: Escherichia coli 026 – Strain: any; BSL2
Agent: Escherichia coli 045 – Strain: any; BSL2
Agent: Escherichia coli 0103 – Strain: any; BSL2

The committee unanimously approved of the above agents with the following modifications:

1. The IBC requests the specific room number be added to storage location.
2. Please provide the specific type of sanitizer used and the concentration for each.
3. The IBC requests autoclave be added as a method of inactivation.

Project: Microbiel Ecology of Human Pathogens on Horticulture and Food Processing Environments (20-106B); BSL2 in vitro and BSL2 in vivo soil, hort crops, water, compost. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the above project with the following modifications:

1. The IBC asks for the addition of the room number for the work location.

2. The IBC requests that the [redacted] be removed from the location of work until the appropriate spaces have been identified. Once the specific location of the [redacted] have been identified, an amendment will need to be submitted to add these locations.
3. Alternatively, all information regarding the [redacted] work could be removed from the PARF, and a second PARF could be submitted when the [redacted] work is ready to begin.

This PI is new to CSU and very experienced. Biosafety will be meeting with him to review the proposed work and lab space. He has had a difficult time finding the appropriate greenhouse space, because he works with BSL2 agents which has not been previously done in the greenhouse and there is concern this work could impact others.

3. **Chung, Jean**

Agent: E. coli – Strain: Any; BSL1

The committee unanimously approved of the above agent with the following modifications:

1. Since there are many BSL2 strains of E. coli, the IBC requests that the strains be specified instead of listing "any" strain.
2. The IBC requests the building and room number for agent storage location.
3. The IBC requests the concentration (or percentage) of bleach used for inactivation.

Project: Reconstitution of pore-forming membrane proteins (20-104B); BSL1 in vitro. NIH Guidelines category non-exempt rDNA: III-D-2

The committee unanimously approved of the above project with the following modifications:

1. 20% bleach is indicated for surface decontamination, however 10% is typically used. The requests confirmation which is correct.
2. All individuals listed need to register with the Online IBC Database, fill out a Statement of Experience, and complete the IBC at CSU online training.
3. All Investigators listed on the PARF need to complete the BSL1/BSL2 Online training.
4. The IBC requests a biosafety lab audit be conducted for the lab space.

4. **Aspelund, Amy (Vivaldi Biosciences)**

Agent: Influenza vaccine strain expressing SARS-CoV-2 antigens – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

Under Methods of Inactivation, please provide the concentration of Coverage Plus used (unless this is a ready to use product).

Project: Influenza/SARS-CoV-2 LAIV vaccine (20-105B); BSL2 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: III-D-7

The committee unanimously approved of the above project with the following modifications:

1. Since the lab will not be conducting animal studies, the IBC requests that the in vivo be removed under the list of infectious agents.

2. The IBC requests that the specific Influenza and SARS-CoV-2 antigens being expressed be specified.
3. All individuals listed need to register with the Online IBC Database, fill out a Statement of Experience, and complete the IBC at CSU online training.
4. All individuals listed need to completed BSL1/BSL2 training.

5. **Peccoud, Jean**

Agent: Bovine coronavirus – Strain: BOVILIS modified live coronavirus; BSL1

The committee unanimously approved of the above project with the following modifications:

The IBC requests a chemical disinfectant and the concentration be added for inactivation.

This agent will be used as a positive control.

6. **Gentry-Weeks, Claudia**

Project:COVID diagnostic assay (20-108B); BSL1 in vitro

The committee unanimously approved of the above project with the following modifications:

1. All individuals listed need to register with the Online IBC Database, fill out a Statement of Experience, and complete the IBC at CSU online training.
2. As per current public health recommendations, a cloth face mask should also be added to the list of PPE.

III. Review of Coronavirus Agent and Project Request Forms reviewed/approved by Biosafety Officer

1. **VandeWoude, Sue**

APPROVED Agent: SARS-CoV2 – Strain: inactivated serum, cDNA, or human serum for testing; BSL2

The IBC had no further comments or questions.

IV. Amendments to be reviewed by full committee

1. **Peccoud, Jean**

Project: Automated Prioritization and Design of Experiments to Validate and Improve Mathematical Models of Molecular Regulatory Systems (19-116B); BSL1 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: III-E-1

Amendment request to add use of CRISPR/Cas9 system from S. pyogenes to make single and combinatorial mutants

The committee unanimously approved of the above amendment request without modification.

V. Unfinished business

1. **Wilusz, Carol – Approved contingent on BSO watching first sample collection**

APPROVED Project: Extraction of RNA from wastewater for SARS-CoV-2 quantification (20-067B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA: N/A

Amendment request: We wish to expand the project to include collection of wastewater from sites on campus using the following procedure.
The first sample collection is scheduled for tomorrow, Thursday, August 13. Members from the Biosafety Office will be there to watch.

2. **Nalam, Vamsi – TABLED from July meeting – no additional information**
   Agent: Potato Virus Y – Strain: any; BSL1
   Agent: Potato Mop-top virus – Strain: any; BSL1
   Agent: Tobacco rattle virus – Strain: any; BSL1
   Project: Development of molecular tools to study movement of Potato virus Y in susceptible and resistant varieties (20-093B); BSL1P in vitro and in vivo. NIH Guidelines category non-exempt rDNA: III-E-1
3. **Mayo, Christie – TABLED from July meeting – no additional information**
   Agent: Epizootic hemorrhagic disease virus – Strain: US prototype strains and multiple US field strains; BSL2
4. **Letter to VPR with concerns regarding SARS-CoV-2 research and resources**
   Thank you everyone for submitting your comments. Everyone agreed that it is important to communicate these concerns. The letter will be sent later today.

VI. New Business

1. **CSU included among top universities solving coronavirus pandemic** (https://successfulstudent.org/best-universities-solving-coronavirus-pandemic/)

VII. Reports

1. **Coordinator's report.**
   a. **Open records request(s) –**
      1. Jessica Blake/Allison Young – NIH Incident Reports (2015-June 2020) – these have been sent
      2. Prickly Research (Ed Hammond) – IBC Minutes (July 2019-July 2020) – these have been prepared and sent to OGC for review before sending.
   b. **Next IBC meeting:** Wednesday, September 9, 2020
   c. **2020 National Biosafety and Biosecurity Month**
      1. Poster Contest announcement
      2. 2020 Virtual Biosafety and Biosecurity Fair – October 20, 2020 – forming a planning committee

2. **Biosafety Officer's report.**
   a. **Incident reports**
   b. **Inspections**
   c. **Laboratory audit reports**

VIII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. **Peccoud, Jean**
   Agent: SARS-CoV-2 – Strain: any; BSL2

Project: Pooled saliva COVID-19 testing at CSU (20-087B); Human Samples, BSL2. NIH Guidelines category non-exempt rDNA: N/A

2. **Jackson, Mary**
   Project: Assembly and export of mycobacterial lipoglycans (20-089B); BSL3 in vitro. NIH Guidelines category non-exempt rDNA: III-D-1
3. **Bowen, Richard**
   Project: Protective Function of GreFlueVie Influenza Vaccine in Ferrets. (20-092B); BSL3 in vitro and in vivo in ferrets. NIH Guidelines category non-exempt rDNA: III-D-2 and III-D-4
   Project: Ecology and Transmission of Burkholderia pseudomallei in Fish Tanks (20-095B); BSL3 in vitro and BSL3 in vivo in fish. NIH Guidelines category non-exempt rDNA: N/A
4. **Dean, Gregg**
   Agent: Mycobacterium bovis BCG– Strain: any; BSL2
   Project: Recombinant BCG as a vaccine against SARS-CoV-2 (20-097B); BSL2 in vitro and in vivo in dogs. NIH Guidelines category non-exempt rDNA: III-D-2
5. **Wiese, Claudia**
   Agent: Third-generation lentiviral packaging vectors (Dull et al., 1998) – Strain: any; BSL2
   Project: Production of replication-incompetent lentivirus particles (20-098B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA: III-E-1
6. **Moreno, Julie**
   Agent: HSV1 – Strain: MacIntyre; BSL2
   Project: Misfolded neurotoxic proteins in HSV1 induced Alzheimer's disease (20-101B); BSL2 in vitro and in vivo in mice. NIH Guidelines category non-exempt rDNA: N/A

IX. Amended Project or Agent approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

X. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

XI. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

1. **Bowen, Richard**
   Project: Safety and Efficacy of a Live Attenuated Influenza Vaccine (BHCT) (20-102B); BSL2 in vitro and BSL3 in vivo in ferrets. NIH Guidelines category non-exempt rDNA: N/A

Meeting adjourned at 1:07pm
Minutes recorded by C. Johnson

APPROVED MINUTES
Institutional Biosafety Committee
Microsoft Teams – REMOTE
September 9, 2020

Check if Attending (Members):	Check if Attending (Alternate Members):
☒ Jessica Ayers, Animal expert	☐ Lon Kendall, Director LAR
☒ Donald Bade, Unaffiliated	☒ Heather Blair, Interim Biosafety Director*
☒ Richard Bowen, Associate Chair	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large*
☒ Chaoping Chen, Chair	
☒ Jason Cummings, lab rep	*non-voting at this meeting
☒ Angelo Izzo, Mycobacteria Immunology	
☒ Nicole Marlenee, Assistant Biosafety Officer	
☒ June Medford, Plant/syn bio expert	
☐ Edwin Neas, Unaffiliated	
☒ Ken Olson, Virology	
☒ Stephen Pearce, Plant expert	
☐ Ann Powers, Virology	
☒ Bernard Rollin, Bioethicist	
Non-Voting Members:	
☒ James Graham, EHS Director	
RICRO Staff (non-voting):	Regular Guests (non-voting):
☒ Karen Dobos, RICRO Director	☒ Sara Cope, Assistant Biosafety Officer
☐ Christa Johnson, Associate VP for Research	☒ Joanie Ryan, Biosafety Office Intern
☒ Angie Chromiak, Admin Staff	☒ Joni Van Sickle, Occupational Health Coord.
☒ Adrianna Burney, IBC Intern	
Other:	

This meeting was convened at 12:03PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted item.

I. New member introductions
New committee members, Jason Cummings and Stephen Pearce introduced themselves. The rest of the IBC members introduced themselves and welcomed the new members.

II. Review of July 29 and August 12, 2020 IBC meeting minutes.
The minutes are not yet available for review.

III. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco).

1. **Moreno, Julie**
   Agent: Mycobacterium tuberculosis – Strain: any; BSL3

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests a chemical disinfectant be added as a method of inactivation.
2. The IBC requests that the PI update her Statement of Experience in the IBC Database to include applicable BSL3 training.

Project: Neurotoxicity mechanisms of TB meningitis (20-111B); BSL3 in vitro and BSL3 in vivo in guinea pigs. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the above project with the following modifications:

1. The IBC requests clarification whether this is an independent project under Dr. Moreno or if Dr. Moreno is working as co-PI with another investigator.
2. The IBC requests that the PI update her Statement of Experience in the IBC Database to include applicable BSL3 training.
3. All individuals listed need to register with the Online IBC Database, fill out a Statement of Experience, and complete the IBC at CSU online training.

2. **Geiss, Brian**

Project: Construction of a SARS-CoV-2 Infectious Clone System (20-114B); BSL1 and BSL3 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: III-E-1

The committee unanimously approved of the above project with the following modifications:

1. The IBC requests clarification regarding what work will be done at BSL1, BSL2, and BSL3. And if/when will virus be brought from BSL3 to lower containment.
2. If virus is being moved to a lower containment level, the IBC requests the PI provide evidence/documentation confirming the validity of the inactivation procedures. Alternatively, the PI could consider conducting all aspects of the experiment at BSL3.
3. The IBC appreciates the comments regarding DURC and requests that if any mutant viruses are identified having increased virulence/pathogenicity be immediately reported to the IBC.

3. **Roberts, Robyn**

Agent: Escherichia coli – Strain: any engineered strain for expression, e.g. Top Ten, BL21; BSL1
Agent: Agrobacterium tumefaciens – Strain: any; BSL1
Agent: Triticum mosaic virus– Strain: any; BSL1
Agent: Wheat streak mosaic virus– Strain: any; BSL1
Agent: Clavibacter michiganensis subsp. michiganensis– Strain: any; BSL1
Agent: Xanthomonas campestris pv. vesicatoria– Strain: any; BSL1
Agent: Pseudomonas syringae pv. Tomato– Strain: any; BSL1
Agent: Tobacco mosaic virus– Strain: any; Virus induced gene silencing plasmids; BSL1
Project: Multiple disease resistance against bacterial pathogens in tomato (20-119B); BSL1 in vitro and BSL1 in tomato, rDNA. NIH Guidelines category non-exempt rDNA: III-E-2

The committee unanimously tabled the above agents and project pending additional information:

The IBC requests that the PI meet with the IBC plant members to review the information.

4. **Wyckoff, John**

Project: Preparation of SARS-CoV-2 Challenge Material (20-116B); BSL3 in vitro. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the above project with the following modifications:

1. The IBC requests a statement be added regarding the end goal of the project.
2. The IBC requests confirmation that this project has been reviewed by the Bioethics Advisory Committee.
3. Under work locations, the lab listed is currently set up for BSL2 and will need to be transitioned to BSL3.

This material will be used for testing of SARS-CoV-2 vaccines. This is a highly experienced lab.

5. **Dobos, Karen**
   Agent: SARS-CoV-2 – Strain: any; BSL3

The committee unanimously approved of the above project with the following modifications:
The IBC requests the stain be changed from ANY to clinical samples.

Project: COVID-19 sample processing (20-117B); BSL3 in vitro and human samples. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the above project with the following modifications:
All individuals listed need to register with the Online IBC Database, provide a Statement of Experience working with biohazardous agents, and complete the IBC at CSU online training.

6. **Clay, Colin**
   Project: Acquisition and Breeding of Transgenic Sheep (20-120B); rDNA. NIH Guidelines category non-exempt rDNA: III-D-4

The committee unanimously approved of the above project without changes.

IV. Review of Coronavirus Agent and Project Request Forms reviewed/approved by Biosafety Officer

1. **Wilusz, Carol**
   Agent: Bovine Coronavirus – Strain: Live vaccine (Bovilis - Merck); BSL2
2. **Bowen, Richard**
   Project: Airborne transmission of SARS-CoV-2 in hamsters (20-112B); BSL3 in vitro and BSL3 in vivo in hamsters. NIH Guidelines category non-exempt rDNA: N/A
3. **Zabel, Mark**
   Project: Multiplex Paired Pool PCR Saliva Testing for SARS-CoV2 (20-113B); BSL2 in vitro; Human samples. NIH Guidelines category non-exempt rDNA: N/A

V. Amendments to be reviewed by full committee

None

VI. Unfinished business

1. **Nalam, Vamsi – TABLED from July meeting (see updated submissions)**
   Agent: Potato Virus Y – Strain: any; BSL1
   Agent: Potato Mop-top virus – Strain: any; BSL1
   Agent: Tobacco rattle virus – Strain: any; BSL1

The committee unanimously approved of the above agents with the following modifications:
Under Methods of Inactivation, IBC recommends changing 90% EtOH to 70% EtOH, as 70% is more commonly used.

Project: Development of molecular tools to study movement of Potato virus Y in susceptible and resistant varieties (20-093B); BSL1P in vitro and in vivo. NIH Guidelines category non-exempt rDNA: III-E-1

The committee unanimously approved of the above project with the following modifications:

1. Under in vitro and in vivo PPE, an N95 mask is indicated as being used. Confirm if this is correct.

2. The IBC requests that the PI meet with a Biosafety Officer and IBC members to review the project and containment procedures.
3. If the lab has not had a biosafety lab audit within the last three years, a lab audit will need to be conducted.

2. **Mayo, Christie – TABLED from July meeting (PARF now submitted)**

Agent: Epizootic hemorrhagic disease virus – Strain: US prototype strains and multiple US field strains; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. In the agent description, the PI should include the genus and family of EHDV, as well as the mode of transmission.
2. Under storage location, the specific room number should be added
3. Under inactivation, is "medical waste stream" the tissue digester?

Project: Cross-scale dynamics of multi-host vector-borne pathogens at the wildlife-domestic interface in ruminant communities (20-122B); BSL2 in vitro and BSL2 in vivo in sheep, cattle, muntjac, white taile. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the above project with the following modifications:

1. The IBC requests that PI add any specific biosafety training completed to her experience to the statement.
2. The IBC requests clarification on the statement: we are taking precautions when working with muntjac so that we don't introduce pathogens.
3. Confirm that dedicated cloth masks will be used in the BSL2 lab only.
4. Are there any concerns over how midges are being contained? Are the midges being transferred between buildings out where we have deer outside?
5. Besides the PI, no other investigators are listed. Any additional personnel should be added to the PARF.

3. **Letter to VPR with concerns regarding SARS-CoV-2 research and resources**

Ellen Fisher initiated a meeting to discuss the concerns raised by the IBC in the letter. Some potential solutions/action items were identified and would require additional manpower. It was acknowledged that there is a need for communication and data management improvements, and that space is an issue. The letter is being taken seriously.

VII. New Business

1. **Biosafety Lab Audits**
   - **a.** What to do for PIs not responding
   - **b.** Formalize the policy for “new” PI lab audits
   - **c.** Adding lab audit dates to PARF or PI profile

The BSL1/BSL2 Lab Audit policy was put into place in 2017, some PIs are not responding to the request for a lab audit or submitting their annual self-audit forms. The Biosafety Office is seeking guidance on what to do in these cases. It has also been requested to add language to the document indicating that “new PIs cannot start work until the lab has been audited”. The meeting is running long on time, so the IBC was asked to think about these items for discussion next month.

2. **Inactivation procedures**

Not discussed

3. **BSO Reviews**
   Not discussed

VIII. Reports

1. **Coordinator's report.**
   a. **Open records request(s) –**
      1. Jessica Blake/Allison Young – NIH Incident Reports (2015-June 2020)
      2. Prickly Research (Ed Hammond) – IBC Minutes (July 2019-July 2020)
   b. **Next IBC meeting:** Wednesday, October 14, 2020
   c. **2020 October National Biosafety and Biosecurity Month**
      1. Poster Contest – deadline September 18, 2020
      2. 2020 Virtual Biosafety and Biosecurity Fair – October 21, 2020 – save the date

2. **Biosafety Officer's report.**
   a. **Incident reports –** exposure concern/near miss – an individual was in the degown room when someone else entered from the BSL3 side wearing an N95. An email was sent to the group to remind them of procedures. No further action required.
   b. **Inspections**
   c. **Laboratory audit reports**

IX. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. **Mehaffy, Martha**
   Agent: Non-Tuberculous Mycobacteria – Strain: Isolated from environment; BSL2
   Project: Isolation of Non-Tuberculous Mycobacteria from soil and water (20-103B); BSL2 in vitro.
2. **Gutierrez-Rodriguez, Eduardo**
   Agent: Shigella sonnei – Strain: any; BSL2
   Agent: Shigella flexneri – Strain: any; BSL2
   Agent: Pseudomonas fluorescens – Strain: any; BSL2
   Agent: Escherichia coli 0145 – Strain: any; BSL2
   Agent: Shigella dysenteriae type 1 – Strain: any; BSL2
   Agent: Citrobacter freundii – Strain: any; BSL2
   Agent: Citrobacter youngae – Strain: any; BSL1
   Agent: Shigatoxin Producing Escherichia coli – Strain: any; BSL2
   Agent: Staphylococcus aureus – Strain: any; BSL2
   Agent: Clostridium perfringens – Strain: any; BSL2
   Agent: Clostridium botulinum – Strain: any; BSL2
   Agent: Escherichia coli 0121 – Strain: any; BSL2
   Agent: Escherichia coli 0111 – Strain: any; BSL2
   Agent: Listeria innocua – Strain: any; BSL1
   Agent: Listeria monocytogenes – Strain: any; BSL2
   Agent: Salmonella enterica – Strain: any; BSL2
   Agent: Salmonella Typhi – Strain: any; BSL2
   Agent: Avirulent Samonella enterica – Strain: any; BSL2
   Agent: Escherichia coli – Strain: any; BSL2
   Agent: Avirulent E. coli O157:H7 – Strain: any; BSL2
   Agent: Escherichia coli O157:H7 – Strain: any; BSL2
   Agent: Escherichia coli 026 – Strain: any; BSL2
   Agent: Escherichia coli 045 – Strain: any; BSL2

Agent: Escherichia coli 0103 – Strain: any; BSL2

3. **Aspelund, Amy (Vivaldi Biosciences)**
   Agent: Influenza vaccine strain expressing SARS-CoV-2 antigens – Strain: any; BSL2
   Project: Influenza/SARS-CoV-2 LAIV vaccine (20-105B); BSL2 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: III-D-7
4. **Gentry-Weeks, Claudia**
   Project: COVID diagnostic assay (20-108B); BSL1 in vitro

X. Amended Project or Agent approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

XI. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

XII. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

1. **Gonzalez Juarrero, Mercedes**
   Project: Development of a Novel MmpL3 Inhibitor to Treat Mycobacterial Infections in Cystic Fibrosis Patients (20-110B); BSL2 in vitro and BSL2 in vivo in mice. NIH Guidelines category non-exempt rDNA: N/A

Meeting adjourned at 1:49pm
Minutes recorded by CM Johnson

APPROVED MINITUES
Institutional Biosafety Committee
Microsoft Teams – REMOTE
Wednesday, October 14, 2020

Check if Attending (Members):	Check if Attending (Alternate Members):
☒ Jessica Ayers, Animal expert	☐ Lon Kendall, Director LAR
☒ Donald Bade, Unaffiliated	☒ Heather Blair, Interim Biosafety Director*
☐ Richard Bowen, Associate Chair	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large*
☒ Chaoping Chen, Chair	
☒ Jason Cummings, lab rep	*non-voting at this meeting
☒ Angelo Izzo, Mycobacteria Immunology	
☒ Nicole Marlenee, Assistant Biosafety Officer	
☒ June Medford, Plant/syn bio expert	
☒ Edwin Neas, Unaffiliated	
☒ Ken Olson, Virology	
☒ Stephen Pearce, Plant expert	
☒ Ann Powers, Virology	
☐ Bernard Rollin, Bioethicist	
Non-Voting Members:	
☒ James Graham, EHS Director	
RICRO Staff (non-voting):	Regular Guests (non-voting):
☒ Karen Dobos, RICRO Director	☒ Rebecca Moritz, Biosafety Office Director
☐ Christa Johnson, Associate VP for Research	☒ Sara Cope, Assistant Biosafety Officer
☒ Angie Chromiak, Admin Staff	☒ Joanie Ryan, Biosafety Office Intern
☒ Adrianna Burney, IBC Intern	☒ Joni Van Sickle, Occupational Health Coord.
Other:	

This meeting was convened at 12:02PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted item.

I. Introducing the new Biosafety Office Director, Rebecca Moritz

Rebecca comes to CSU from the University of Wisconsin-Madison where she was the Responsible Official for their Select Agent Program as well as chair of their DURC subcommittee. She also served as the ICDUR and was a lead member of the UW-Madison Biosecurity Task Force. Rebecca started as the CSU Biosafety Director on Sept 14th. The IBC members introduced themselves and welcomed Rebecca to CSU.

II. Review of July 29, 2020 IBC meeting minutes.

The committee unanimously approved the minutes with minor modifications.

III. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco).

1. **Sloan, Daniel B**
   Project: Modification of Arabidopsis organelle DNA polymerase fidelity (20-124B); BSL 1 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: III-E-2

The committee unanimously approved of the above project with the following modifications:

1. The IBC requests clarification regarding whether this work use nuclear encoded polymerases.
2. The IBC requests that all personnel are registered with the Online IBC Database, provide a statement of experience, and complete the IBC at CSU online training.

This work is pretty straightforward. Access to the labs is key coded; everything stays in the building either in growth chambers or growth rooms.

2. **Ordway, Diane**
   Agent: M. ulcernas – Strain: Any; BSL 2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests that 'pathogenic to animals' be changed from NO to YES.
2. The IBC requests that a chemical disinfectant and its concentration be added to the methods of inactivation.

3. **Kendall, Lon**
   Project: Human pluripotent stem cells (PSC) (20-125B); BSL 2 in vitro, Human origin-material rDNA. NIH Guidelines category non-exempt rDNA: III-E-1

The committee unanimously approved of the above project with the following modifications:

It is not required to use a biosafety cabinet for the injections of human cells. The IBC recommends changing the language to indicate that injections may be done in the biosafety or outside the biosafety using standard surgical PPE.

4. **Roberts, Robyn– TABLED from September meeting (see updated submissions)**
   Agent: Escherichia coli – Strain: Top Ten, DH5alpha, BL21, Stellar, DB3.1; BSL1
   Agent: Agrobacterium tumefaciens – Strain: GV3101, GV2260, 1D1249, LBA4404, AGL1; BSL1
   Agent: Clavibacter michiganensis subsp. michiganensis– Strain: 0317, 0763, 0748; BSL1
   Agent: Pseudomonas syringae pv. Tomato– Strain: DC3000, T1, NY-T1, NY15125, JL1065; BSL1, plasmids; BSL1
   Agent: Xanthomonas euvesicatoria– Strain: Virus 85-10, 93-1, 16155; BSL1

The committee unanimously approved of the above agents with the following modifications:

Please provide the concentration of bleach used as a Method of Inactivation.

Agent: Triticum mosaic virus– Strain: Field isolates from KS, NE, CO, OK, SD, ND, WY, MT, WA; BSL1
Agent: Wheat streak mosaic virus– Strain: Field isolates from KS, NE, CO, OK, SD, ND, WY, MT, WA; BSL1
Agent: Barley stripe mosaic virus– Strain: Virus induced gene silencing plasmids; BSL1
Agent: Tobacco rattle virus– Strain: Virus induced gene silencing plasmids; BSL1
Agent: Xanthomonas perforans– Strain: race T4; BSL1

The committee unanimously approved of the above agents without changes.

Project: Multiple disease resistance against bacterial pathogens in tomato (20-119B); BSL1 in vitro and BSL1 in tomato, rDNA. NIH Guidelines category non-exempt rDNA: III-E-2

The committee unanimously approved of the above project with the following modifications:

1. The IBC requests information regarding the specific locations within the [redacted] be added to the PARF.
2. Once the location in the [redacted] is determined, the IBC requests the PI set up a Biosafety Outreach Visit to review containment procedures.

Project: Investigating the molecular mechanisms of viral resistance and susceptibility in wheat (20-123B); BSL1 in vivo and BSL1 in vivo in wheat, rDNA. NIH Guidelines category non-exempt rDNA: III-D-3

The committee unanimously approved of the above project with the following modifications:

1. The IBC requests clarification whether the mites will be used to inoculate with the viruses. It is suggested that mechanical inoculation be used.
2. The IBC requests information regarding the specific locations within the [redacted] be added to the PARF.
3. Once the location in the [redacted] is determined, the IBC requests the PI set up a Biosafety Outreach Visit to review containment procedures.

This PI is new to CSU. Dr. Medford has spoken with her; she is very meticulous and wants to do the right thing.

IV. Review of Coronavirus Agent and Project Request Forms reviewed/approved by Biosafety Officer

1. **Bowen, Richard**

   Project: Novel risk factors for severe COVID-19 lung disease (20-126B); BSL3 in vitro and BSL3 in vivo in hamsters. NIH Guidelines category non-exempt rDNA: N/A

V. Amendments to be reviewed by full committee

None

VI. New Business

1. **Changing "Biosafety Lab Audits" to "Biosafety Outreach Visits"**
   The Biosafety Office is working to establish a more collaborative relationship with PIs and plans to change "Biosafety Lab Audits" to "Biosafety Outreach Visits". The Biosafety Office wants to send the message that they are a collaborative resource, here to help research.
2. **Update from BSL3 Advisory Meeting**
   The BSL3 Advisory Committee met to discuss developing two resource documents; one that describes the biosafety level for various diagnostic and research activities at CSU that the IBC has approved; and one that describes the various methods used at CSU to inactivate infectious materials to bring to a lower containment.

VII. Unfinished business

1. **Letter to VPR with concerns regarding SARS-CoV-2 research and resources**
   A list of potential action items/solutions has been drafted as a follow up to the meeting to discuss the letter. This list was provided to IBC members for review.
2. **Biosafety Lab Audits – link to current policy**
   (https://drive.google.com/file/d/0B4czSBPPYW40c21wb2thOFlkU0E/view**)**
   a. What to do for PIs not responding
   This topic was introduced last month, but the committee ran out of time to discuss it. The Biosafety Office is seeking guidance on what to do when PIs do not respond to the

request for a lab audit or do not submit their annual self-audit forms. This is tricky because there are not regulations requiring lab audits for these spaces. One suggestion was that perhaps the IBC Chair could send a letter as she does for training non-compliance.

b. Formalize the policy for "new" PI lab audits

It has also been requested to add language to the document indicating that new PIs cannot start work until the lab has been audited. The IBC agreed this was a good idea and voted to approve adding such language.

c. Adding lab audit dates to PARF or PI profile

There is a suggestion to add the audit date to the PARF and the IBC agreed this would be a good idea. The IBC Coordinator will check with Dr. Bowen to see if/how this can be added.

VIII. Reports

1. Coordinator's report.

a. Next IBC meeting: Wednesday, November 11, 2020

b. 2020 October National Biosafety and Biosecurity Month is here!

1. 2020 Virtual Biosafety and Biosecurity Fair – October 21, 2020 (this week!). The committee was asked to help spread the word and to attend the live sessions if they can.
2. The RAM Safe Pledge is open. The committee was asked to take the pledge and to encourage others to do the same.

2. Biosafety Officer's report.

a. Incident reports

i. Protocol breach – while counting scrubs after autoclaving and a vial of controlled substance fell out of scrub pocket and onto floor- didn't break. The vial was given to biosafety who returned it to the PI. No additional reporting required.

ii. Spill - In BSL2 lab, found spill in incubator and found it to be a micro crack in Fernbauck flask containing a RG 1 organism. Incubator was cleaned and flask discarded. No additional reporting required.

iii. Protocol/ PPE – SARS-CoV-2 being centrifuged in room where people are not being informed of the need for increased PPE (PAPRS required for SARS-CoV-2 work where N95 needed for TB work). Individual notified biosafety and biosafety reminded the researchers of the procedures. No additional reporting required.

iv. Cut – individual was setting up was setting up a mosquito bloodfeed and pressed too hard and one of the glass feeders broke and cut their finger. Individual is following up with Occ Health, no additional reporting required.

v. Protocol breach - Crushed raspberries found in locker room and smeared in BSL3 hallway. Email reminder sent to users. No additional reporting required.

vi. Splash – While transferring a pipet boat from one secondary container to another for autoclaving, the individual got splashed in the eye because the pipet boat was over filled and leaking in original bin. The individual flushed their eye and reported it to Biosafety. The users were reminded to not to overfill pipet boats and safety glasses were provided for both dirty and clean side of autoclave rooms. No additional reporting required.

vii. Hamster bite - Hamster infected with SARS-CoV-2 was waking up from anesthesia and bit the finger of the researcher, biting through the gloves. Biosafety was contacted and the individual is following up with Occ Health. Biosafety made a recommendation for a different type of glove to prevent this in the future, and an incident review meeting is being scheduled. This was not a recombinant strain, thus no additional reporting required.

viii. Biosafety concern – A cooler labeled "COVID samples" was left by micro entrance-causing concerns. The PI was contacted and indicated the cooler was empty. The PI made a sign indicating empty cooler for pick up as well as will only put cooler out on days the cooler will be picked up.

b. Inspections

c. Laboratory audit reports – Biosafety is getting a handle on the BSL1/BSL2 lab audits and trying to figure out the best way to schedule them.

IX. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. **Geiss, Brian**
   Project: Construction of a SARS-CoV-2 Infectious Clone System (20-114B); BSL1 and BSL3 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: III-E-1
2. **Wyckoff, John**
   Project: Preparation of SARS-CoV-2 Challenge Material (20-116B); BSL3 in vitro. NIH Guidelines category non-exempt rDNA: N/A
3. **Dobos, Karen**
   Agent: SARS-CoV-2 – Strain: any; BSL3
   Project: COVID-19 sample processing (20-117B); BSL3 in vitro and human samples. NIH Guidelines category non-exempt rDNA: N/A

X. Amended Project or Agent approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

XI. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

XII. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

1. **Bowen, Richard**
   Project: Development of EIDD-2749 and Supplemental Candidates for Alphavirus Infections (20-121B); BSL 3 in vitro and BSL3 in mice. NIH Guidelines category non-exempt rDNA: N/A
2. **Metcalf, Jessica**
   Project: Determining the bacterial microbiome of Pseudomyxoma peritonei tumor (20-123B); BSL 1 in vitro; Human-origin material. NIH Guidelines category non-exempt rDNA: N/A
3. **Jackson, Mary C.**
   Project: Pilot therapeutic trial for the treatment of multibacillary leprosy with oral bedaquiline (20-127B); BSL2 in vitro, human origin-material. NIH Guidelines category non-exempt rDNA: N/A
4. **Kendall, Lon**
   Project: Bone marrow aspirate concentrate for treatment of osteoarthritis (20-128B); BSL2 in vivo in mice, rats and rabbits; human origin materials. NIH Guidelines category non-exempt rDNA: N/A

Meeting adjourned at 1:40pm
Minutes recorded by CM Johnson

APPROVED MINUTES
Institutional Biosafety Committee
Microsoft Teams – REMOTE
Wednesday, November 11, 2020

Check if Attending (Members):	Check if Attending (Alternate Members):
☒ Jessica Ayers, Animal expert	☒ Lon Kendall, Director LAR
☒ Donald Bade, Unaffiliated	☒ Heather Blair, Associate Biosafety Officer*
☒ Richard Bowen, Associate Chair	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large*
☒ Chaoping Chen, Chair	
☒ Jason Cummings, lab rep	*non-voting at this meeting
☒ Angelo Izzo, Mycobacteria Immunology	
☒ Nicole Marlenee, Assistant Biosafety Officer	
☒ June Medford, Plant/syn bio expert	
☐ Edwin Neas, Unaffiliated	
☒ Ken Olson, Virology	
☒ Stephen Pearce, Plant expert	
☐ Ann Powers, Virology	
☐ Bernard Rollin, Bioethicist	
Non-Voting Members:	
☒ James Graham, EHS Director	
RICRO Staff (non-voting):	Regular Guests (non-voting):
☒ Karen Dobos, RICRO Director	☒ Rebecca Moritz, Biosafety Office Director
☐ Christa Johnson, Associate VP for Research	☒ Sara Cope, Assistant Biosafety Officer
☐ Angie Chromiak, Admin Staff	☒ Joanie Ryan, Biosafety Office Intern
☒ Adrianna Burney, IBC Intern	☒ Joni Van Sickle, Occupational Health Coord.
Other:	

This meeting was convened at 12:05PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted item.

I. Review of August 12, 2020 IBC meeting minutes.

The committee unanimously approved the minutes without changes

II. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco/).

1. **Peccoud, Jean**

   Project: EAGER: DEVELOPMENT OF A TOOL CHAIN TO WRITE AND READ SELF-DOCUMENTING PLASMIDS (20-132B); in vitro BSL1, and rDNA. NIH Guidelines category non-exempt rDNA: III-E-1

The committee unanimously approved of the above project with the following modifications:

1. The IBC requests adding the NIH Guidelines category III-E-1.
2. The IBC requests more information regarding how Escherichia coli will be used in this project.

This project involves software development and then verification with expression vectors.

2. **Geiss, Brian**

Agent: BSL1 agents for diagnostic assay interference testing– Strain: Any; BSL 1

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests that STRAINS be changed from ANY to SEE AGENT DESCRIPTION.
2. The IBC requests the specific strains be added to the Agent Description, as Haemophilus influenza has several pathogenic strains.

Agent: BSL2 Virus agents for diagnostic assay interference testing– Strain: Any; BSL 2

The committee unanimously approved of the above agent with the following modifications:

The requests clarification whether or not influenza vaccine will be required for lab personnel.

Agent: BSL2 Bacterial agents for diagnostic assay interference testing– Strain: Any; BSL 2

The committee unanimously approved of the above project without changes.

The PI consulted with the IBC prior to submitting the above agent requests and it was recommended to group the agents together instead of submitting 24 individual requests. The above agent requests represent 24 different agents from ZeptoMetrix that will be used for interference testing. The agents are provided by the company, ready to use and will not be grown by the PI.

3. **Ebel, Gregory**

Agent: St. Louis Encephalitis virus– Strain: Any; BSL 3

The committee unanimously approved of the above project without changes.

4. **Henry, Charles**

Project: Rapid, Point of Care SARS-CoV-2 Antigen Assay (20-134B); human samples. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the above project with the following modifications:

1. The requests clarification whether this project is done in collaboration with any other PI's or investigators? If so, additional personnel should be added to the list of investigators.
2. For the antigen assay, will samples be inactivated prior to running the assay.
3. Information regarding who (which group) does which part of the project should be added to the Project Overview.
4. All personnel must complete the BSL1/2 and Blood Borne Pathogen online trainings.

5. Personnel should update their Statement of Experience in the IBC database to reflect and infectious disease training.
6. All personnel must register with Online IBC Database, fill out the statement of experience and complete the IBC at CSU online training.

The Biosafety Director has already met with Dr. Henry; the lab has the set up and capability to do the work.

5. **Goodrich, Raymond**
Agent: Influenza A Virus– Strain: A/California/07/2009; BSL 2

The committee unanimously approved of the above project without changes.

This is the 2009 pandemic strain which is commonly used at BSL2 now.

6. **Talmi Frank, Dalit ([redacted] tenant-Zoetis)**
Agent: Influenza A Virus – Strain: IRD:A/Puerto Rico/8/1934; BLS2

The committee unanimously approved of the above agent with the following modifications:
1. Under the Agent Description, the IBC requests information such as its virulence, host range and what type of disease it causes, be added.
2. Human risk group should be changed from 1 to 2.
3. Pathogenic to animals should be changed from NO to YES.
4. The IBC requests a chemical disinfectant (and its concentration) be added to the methods of inactivation.
5. The IBC requests personnel update their personal information in the Online IBC Database as follows: 1) Update title to reflect current position. 2) Change department to [redacted] to reflect location of work. 3) Update experience statement to reflect current experience and identify the company you are working with. If still have affiliation with CSU, state that as well.

This is the classic lab strain.

Agent: streptococcus pneumonia – Strain: Streptococcus pneumoniae serotype 2 (strain D39 / NCTC 7466); BSL2

The committee unanimously approved of the above agent with the following modifications:
1. Human risk group should be changed from 1 to 2.
2. Pathogenic to animals should be changed from NO to YES.
3. The IBC requests a chemical disinfectant (and its concentration) be added to the methods of inactivation.
4. The IBC requests personnel update their personal information in the Online IBC Database as follows: 1) Update title to reflect current position. 2) Change department to [redacted] to reflect location of work. 3) Update experience statement to reflect current experience and identify the company you are working with. If still have affiliation with CSU, state that as well.

Agent: Bovine viral diarrhea virus, BVDV – Strain: BVDV2 strain 96B2222; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. Pathogenic to animals should be changed from NO to YES.
2. The IBC requests a chemical disinfectant (and its concentration) be added to the methods of inactivation.
3. The IBC requests personnel update their personal information in the Online IBC Database as follows: 1) Update title to reflect current position. 2) Change department to [redacted] to reflect location of work. 3) Update experience statement to reflect current experience and identify the company you are working with. If still have affiliation with CSU, state that as well.

III. Review of Coronavirus Agent and Project Request Forms reviewed/approved by Biosafety Officer

None

IV. Amendments to be reviewed by full committee

1. **Boss, Mary-Keara**

Project: Human lung cancer xenograft pilot study in mice (19-030B); human samples. NIH Guidelines category non-exempt rDNA: N/A

Amendment request to add 2 cell lines (A549-luc2 and HeLa) to observe the growth rate and success of these tumors in mice. A549-luc2 is a modified cell line and thus the rDNA section of the PARF was filled out (see attached)

The committee unanimously approved of the above amendment request without changes.

2. **Ebel, Gregory**

Project: Quasispecies dynamics in arbovirus persistence emergence and fitness (11-080B); BSL3 in vitro and BSL3 in vivo in mosquitoes and birds, rDNA. NIH Guidelines category non-exempt rDNA: III-D-2

Amendment request to add St. Louis Encephalitis virus, to this project

The committee unanimously approved of the above amendment request without changes.

V. New Business

1. **Moving into the new Center for Vector-Borne Infectious Diseases (CVID) building**
   Most of the investigators scheduled to move to the new building have moved and most of the lab audits have been performed. There are some issues with the insectary so the mosquitoes move not moved yet. The new space includes a couple of animal rooms for bats.
2. **Re-assessing COVID policy - Prioritization of IBC Approval Requests Involving COVID 19, SARS-CoV-2, and SARS-CoV (**https://www.research.colostate.edu/ricro/wp-content/uploads/sites/22/2020/04/Prioritization-of-COVID-research_final-040820.pdf**)**
   It has been over six months since the COVID prioritization policy was put into place and time to review whether or not it is still necessary. The number and urgency of COVID related PARFs has slowed down. The committee agreed that it was no longer necessary to expedite all of these PARFs and voted to sunset the policy. Review of COVID related research will go back to the standard review process and will only be expedited on an as needed basis.

VI. Unfinished business

1. **Letter to VPR with concerns regarding SARS-CoV-2 research and resources** – update
   There is another follow up meeting with leadership soon.
2. **Biosafety Outreach Visits – (formally Biosafety Lab Audits)**
   (https://drive.google.com/file/d/0B4czSBPPYW40c21wb2thOFlkU0E/view**)**
   a. What to do for PIs not responding

   After some discussion, it was suggested that for PIs who are not responding to a lab audit request that they will receive a friendly letter for the IBC Chair (similar to the one sent for training requirements. The IBC voted and approved this course of action.

VII. Reports

1. **Coordinator's report.**
   a. Open records request – Sainath Suryanarayanan with U.S. Right to Know (USRTK) – IBC meeting minutes from July 2017-July 2020. These have been prepared and sent to OGC to send.
   b. Next IBC meeting: Wednesday, December 9, 2020
   c. 2020 October National Biosafety and Biosecurity Month success!
      1. Biosafety and Biosecurity Fair
         a. Live sessions – 31 attendees
         b. Biosafety Trivia – 8 participants
         c. Biosafety Scavenger Hunt – 8 participants
      2. RAM Safe Pledge – 241 pledges

2. **Biosafety Officer's report.**
   a. Incident reports – Three protocol breaches were reported; none resulted in exposure. Email reminders were sent out to PIs and investigators.
   b. Inspections
   c. **Biosafety Outreach Visit reports –** Biosafety if working on getting through 59 lab visits.

VIII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. **Sloan, Daniel B**
   Project: Modification of Arabidopsis organelle DNA polymerase fidelity (20-124B); BSL 1 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: III-E-2
2. **Ordway, Diane**
   Agent: M. ulcernas – Strain: Any; BSL 2
3. **Kendall, Lon**
   Project: Human pluripotent stem cells (PSC) (20-125B); BSL 2 in vitro, Human origin-material rDNA. NIH Guidelines category non-exempt rDNA: III-E-1
4. **Roberts, Robyn**
   Agent: Escherichia coli – Strain: Top Ten, DH5alpha, BL21, Stellar, DB3.1; BSL1

Agent: Agrobacterium tumefaciens – Strain: GV3101, GV2260, 1D1249, LBA4404, AGL1; BSL1
Agent: Triticum mosaic virus– Strain: Field isolates from KS, NE, CO, OK, SD, ND, WY, MT, WA; BSL1
Agent: Wheat streak mosaic virus– Strain: Field isolates from KS, NE, CO, OK, SD, ND, WY, MT, WA; BSL1
Agent: Clavibacter michiganensis subsp. michiganensis– Strain: 0317, 0763, 0748; BSL1
Agent: Pseudomonas syringae pv. Tomato– Strain: DC3000, T1, NY-T1, NY15125, JL1065; BSL1
plasmids; BSL1
Agent: Barley stripe mosaic virus– Strain: Virus induced gene silencing plasmids; BSL1
Agent: Tobacco rattle virus– Strain: Virus induced gene silencing plasmids; BSL1
Agent: Xanthomonas euvesicatoria– Strain: Virus 85-10, 93-1, 16155; BSL1
Agent: Xanthomonas perforans– Strain: race T4; BSL1

IX. Amended Project or Agent approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

X. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

XI. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

1. **20-130B - Nash, Rose (** [redacted] tenant- GT Molecular) - Detection of SARS-CoV-2 in human wastewater; BSL 2 in vitro; Human samples. NIH Guidelines category non-exempt rDNA: N/A
2. **20-131B - Bowen, Richard -** Immunogenicity of Influenza Virus inactivation methods; BSL 2 in vitro. NIH Guidelines category non-exempt rDNA: N/A

Meeting adjourned at 1:23pm
Minutes recorded by CM Johnson

APPROVED MINTUES
Institutional Biosafety Committee
Microsoft Teams – REMOTE
Wednesday, December 9, 2020

Check if Attending (Members):	Check if Attending (Alternate Members):
☐ Jessica Ayers, Animal expert	☒ Lon Kendall, Director LAR
☒ Donald Bade, Unaffiliated	☒ Heather Blair, Associate Biosafety Officer *
☐ Richard Bowen, Associate Chair	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large*
☒ Chaoping Chen, Chair	
☒ Jason Cummings, lab rep	*non-voting at this meeting
☒ Angelo Izzo, Mycobacteria Immunology	
☒ Nicole Marlenee, Assistant Biosafety Officer	
☒ June Medford, Plant/syn bio expert	
☐ Edwin Neas, Unaffiliated	
☒ Ken Olson, Virology	
☒ Stephen Pearce, Plant expert	
☒ Ann Powers, Virology	
☐ Bernard Rollin, Bioethicist	
Non-Voting Members:	
☐ James Graham, EHS Director	
RICRO Staff (non-voting):	Regular Guests (non-voting):
☒ Karen Dobos, RICRO Director	☒ Rebecca Moritz, Biosafety Office Director
☒ Adrianna Burney, IBC Intern	☒ Sara Cope, Assistant Biosafety Officer
☐ Christa Johnson, Associate VP for Research	☒ Joanie Ryan, Biosafety Office Intern
	☒ Joni Van Sickle, Occupational Health Coord.
Other:	

This meeting was convened at 12:05PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted item.

I. Review of September 9, 2020 and October 14, 2020 IBC meeting minutes.

The committee unanimously approved both sets of meeting minutes without change.

II. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco/).

1. **Schountz, Tony**

Agent: Sosuga virus– Strain: Any; BSL 3

The committee unanimously approved of the above agent with the following modifications:

The IBC requests a chemical disinfectant (and its concentration) be added to the Methods of inactivation for disposal.

Agent: Rabies virus– Strain: Any; BSL 3

The committee unanimously approved of the agent with the following modifications:

1. The IBC requests a chemical disinfectant (and its concentration) be added to the Methods of inactivation for disposal.
2. The human risk group should be changed from 3 to 2.
3. The minimum biosafety should be changed from 3 to 2.

Project: Experimental infection of Jamaican fruit bats with Sosuga virus (20-137B); in vitro BSL3 and in vivo BSL3 in Jamaican fruit bats. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the agent project with the following modifications:

1. It is unclear what in vitro testing will be done; the IBC requests more information regarding what work will be done in vitro.
2. The second statement under Mechanisms in place for containment and disposition of infected animals, is confusing. The IBC suggests changing the wording to: After euthanasia, carcasses will be double bagged and autoclaved prior to disposal.

Project: Rabies virus fusion antigen vaccination of bats (20-138B); in vitro BSL3 and in vivo BSL3 in Jamaican fruit bats. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the agent project with the following modifications:

1. Based on information throughout the PARF it sounds like immunized bats will be challenged with virulent rabies virus, however this is not clearly stated in the Project Overview. The IBC requests a statement or two indicating how the bats will be immunized, how the bats will be challenged, and how viral burden will be determined.
2. The IBC suggests changing the wording in the Statement of Experience for one of the investigators to clarify experience.

3. **Goodrich, Raymond**

Agent: Zika Virus– Strain: PRVABC59; BSL 3

The committee unanimously approved of the above agent as submitted.

This strain is prevalent in the western hemisphere.

Project: Indications Against Highly Pathogenic Agents for Transportable Pathogen Reduction and Blood Safety System for Whole Blood (20-140B); in vitro BSL2. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the project with the following modifications:

1. Under: Briefly elaborate on procedures used to protect personnel…influenza virus is mentioned. This should be changed to Zika virus.
2. Also under: Briefly elaborate on procedures used to protect personnel…the PARFs indicates some testing will occur with assay platforms on the benchtop. Please specify what assays will be performed on the benchtop.

4. **Robertson, Gregory**

Agent: Mycobacterium tuberculosis–Strain: Clinical isolates(including MDR strains);BSL 3

The committee unanimously approved of the agent project with the following modifications:

1. The human risk group should be changed from 2 to 3.
2. The IBC requests the room number for the storage location.

Agent: Mycobacterium aurum – Strain: any; BSL2

The committee unanimously approved of the agent with the following modifications:

The human risk group should be changed from 1 to 2.

5. **Ebel, Gregory**

Agent: Staphylococcus aureus– Strain: Any; BSL 2

The committee unanimously approved of the agent with the following modifications:

1. The human risk group and minimum biosafety level should both be changed from 1 to 2.
2. The IBC requests the room number for the storage location.
3. It is not recommended to autoclave bleach. Bleach can be used if allowed to sit for 24hrs before autoclaving. If this is not the practice, then it should be changed to bleach OR autoclaving. Please clarify.

Agent: Pseudomonas aeruginosa– Strain: Any; BSL 2

The committee unanimously approved of the agent with the following modifications:

1. Please provide the room number for the storage location.
2. It is not recommended to autoclave bleach. Bleach can be used if allowed to sit for 24hrs before autoclaving. If this is not the practice, then it should be changed to bleach OR autoclaving. Please clarify.

Agent: Human Immunodeficiency Virus I– Strain: Any; BSL 2

The committee unanimously approved of the agent with the following modifications:

1. The human risk group and minimum biosafety level should both be changed from 3 to 2.
2. Please provide the room number for the storage location.
3. It is not recommended to autoclave bleach. Bleach can be used if allowed to sit for 24hrs before autoclaving. If this is not the practice, then it should be changed to bleach OR autoclaving. Please clarify.

Project: Vector BioSensor: a novel approach for enhancing biological sample acquisition for biosurveillance efforts (20-141B); in vitro BSL3 and BSL3 in vivo in mosquitoes. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the project with the following modifications:

1. The in vivo work location should be updated.
2. All personnel need to register with the IBC Database, fill out a statement of experience and complete the IBC at CSU online training.

2. **Tjalkens, Ronald, B**

Agent: Western Equine Ecephalitis Virus– Strain: Any; BSL 3

The committee unanimously approved of the agent with the following modifications:

1. The IBC requests the spelling of Ecephalitis be corrected to Encephalitis.
2. The concentration of bleach indicated (0.1%) is too low for inactivation. Please verify that bleach is used and the appropriate concentration. Many labs in this area are using Microchem plus instead of bleach.
3. Please confirm who the collaborator on this project is.

Project: Neuroinvasion of western equine encephalitis virus (20-144B); BSL 3 in vitro and BSL3 in vivo in mice. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the project with the following modifications:

1. Please provide more details in the Project Overview, for example how are the mice infected and what assays are done to identify inflammatory mechanisms in the brain.
2. The PI needs to update his statement of experience in the IBC Database.
3. All personnel need to register with the IBC Database, fill out a statement of experience and complete the IBC at CSU online training.
4. Please confirm who the collaborator on this project is.

3. **Bowen, Richard A.**

Project: Evaluation of WNV vaccine efficacy in horses (Hennessy) (20-142B); in vitro BSL 3 and BSL3 in horses. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved without modifications.

4. **Peers, Graham S**

Agent: Phytophthora sojae– Strain: Any; BSL 1

The committee unanimously approved of the project with the following modifications:

Antibiotic resistance is marked yes. The IBC request clarification whether this is nature resistance or as a result of CRISPR transformation; and a list of the antibiotics that the agent is resistant to.

Project: Studies of Phytophthora sojae metabolism (20-143B); BSL 1 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: III-D-2

The committee unanimously approved of the project with the following modifications:

1. Please provide details of the type of CRISPR Cas9/dCas9 system that will be used and what precautions will be incorporated into construct design to minimize the risks of off-target changes that could increase pathogenicity.

2. Please detail the specific resistance mechanism that will be used for selection, and, if antibiotic, justify its use instead of a potential alternative that would have less risk of resistant strains e.g. BASTA resistance.

6. **Jayanty, Sastry**

Agent: Agrobacterium rhizogenes – Strain: any; BSL1

The committee unanimously approved of the agent with the following modifications:

The IBC requests a chemical disinfectant (and its concentration) be added to the Methods of inactivation for disposal.

Project: Genetics, metabolomics, and culture of Hyoscyamus niger with improved tropane alkaloid profile (20-145B); BSL1 in vitro. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the project with the following modifications:

1. Please clarify whether the Rhizogenes used only to induce root cell cultures, or also for transformation with other DNA constructs?
2. All personnel need to complete the CSU BSL1/BSL2 online training and enroll in the Occupational Health Program.
3. All personnel need to register with the Online IBC Database, fill out a statement of experience and complete the IBC at CSU online training.

7. Talmi Frank, Dalit ([redacted] Tenant-Zoetis)

Agent: Pasturella multodica – Strain: Strain AHDRCC #46572, Serotype 4; BSL2

The committee unanimously approved of the agent with the following modifications:

1. The human risk group should be changed from 3 to 2.
2. The IBC requests the specific room number for storage.
3. The IBC requests that autoclaving be added as method for inactivation prior to disposal.

III. Review of Coronavirus Agent and Project Request Forms reviewed/approved by Biosafety Officer

None

IV. Amendments to be reviewed by full committee

1. **Stenglein, Mark (see attached)**

Project: The impact of the virome on animal health and fitness (19-086B); BSL1 and BSL2 in vivo in Drosophila. NIH Guidelines category non-exempt rDNA: N/A

Amendment request to add "experiments to create a reverse genetics system for insect-infecting partitiviruses." See newly added rDNA section. NIH Guidelines category non-exempt rDNA change to III-D-3.

The committee unanimously approved of the above amendment as submitted.

2. **Bowen, Richard (see attached)**

Project: COVID vaccine testing (20-083B); BSL3 in vitro and BSL3 in vivo in hamsters and ferrets. NIH Guidelines category non-exempt rDNA: III-D-2

Amendment request to add two new projects that involve rDNA:

1. Evaluate a replication-defective influenza B vaccine that expresses the spike protein of SARS-CoV-2. A hamster model will be used. The vaccine will be administered intranasally and there is no evidence that it will replicate in normal mammalian cells (i.e. it is produced in cells engineered to express missing non-structural proteins).
2. Evaluate an adenovirus-26 vectored vaccine that expresses SARS-CoV-2 spike protein. This vector system has been evaluated extensively in mice without evidence of replication. The vaccine will be administered intramuscularly.

The committee unanimously approved of the above amendment as submitted.

3. **Peccoud, Jean (see attached)**

Project: EAGER: DEVELOPMENT OF A TOOL CHAIN TO WRITE AND READ SELF-DOCUMENTING PLASMIDS (20-132B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA change to III-E-1.

Amendment request: I would like to seek approval to use genetic constructs generated by the DNADoc software. I am attaching three genbank files representative of constructs generated by the software. 11DES.gb is the reference mammalian vector expressing mEGFP. 12DES_DNADoc.gb is the same construct with a small synthetic DNA sequence generated by the DNADoc software inserted between the sig-start and sig-end features. Likewise 14DES_DNADoc.gb includes a longer synthetic DNA sequence generated by DNADoc between sig-start and sig-end. The synthetic DNA sequences generated by DNADoc were blasted against GenBank and did not return any match. These sequences will be chemically synthesized by Twist Bioscience who will verify that they do not raise biosafety concerns. This screens is based on the Federal Guidance on synthetic DNA. It involves a 6-frame translation and blast against a database of select agent sequences. The GenBank files of these constructs can be downloaded by following this link https://www.dropbox.com/s/sl4mkt6bwu81cxo/EAGER-Amendment.zip?dl=0

These three constructs are representative of the type of constructs generated by DNADoc. We would like to seek approval to generate and test additional constructs generated and verified in a similar way without the IBC having to review each construct that our project may require use to generate.

The committee unanimously approved of the above amendment with the following stipulation:
For additional constructs to be generated by inserting synthetic DNA sequences, the IBC requests confirmation that Twist Bioscience (or any future company that synthesizing the sequences) will provide certification/documentation that the synthesized sequences do not contain elements derived from select agents or associated with pathogenicity.

V. New Business

1. BSL3 Advisory Committee update

Drafts of the inactivation procedures document and SARS-CoV-2 BSL/PPE document are being reviewed. Developing working groups for individual BSL3 areas is in planning.

2. Discussion regarding lab audit of plant space

There have been new hires in multiple colleges and more plant research activity during the past year, which has put pressure on the available spaces for this research. To help identify the need for additional space, the IBC Coordinator was asked to pull plant research data from the IBC database. The information will be provided to the OVPR.

VI. Unfinished business

1. **Letter to VPR with concerns regarding SARS-CoV-2 research and resources** - update
   a. [redacted] is being looked at as a possibility to recommission for BSL3 work. It had previously been used for high path avian influenza, so would be appropriate for SARS-CoV-2.
   b. Rebecca Moritz is working on a communication plan with regards to the research and media

VII. Reports

1. **Coordinator's report.**
   a. **Next IBC meeting:** Wednesday, January 13, 2021

2. **Biosafety Officer's report.**
   a. **Incident reports**
      i. There was a spill of less 50ml inside the BSC due to pressure in feed line of bag. Proper clean up and reporting were procedures were followed. Considered a near miss.
      ii. Protocol breach/potential spill - found full sharps container with lid closed on its side in the biohazard bag trash bin (biobag open) in one of the anterooms in BSL3 lab. The sharps container was disposed of properly and the area disinfected; Form 3 filed and incident review performed.
      iii. PPE malfunction – A researcher found a hole along seam of Tyvek suit. They were working in the BSC with agent (they were not working with animals). Risk of exposure very low; considered a near miss.
   b. **Inspections**
   c. **Biosafety Outreach Visit reports**

VIII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. **Peccoud, Jean**
   Project:EAGER: DEVELOPMENT OF A TOOL CHAIN TO WRITE AND READ SELF-DOCUMENTING PLASMIDS (20-132B); in vitro BSL1, and rDNA. NIH Guidelines category non-exempt rDNA: III-E-1
2. **Geiss, Brian**
   Agent: BSL1 agents for diagnostic assay interference testing– Strain: Any; BSL 1
   Agent: BSL2 Virus agents for diagnostic assay interference testing– Strain: Any; BSL 2

Agent: BSL2 Bacterial agents for diagnostic assay interference testing– Strain: Any; BSL 2

3. **Henry, Charles**
   Project: Rapid, Point of Care SARS-CoV-2 Antigen Assay (20-134B); human samples. NIH Guidelines category non-exempt rDNA: N/A
4. **Goodrich, Raymond**
   Agent: Influenza A Virus– Strain: A/California/07/2009; BSL 2
6. **Talmi Frank, Dalit (RIC tenant-Zoetis)**
   Agent: Influenza A Virus – Strain: IRD:A/Puerto Rico/8/1934; BLS2
   Agent: streptococcus pneumonia – Strain: Streptococcus pneumoniae serotype 2 (strain D39 / NCTC 7466); BSL2
   Agent: Bovine viral diarrhea virus, BVDV – Strain: BVDV2 strain 96B2222; BSL2
5. **Roberts, Robyn**
   Project: Multiple disease resistance against bacterial pathogens in tomato (20-119B); BSL1 in vitro and BSL1 in tomato, rDNA. NIH Guidelines category non-exempt rDNA: III-E-2
   Project: Investigating the molecular mechanisms of viral resistance and susceptibility in wheat (20-123B); BSL1 in vivo and BSL1 in vivo in wheat, rDNA. NIH Guidelines category non-exempt rDNA: III-D-3

IX. Amended Project or Agent approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

X. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

XI. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

Meeting adjourned at 2:04pm
Minutes recorded by CM Johnson

APPROVED MINUTES
Institutional Biosafety Committee
Microsoft Teams – REMOTE
Wednesday, January 13, 2021

Check if Attending (Members):	**Check if Attending (Alternate Members):**
☐ Jessica Ayers, Animal expert	☒ Lon Kendall, Director LAR
☒ Donald Bade, Unaffiliated	☒ Heather Blair, Associate Biosafety Officer *
☒ Richard Bowen, Associate Chair	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large*
☒ Chaoping Chen, Chair	
☒ Jason Cummings, lab rep	***non-voting at this meeting**
☐ Angelo Izzo, Mycobacteria Immunology	
☒ Nicole Marlenee, Assistant Biosafety Officer	
☐ June Medford, Plant/syn bio expert	
☐ Edwin Neas, Unaffiliated	
☒ Ken Olson, Virology	
☐ Stephen Pearce, Plant expert	
☒ Ann Powers, Virology	
☐ Bernard Rollin, Bioethicist	
Non-Voting Members:	
☐ James Graham, EHS Director	
RICRO Staff (non-voting):	**Regular Guests (non-voting):**
☒ Karen Dobos, RICRO Director	☒ Rebecca Moritz, Biosafety Office Director
☒ Adrianna Burney, IBC Intern	☒ Sara Cope, Assistant Biosafety Officer
☐ Christa Johnson, Associate VP for Research	☒ Joanie Ryan, Biosafety Office Intern
	☒ Joni Van Sickle, Occupational Health Coord.
Other:	

This meeting was convened at 12:05PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted item

I. Review of November 11, 2020 and December 9, 2020 IBC meeting minutes.
The committee unanimously approved the November and December meeting minutes with minor modifications.

II. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco/).

1. **Thamm, Douglas H**
   Project: CDK8 Inhibition for Osteosarcoma Treatment (20-149B); BSL 2 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: III-E-1

The committee unanimously approved of the project with the following modifications:

1. Under the DURC section, question #3 was marked YES. The IBC requests this be changed to NO as neomycin is used as a selection marker and is not used as a prophylactic intervention for the plasmid/agent.
2. The IBC requests confirmation of all investigators eIDs.

2. **Geiss, Brian J.**

Project: Nanobody inhibition of Sindbis virus replication (20-151B); BSL 2 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: III-D-3

The committee unanimously approved of the above project with the following modifications:

The IBC requests all investigators register with the Online IBC Database, provide a statement of experience, and complete the IBC at CSU online training.

3. **Mayo, Christie**

Agent: Vesicular Stomatitis Virus – Strain: any; BSL2

The committee unanimously approved the above agent without modifications.

Depending on how the virus is being obtained, a USDA transport permit may be required.

Project: Genetic characterization of Vesicular Stomatitis Virus strains circulating in the United States (21-001B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the project with the following modifications

1. The IBC requests the following be removed from the Project Overview: We do not anticipate safety concerns related to the project.
2. The IBC requests all investigators register with the Online IBC Database, provide a statement of experience, and complete the IBC at CSU online training.

III. Amendments to be reviewed by full committee

1. Schountz, Tony

Project: Experimental infection of Jamaican fruit bats with Tacaribe virus (15-063B); BSL2 in vitro and BSL3 in vivo in bats. NIH Guidelines category non-exempt rDNA: N/A

Amendment request to: use Tacaribe virus at BSL-2 in animals. We will follow the same procedure as we use with bat influenza A virus (H18)

The committee unanimously approved the above amendment without modifications.

Need to be sure to update room numbers.

IV. New Business

1. **Biosafety data gathering**

The Biosafety Office has been contacted by a consulting organization called Gryphon that is working on a project trying to put numbers behind what biosafety does. Part of the project involves human reliability; for example, how many mistakes happen when pipetting. The other part has to do with number of man-hours in high containment and frequency of incidents. The IBC had some concerns and requested more information from the Biosafety Office. This will be sent to the IBC coordinator who will distribute to the committee.

V. Unfinished business

1. **Letter to VPR with concerns regarding SARS-CoV-2 research and resources** – update?

Biosafety is working on getting a quote to update the [redacted] Suite.

VI. Reports

1. **Coordinator's report.**
   a. **Next IBC meeting:** Wednesday, February 10, 2021
2. **Biosafety Officer's report.**
   a. **Incident reports**
      i. There were three near misses; one involving a cat scratch, two involving spills. The cat and spilled materials were all non-infectious. Proper reporting protocols were followed and each is being reviewed to determine if changes in procedures are necessary.
      ii. Animal scratch – while working with rabies infected cats and one reached through the kennel and snagged individual's left hand. Minor scratch but skin broke through gloved hand. Proper follow up and reporting protocols were followed. The individual is rabies vaccinated.
      iii. Procedural – a concern was raised with individuals not following proper protocols for animal room cleaning, and caging. The issue was discussed and resolved.
   b. **Inspections**
   c. **Lab audits/Biosafety Outreach Visit reports**

   The Biosafety Office raised the question regarding two PIs who are delinquent on their barrier training and have subsequently lost their access to the BSL3 labs. The IBC discussed whether it was necessary for the PIs to be up to date on their training if they do not go into the lab. If there were an emergency in the BSL3 (such as a spill or a freezer going down), the PI would need to go into the lab unless they have identified a delegate to go in their place. It was determined that it would be acceptable for the PI to forgo the training if such delegate was established. And that ideally, a delegate from each lab should be identified in case the PI is not available if there is an emergency. This individual should be listed on the lab contacts.

VII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. **Schountz, Tony**

   Agent: Sosuga virus– Strain: Any; BSL 3
   Agent: Rabies virus– Strain: Any; BSL 3
   Project: Experimental infection of Jamaican fruit bats with Sosuga virus (20-137B); in vitro BSL3 and in vivo BSL3 in Jamaican fruit bats. NIH Guidelines category non-exempt rDNA: N/A
   Project: Rabies virus fusion antigen vaccination of bats (20-138B); in vitro BSL3 and in vivo BSL3 in Jamaican fruit bats. NIH Guidelines category non-exempt rDNA: N/A

3. **Goodrich, Raymond**

   Project: Indications Against Highly Pathogenic Agents for Transportable Pathogen Reduction and Blood Safety System for Whole Blood (20-140B); in vitro BSL2. NIH Guidelines category non-exempt rDNA: N/A

4. **Robertson, Gregory, T.**

   Agent: Mycobacterium tuberculosis–Strain: Clinical isolates(including MDR strains);BSL 3
   Agent: Mycobacterium aurum – Strain: any; BSL2

5. **Ebel, Gregory**

   Agent: Staphylococcus aureus– Strain: Any; BSL 2
   Agent: Pseudomonas aeruginosa– Strain: Any; BSL 2
   Agent: Human Immunodeficiency Virus I– Strain: Any; BSL 2
   Project: Vector BioSensor: a novel approach for enhancing biological sample acquisition for biosurveillance efforts (20-141B); in vitro BSL3 and BSL3 in vivo in mosquitoes. NIH Guidelines category non-exempt rDNA: N/A

2. **Bowen, Richard A.**

   Project: Evaluation of WNV vaccine efficacy in horses (Hennessy) (20-142B); in vitro BSL 3 and BSL3 in horses. NIH Guidelines category non-exempt rDNA: N/A

3. **Peers, Graham S**
   Agent: Phytophthora sojae– Strain: Any; BSL 1

VIII. Amended Project or Agent approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

IX. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

X. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.
1. Shomaker, Lauren - ASSET: Addressing Anxiety and Stress for Healthier Eating in Teens (20-147B); Human Origin Materials. NIH Guidelines category non-exempt rDNA: N/A

Meeting adjourned at 1:06pm
Minutes recorded by CM Johnson

APPROVED MINUTES
Institutional Biosafety Committee
Microsoft Teams – REMOTE
Wednesday, February 10, 2021

Check if Attending (Members):	**Check if Attending (Alternate Members):**
☒ Jessica Ayers, Animal expert	☐ Lon Kendall, Director LAR
☒ Donald Bade, Unaffiliated	☒ Heather Blair, Associate Biosafety Officer *
☒ Richard Bowen, Associate Chair	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large*
☒ Chaoping Chen, Chair	
☒ Jason Cummings, lab rep	***non-voting at this meeting**
☒ Angelo Izzo, Mycobacteria Immunology	
☒ Nicole Marlenee, Assistant Biosafety Officer	
☒ June Medford, Plant/syn bio expert	
☒ Edwin Neas, Unaffiliated	
☒ Ken Olson, Virology	
☒ Stephen Pearce, Plant expert	
☐ Ann Powers, Virology	
☐ Bernard Rollin, Bioethicist	
Non-Voting Members:	
☒ James Graham, EHS Director	
RICRO Staff (non-voting):	**Regular Guests (non-voting):**
☒ Karen Dobos, RICRO Director	☒ Rebecca Moritz, Biosafety Office Director
☐ Adrianna Burney, IBC Intern	☒ Sara Cope, Assistant Biosafety Officer
☐ Christa Johnson, Associate VP for Research	☒ Joanie Ryan, Biosafety Office Intern
	☒ Joni Van Sickle, Occupational Health Coord.
Other:	

This meeting was convened at 12:04PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted item

I. Review of January 13, 2020 IBC meeting minutes.
The committee unanimously approved of the January minutes with minor modifications.

II. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco/).

1. **Nalam, Vamsi – Pending submissions**

Agent: Potato Mop-top virus – Strain: any; BL-2P
Agent: Potato Virus Y - Strain: any; BL-2P
Agent: Tobacco rattle virus - Strain: any; BL-2P

Project: Development of molecular tools to study movement of Potato virus Y in susceptible and resistant varieties (20-093B); BSL1 in vitro and BSL1 in vivo in Tobacco and Potato. NIH Guidelines category non-exempt rDNA: III-E-1

The committee unanimously TABLED the above agents and project pending additional information, specifically:
More information regarding containment of plant viruses and recombinant material is needed.

During the review of these AARFs/PARF the concern was raised that this work has already started without IBC approval. The Biosafety Director temporarily left the meeting and reached out to the PI, who confirmed that work had started. The Biosafety Director instructed the PI to stop work and the Associated Biosafety Officer helped the PI submit the additional forms needed to be in compliance with the IBC. The IBC Coordinator informed the IBC that an incident report will need to be submitted to the NIH/OSP. The IBC Coordinator will follow up with the IBC and draft the report.

2. **Bosco-Lauth, Angela**

Agent: Bacillus anthracis– Strain: Sterne strain; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The biosafety level and human risk groups should both be changed from 1 to 2.
2. The IBC requests that a chemical disinfectant be added to the Methods of Inactivation.

Project: Examination of B. anthracis (Sterne strain) infection in feral swine (21-005B); BSL 2 in vitro, BSL2 in vivo in pigs. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the above project with the following modifications:

The IBC requests confirmation regarding what PPE will be used for in vitro work and in vivo work.

3. **Rose, Ruth**

Project: Chronic Immune Stimulation to Suppress Tumor Metastasis and Prolong Survival in a Mouse Model of Osteosarcoma (21-006B); BSL2 in vitro, BSL2 in vivo in mice, rDNA. NIH Guidelines category non-exempt rDNA: III-D-4

The committee unanimously approved of the above project with the following modifications:

The IBC requests the PI clarify the following statement: 'Animals will only be handled outside the BSC.' The IBC suggests the following statement instead: Mice do not need to be handled in the BSC since organism is contained inside a pouch implanted under the skin.

4. **Slayden, Richard**

Agent: Mycobacterium smegmatis– Strain: Any; BSL 2

The committee unanimously approved the above agent without modifications.

Agent: SARS-CoV-2– Strain: Any; BSL 3

The committee unanimously approved the above agent without modifications.

Project: Efficacy assessment of antibacterials and immunomodulatory compounds against SARS-CoV-2/bacterial co-infections (21-010B); BSL2 and BSL3 in vitro; BSL3 in hamsters and mice. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the above project with the following modifications:

1. All investigators are asked to fill out a Statement of Experience in the Online IBC Database.
2. The IBC requests clarification regarding who will be working on this project.

There was a discussion whether the lab has worked with hamsters before.

4. **Chan, Joshua**

Project: Engineering microbiomes through integrative modeling and experimental approaches (21-013B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the above project with the following modifications:

1. All investigators are asked to fill out a Statement of Experience in the Online IBC Database.
2. Please have all investigators enroll in the Occupational Health Program.

This project involves culturing stool samples in very small volumes.

5. **Ordway, Diane**

Agent: M. intracellulare – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The agent name should be spelled out: Mycobacterium intracellulare
2. The human risk group should be changed from 1 to 2.
3. The IBC requests the building be added to the storage location.
4. "Pathogenic for animals including humans?" should be changed from NO to YES.
5. The IBC requests a chemical disinfectant be added to the methods of inactivation.

Agent: M. simiae – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The agent name should be spelled out: Mycobacterium simiae.
2. The human risk group should be changed from 1 to 2.
3. "Pathogenic for animals including humans?" should be changed from NO to YES.
4. The IBC requests a chemical disinfectant be added to the methods of inactivation.

III. Amendments to be reviewed by full committee

1**. Gentry-Weeks, Claudia**

Project: COVID diagnostic assay (20-108B); BSL1 in vitro. NIH Guidelines category non-exempt rDNA: N/A

Amendment request to add rDNA (see attached) in the form of using viral RNA

The committee unanimously approved the above amendment without modifications.

IV. New Business

1. **IBC Membership**

Due to the retirement of Dr. Rollin and Dr. Izzo moving out of the country, there are two pending vacancies on the IBC that need to be addressed.

Dr. Rollin serves as the University Bioethicist on the committee; this position is not a requirement by NIH, but has been a CSU requirement. The IBC discussed whether there should still be a bioethicist on the committee and all agreed that there should be. There is a relatively new faculty member in the Philosophy Department who could fill this role, however he has a full teaching load and would not be able to attend all meetings. The possibility of changing this to an ad hoc position was discussed. This would allow the individual to provide their expertise on an as needed bases without impacting

quorum. The IBC agreed that this was a good approach and voted to recruit the individual as an ad hoc member.

Dr. Izzo serves as a Mycobacteria specialist on the committee, and at the time he was recruited to the IBC there were no other Mycobacteria researchers on the committee. However, with the recent addition of Mr. Cummings to the committee and the fact that Dr. Dobos routinely provides input in an ad hoc manner (both with expertise in Mycobacteria), it was suggested that the IBC did not need to add a new Mycobacteria specialist to the committee. The IBC voted and agreed not to fill this position.

V. Unfinished business

1. **Biosafety data gathering**
   An agreement has been reached with Gryphon Scientific; CSU can mine whatever data it wants but don't have to use it. The Biosafety Intern will be running a pipetting reproducibility study. The transparency can benefit the biosafety field in the long run.
2. **Letter to VPR with concerns regarding SARS-CoV-2 research and resources** – update
   [redacted] Suite is still being assessed for BSL3 recommissioning and use as a SARS-CoV-2 lab.

VI. Reports

1. **Coordinator's report.**
   a. **Next IBC meeting:** Wednesday, March 10, 2021
   b. **USRTK blog post regarding CSU labs/research:**
   https://usrtk.org/biohazards-blog/how-safe-are-the-biolabs-at-colorado-state-university/
   https://usrtk.org/biohazards/colorado-state-university-documents-on-bat-pathogen-research/
2. **Biosafety Officer's report.**
   a. **Incident reports**
   Near miss - PAPR died while in SARS-CoV-2 animal room. Was a TR-300 Versaflo PAPR, so individual was able to step out into anteroom to replace battery. Individual followed all proper procedures. No outside reporting required.
   b. **Inspections**
   c. **Lab audits/Biosafety Outreach Visit reports**

VII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. **Thamm, Douglas**
   Project: CDK8 Inhibition for Osteosarcoma Treatment (20-149B); BSL 2 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: III-E-1
2. **Mayo, Christie**
   Agent: Vesicular Stomatitis Virus – Strain: any; BSL2
   Project: Genetic characterization of Vesicular Stomatitis Virus strains circulating in the United States (21-001B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA: N/A
3. **Peers, Graham**
   Project: Studies of Phytophthora sojae metabolism (20-143B); BSL1 in vitro. NIH Guidelines category non-exempt rDNA: III-D-2

VIII. Amended Project or Agent approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

IX. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

X. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

1. **Winkelman, Dana** - Assessment of non-lethal mucus swabs to detect Renibacterium salmoninarum (20-148B); BSL 1 in vitro. NIH Guidelines category non-exempt rDNA: N/A
2. **Bowen, Richard** - Transmission of SARS-CoV-2 In An Artificial Ecosystem (20-152B); BSL 3 in vitro. NIH Guidelines category non-exempt rDNA: N/A
3. **Henry, Charles** - CHEM433 Clinical Chemistry (21-002B) Human samples. NIH Guidelines category non-exempt rDNA: N/A
4. **Ordway, Diane** - Host-Pathogen determinants of Mycobacterium abscessus infection (21-004B); BSL 2 in vitro. NIH Guidelines category non-exempt rDNA: N/A
5. **Snodgrass, Jeffrey** - Digital Social Connection and Immune Biology among Emerging Adults: Assessing Novel Sources of Health Resilience During the COVID-19 Pandemic (21-009B); Human Origin Materials. NIH Guidelines category non-exempt rDNA: N/A

Meeting adjourned at 1:41pm
Minutes recorded by CM Johnson

SPECIAL MEETING – APPROVED MINUTES
Institutional Biosafety Committee
Microsoft Teams – REMOTE
Wednesday, February 24, 2021

Check if Attending (Members):	**Check if Attending (Alternate Members):**
☒ Jessica Ayers, Animal expert	☐ Lon Kendall, Director LAR
☒ Donald Bade, Unaffiliated	☒ Heather Blair, Associate Biosafety Officer *
☒ Richard Bowen, Associate Chair	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large*
☒ Chaoping Chen, Chair	
☒ Jason Cummings, lab rep	***non-voting at this meeting**
☐ Angelo Izzo, Mycobacteria Immunology	
☒ Nicole Marlenee, Assistant Biosafety Officer	
☒ June Medford, Plant/syn bio expert	
☒ Edwin Neas, Unaffiliated	
☐ Ken Olson, Virology	
☒ Stephen Pearce, Plant expert	
☐ Ann Powers, Virology	
☐ Bernard Rollin, Bioethicist	
Non-Voting Members:	
☐ James Graham, EHS Director	
RICRO Staff (non-voting):	**Regular Guests (non-voting):**
☒ Karen Dobos, RICRO Director	☒ Rebecca Moritz, Biosafety Office Director
☒ Adrianna Burney, IBC Intern	☒ Sara Cope, Assistant Biosafety Officer
☐ Christa Johnson, Associate VP for Research	☒ Joanie Ryan, Biosafety Office Intern
	☐ Joni Van Sickle, Occupational Health Coord.
Other:	

This meeting was convened at 10:04AM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted item

I. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco/).

1. **Nalam, Vamsi – Pending submissions**

Agent: Potato Virus Y - Strain: any; BL-2P
Agent: Tobacco rattle virus - Strain: any; BL-2P

The committee unanimously approved of the above agents with the following modifications:

For both of the above agents, IBC requests 90% EtOH be changed to 70% EtOH.

Agent: Potato Mop-top virus – Strain: any; BL-2P

The majority of the committee (with one abstention) approved of the above agent with the following modifications:

1. IBC requests 90% EtOH be changed to 70% EtOH.
2. For PMTV, the IBC requests the specific species of the vector be added, along with a statement regarding transmissibility of the virus.

Project: Development of molecular tools to study movement of Potato virus Y in susceptible and resistant varieties (20-093B); BSL1 in vitro and BSL1 in vivo in Tobacco and Potato. NIH Guidelines category non-exempt rDNA: III-E-1

The committee unanimously approved of the above project with the following modifications:

1. The IBC requests that in addition to infected plants, that all soil and planting material be autoclaved.
2. Please provide a copy of your SOP for autoclaving plants and soil/planting material.
3. Please confirm where recombinant virus infected plants will be housed. The PARF indicated that PVY will be used in growth chambers and PMTV will be used in the greenhouse. Is this correct?
4. The IBC recommends locking growth chambers which contain infected plants.
5. Will plants be transported between the lab and the greenhouse? If yes, how will they be contained during transport?

Nalam, Vamsi – New Submissions

Agent: Agrobacterium tumefaciens- Strain: GV3101, EHA105, LBA4404, AGL1; BSL 1

The committee unanimously approved of the above agent with the following modifications:

The IBC recommends adding 10% bleach as a method of inactivation prior to disposal.

Agent: Beet Curly Top Virus- Strain: any; BSL 1

The committee unanimously approved of the above agent with the following modifications:

The IBC requests confirmation regarding the plant biosafety level, BL-1P is listed.

Agent: Escherichia coli- Strain: DH5-Alpha, Mach1 and Top10; BSL 1

The committee unanimously approved of the above agent with the following modifications:

The IBC recommends removing the statement: Most types of E. coli are harmless.

Agent: Saccharomyces cervisiae- Strain: INVSc1; BSL 1

Not reviewed. Hold over to March meeting.

Project: Construction of recombinant PVY and PMTV using E.coli (21-014B); BSL 2 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: III-E-1

The committee unanimously approved of the above project with the following modifications:

The IBC recommended the typos be corrected.

Project: Development of CRISPR/Cas9-mediated viral resistance to Beet Curly Top Virus (21-015B); BSL 2 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: III-D-2

Not reviewed. Hold over to March meeting.

II. New Business

IBC Non-compliance issue and NIH/OSP Incident report

There are two non-compliance issues, 1) cloning work to construct recombinant PVY and PMTV has already started, and 2) plants have been infected with PVY. Item #1 requires reporting to NIH/OSP since recombinant DNA work is involved, however item #2 does not. In regards to item #1, the genes being introduced are for a visual marker. The lab has not yet been successfully in generating the recombinant viruses. The IBC Coordinator and one of the Biosafety Officers met with the PI to gather information and

draft the NIH/OSP Incident Report. The IBC reviewed the draft of the Incident Report for the NIH and had no additional edits.

In regards to item #2, PVY infected plants have been used in insect proof cages in the greenhouse. The IBC had these follow up questions for the PI:
1. Are there other plants being grown in the same area? If so, are any solanaece plants
2. Have other researchers in the greenhouse been notified that this agent is being used there?

This is a relatively new faculty member and the IBC discussed in general the need for better outreach and onboarding of new faculty so that they have an awareness of these compliance requirements from the beginning. The possibility of trying to have the RICRO Director give a presentation at the New Faculty Orientation was discussed. It was also mentioned that CSU PI Manual is currently being updated, which could help distribute this information and set new faculty up for better compliance success.

III. Unfinished business

None

IV. Reports

1. **Coordinator's report.**
    a. **Next IBC meeting:** Wednesday, March 10, 2021

2. **Biosafety Officer's report.**
    a. **Incident reports**
    b. **Inspections**
    c. **Lab audits/Biosafety Outreach Visit reports**

Meeting adjourned at 11:27am
Minutes recorded by CM Johnson

APPROVED MINUTES
Institutional Biosafety Committee
Microsoft Teams – REMOTE
Wednesday, March 10, 2021

Check if Attending (Members):	**Check if Attending (Alternate Members):**
☐ Jessica Ayers, Animal expert	☐ Lon Kendall, Director LAR
☒ Donald Bade, Unaffiliated	☒ Heather Blair, Associate Biosafety Officer *
☐ Richard Bowen, Associate Chair	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large*
☒ Chaoping Chen, Chair	
☒ Jason Cummings, lab rep	***non-voting at this meeting**
☒ Angelo Izzo, Mycobacteria Immunology	
☒ Nicole Marlenee, Assistant Biosafety Officer	
☒ June Medford, Plant/syn bio expert	
☒ Edwin Neas, Unaffiliated	
☒ Ken Olson, Virology	
☒ Stephen Pearce, Plant expert	
☒ Ann Powers, Virology	
☐ Bernard Rollin, Bioethicist	
Non-Voting Members:	
☒ James Graham, EHS Director	
RICRO Staff (non-voting):	**Regular Guests (non-voting):**
☒ Karen Dobos, RICRO Director	☒ Rebecca Moritz, Biosafety Office Director
☒ Adrianna Burney, IBC Intern	☒ Sara Cope, Assistant Biosafety Officer
☐ Christa Johnson, Associate VP for Research	☒ Joanie Ryan, Biosafety Office Intern
	☒ Joni Van Sickle, Occupational Health Coord.
Other:	

This meeting was convened at 12:02PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted item

I. Review of February 10 and February 24, 2021 IBC meeting minutes.

The committee unanimously approved of the meeting minutes with minor modifications.

II. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco/).

1. **Nalam, Vamsi**

Agent: Saccharomyces cervisiae – Strain: INVSc1; BSL1

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests the spelling of cervisiae in the Agent name be corrected to cerevisiae.
2. It was noted that the USAGE STATUS was marked as STORAGE ONLY. The PI should be reminded that before using the agent, the AARF will need to be amended to ACTIVE and the agent will need to be added to a PARF.

Agent: Spongospora subterranean – Strain: any; BSL1

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests additional information regarding the source of the agent, in other words where is it coming from.
2. Is a permit required (from either USDA or state/local agencies) to work with this agent?

This agent is typically found in the soil and is a vector for Potato Mop-top virus.

Project: Development of CRISPR/Cas9-mediated viral resistance to Beet Curly Top Virus (21-015B); BSL1 in vitro and BSL1 in vivo in Tobacco, rDNA. NIH Guidelines category non-exempt rDNA: III-D-2

The committee (with one abstention) approved of the above project with the following modifications:

1. Please clarify the location of work, specifically please state what work will be done in the greenhouse and what work will be done in the growth chamber.
2. Please clarify the experiments and timeline that you will follow to test viral resistance after infiltrating leaf tissues with your Cas9 construct. Will infiltration and BCTV infectio occur simultaneously?
3. Please describe how plants will be infected with BCTV in this project, for example will Agroinfiltration be used?
4. Agrobacterium tumefaciens needs to be added to the list of agents used in the project.
5. It is recommended the plant biosafety level to be set at BL-1P, and the general biosafety level to be set at BSL-1 based on the organisms described for this work (i.e. the virus is wild-type and the vector is not being used). Due to the transgenic nature of the plants, the PARF indicates that the plants will be kept in growth chambers. The IBC concurs with this practice.
6. The IBC requests that all soil and plant materials be autoclaved.
7. It is recommended to use a more broad-spectrum disinfectant for surfaces, such as Greenshield II or 10% bleach.
8. It is recommend that growth chambers be decontaminated with 10% bleach followed by UV after completion of each experiment.
9. The IBC requests that all plants be monitored for insects weekly and treated with insecticide at first sight of any insects.
10. Biosafety will schedule additional greenhouse visits for clarification of greenhouse/growth chamber work.

The committee discussed this PARF at length. There were questions about the details and questions regarding the PIs experience with this type of work. Several questions were outlined that will help clarify the project. It was also recommended that since this is a relatively new PI that he be assigned a faculty mentor (if he doesn't already have one). It was also suggested that Biosafety conduct occasional lab visits to monitor progress and containment of work. Ultimately the committee voted and agreed that the PARF could be approved if the above items are addressed; one member abstained from voting.

2. **Dow, Steven**

Agent: Third generation, gamma-retrovirus vector (self-inactivating) – Strain: CAR T cell construct; BSL2

The committee unanimously approved of the above agent with the following modifications:

Please provide the specific Decon agent and the percentage used.

Project: CAR T cell therapy for bone cancer in dogs (21-016B); BSL2 in vitro and BSL2 in vivo in mice, rDNA. NIH Guidelines category non-exempt rDNA: III-D-4

The committee unanimously approved of the above project with the following modifications:

1. Please have all investigators complete the BSL1/BSL2 Online training.
2. Please have all investigators complete the IBC at CSU online training.
3. All individuals working in a biosafety cabinet need to complete Biosafety Cabinet training.

3. **Roberts, Robyn**

Agent: Xanthomonas translucens – Strain: field isolates from CO; BSL1

The committee unanimously approved the above agent without modifications.

Agent: Puccinia striiformis f. sp. Tritici – Strain: field isolates from CO; BSL1

The committee unanimously approved the above agent without modifications.

Project: Characterization of Xanthomonas translucens pv. undulosa (Xtu) in Colorado wheat (21-018B); BSL1 in vitro and BSL1 in vivo in wheat. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project with the following modifications:

1. In regards to the growth chamber, please provide more information regarding this location. Is there restricted access to the growth chamber?
2. Please specify the type of Lysol being used to surface disinfect the biosafety cabinet. Is it standard household type or intended for lab use?
3. Please have all investigators provide a Statement of Experience working with biohazardous materials in the IBC Database.

Project: Screening CSU wheat germplasm for resistance against stripe rust and WSMV (21-019B); BSL1 in vitro and BSL1 in vivo in wheat. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project with the following modifications:

1. Please clarify location of work.
2. In regards to the growth chamber, please provide more information regarding this location. Is there restricted access to the growth chamber?
3. Glass bottles are mentioned under Mechanisms in place for containment and disposition of infected animals or plants. The IBC recommends not using glass whenever possible.
4. Please specify the type of Lysol being used to surface disinfect the biosafety cabinet. Is it standard household type or intended for lab use?
5. Since WSMV is mite transmitted, please clarify measures to screen for insects.
6. Please have all investigators provide a Statement of Experience working with biohazardous materials in the IBC Database.

4. **Kading, Rebekah**

Agent: Eastern equine encephalitis virus – Strain: any; BSL3

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests additional information regarding the source of the virus, in other words where is it coming from?
2. Please provide the concentration of Microchem Plus used for inactivation.

Agent: Venezuelan equine encephalitis virus –Strain: any; BSL3

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests additional information regarding the source of the virus, in other words where is it coming from?
2. The IBC requests clarification whether asking for approval for the VEE complex or just VEEV?
3. Please provide the concentration of Microchem Plus used for inactivation.

5. **MacNeill, Amy**

Project: Neo-adjuvant therapy with oncolytic myxoma virus to prevent relapse of spontaneous canine sarcomas (21-017B); BSL2 in vitro and BSL2 in vivo in client owned dogs, rDNA. NIH Guidelines category non-exempt rDNA: III-D-1

The committee unanimously approved of the above project with the following modifications:

1. Safety glasses are indicated as PPE used for work in vitro work, but not in vivo work. Safety glasses should be added to PPE used for in vivo work.
2. The IBC requests confirmation that the use of client-owned animals in this project has been approved by the USDA or FDA/CMV.

6. **Jackson, Mary**

Project: Assembly and export of mycobacterial lipoglycans (21-021B); in vitro BSL2 and BSL3, rDNA. NIH Guidelines category non-exempt rDNA: III-D-2

The committee unanimously approved of the above project with the following modifications:

This PARF lists both BSL2 and BSL3 agents, however the PPE indicated appears to only be for BSL3 work. Will all agents in this project be worked with at BSL3? If so a statement indicating this should be added. If not, the PPE used at BSL2 should be added.

Late submission

7. **Podell, Brendan**

Agent: Mycobacterium bovis BCG – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The human risk group should be changed from 1 to 2.
2. The IBC requests that autoclaving be added to inactivation methods.

Project: Markers of immune control for vaccine and antimicrobial TB efficacy studies (21-022B); BSL2 and BSL3 in vitro, BSL2 and BSL3 in vivo in mice and guinea pigs. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above agent with the following modifications:

Please have all investigators provide a Statement of Experience working with biohazardous materials in the IBC Database and complete the IBC at CSU online training.

III. Amendments to be reviewed by full committee

1. **Bowen, Richard**

Project: COVID vaccine testing (20-083B); BSL3 in vitro and BSL3 in vivo in hamsters and ferrets, rDNA. NIH Guidelines category non-exempt rDNA: III-D-2

Amendment request to add: 3 new studies that involve vaccines prepared via rDNA technology. All studies will utilize a hamster model of COVID-19:

1. A replication-defective adenovirus 26-based set of vaccines that encode the S and M proteins of SARS-CoV-2 (Greffex).
2. An RNA encoding a concatemer of SARS-CoV-2 spike protein peptides (Mass General Hospital)
3. An RNA encoding variants of the SARS-CoV-2 spike protein (MedGene).

None of these vaccines is capable of replication. Hamsters will be immunized with varying dosages of vaccine on different schedules and ultimately challenged by intranasal inoculation of SARS-CoV-2.

The committee unanimously approved of the above amendment request without modifications.

IV. New Business

1. None

V. Unfinished business

1. **IBC non-compliance –** not discussed, hold for next meeting
2. **Letter to VPR with concerns regarding SARS-CoV-2 research and resources** – no update

VI. Reports

1. **Coordinator's report.**
   - **a. Next IBC meeting:** Wednesday, April 14, 2021

2. **Biosafety Officer's report.**
   - **a. Incident reports**
     - **i. Procedural issue** – incorrect procedure was used while transporting infectious materials between buildings, no outside reporting required
     - **ii. Spill and airflow too negative** - Fine mist of SARS-Cov-2 material sprayed onto persons PAPR and surgical gown while trying to relieve pressure from tubing during a filtration process. At that time the room airflow was too negative because the boilers had gone down. Proper clean up procedures were followed. Risk to individual considered to be low; individual tested six days post. No outside reporting required.
     - **iii. Bat bite** – an individual was bitten on the hand while trying to put a bat in its cage. The bat was from the breeding colony and was not infected, however it was tested for rabies just to be sure, the bat was negative. The correct sized gloves were purchased to prevent this in the future. No outside reporting required.
     - **iv. Animal scratch/bite** – there have been a number of bites or scratches from cats in the rabies studies. The cats are wanting to play. They are looking at adding mesh or wire to the cages so the cats cannot reach out. Also, getting

properly fitting leather gloves will help. Occ Health is following up with individuals. No outside reporting required.

v. **Near miss/ safety concern** – After doing bat husbandry and doffing and deconning the PAPR, the individual noticed a crack in the hood. They were wearing an N95 and the PAPR unit did not malfunction, so risk considered to be low. PAPR hood removed/ discarded/ replaced. No outside reporting required.

b. Inspections

c. Lab audits/Biosafety Outreach Visit reports

VII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. **Nalam, Vamsi**
   Agent: Potato Virus Y - Strain: any; BL-2P
   Agent: Tobacco rattle virus - Strain: any; BL-2P
   Agent: Agrobacterium tumefaciens – Strain: GV3101, EHA105, LBA4404, AGL1; BL-1P
   Agent: Escherichia coli – Strain: DH5-Alpha, Mach1 and Top10; BSL1
   Project: Construction of recombinant PVY and PMTV using E.coli (21-014B); BSL-2 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: III-E-1
2. **Bosco-Lauth, Angela**
   Agent: Bacillus anthracis– Strain: Sterne strain; BSL2
   Project: Examination of B. anthracis (Sterne strain) infection in feral swine (21-005B); BSL 2 in vitro. NIH Guidelines category non-exempt rDNA: N/A
3. **Rose, Ruth**
   Project: Chronic Immune Stimulation to Suppress Tumor Metastasis and Prolong Survival in a Mouse Model of Osteosarcoma (21-006B); BSL 2 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: III-D-4
4. **Slayden, Richard**
   Project: Efficacy assessment of antibacterials and immunomodulatory compounds against SARS-CoV-2/bacterial co-infections (21-010B); BSL 3 in vitro. NIH Guidelines category non-exempt rDNA: N/A
5. **Chan, Joshua**
   Project: Engineering microbiomes through integrative modeling and experimental approaches (21-013B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA: N/A
6. **Ordway, Diane**
   Agent: Mycobacterium intracellulare – Strain: any; BSL2
   Agent: Mycobacterium simiae – Strain: any; BSL2
7. **Geiss, Brian J.**
   Project: Nanobody inhibition of Sindbis virus replication (20-151B); BSL 2 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: III-D-3

VIII. Amended Project or Agent approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

IX. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

X. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

1. 21-003B – Metcalf, Jessica - Estimating the postmortem interval at longer timescales using bone; Human Sample. NIH Guidelines category non-exempt rDNA: N/A
2. 21-008B – Geiss, Brian - Electrochemical sensing of Bacillus thurigensis; BSL 1 in vitro. NIH Guidelines category non-exempt rDNA: N/A
3. 21-012B – Karoly, Hollis - Exploring the Effects of Acute Cannabidiol Administration on Blood Alcohol Level and Intoxication in Adult Human Subjects; Human Origin Materials. NIH Guidelines category non-exempt rDNA: N/A
4. 21-022B – Podell, Brendan - Markers of immune control for vaccine and antimicrobial TB efficacy studies; BSL 3 in vitro, BSL 3 in vivo with mice, guinea pigs. NIH Guidelines category non-exempt rDNA: N/A

Meeting adjourned at 2:17pm
Minutes recorded by CM Johnson

APPROVED MINUTES
Institutional Biosafety Committee
Microsoft Teams – REMOTE
Wednesday, April 14, 2021

Check if Attending (Members):	**Check if Attending (Alternate Members):**
☒ Jessica Ayers, Animal expert	☐ Lon Kendall, Director LAR
☒ Donald Bade, Unaffiliated	☒ Heather Blair, Associate Biosafety Officer *
☒ Richard Bowen, Associate Chair	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large*
☒ Chaoping Chen, Chair	
☒ Jason Cummings, lab rep	***non-voting at this meeting**
☐ Angelo Izzo, Mycobacteria Immunology	
☒ Nicole Marlenee, Assistant Biosafety Officer	
☒ June Medford, Plant/syn bio expert	
☒ Edwin Neas, Unaffiliated	
☒ Ken Olson, Virology	
☐ Stephen Pearce, Plant expert	
☐ Ann Powers, Virology	
☐ Bernard Rollin, Bioethicist	
Non-Voting Members:	
☒ James Graham, EHS Director	
RICRO Staff (non-voting):	**Regular Guests (non-voting):**
☒ Karen Dobos, RICRO Director	☒ Rebecca Moritz, Biosafety Office Director
☒ Adrianna Burney, IBC Intern	☐ Sara Cope, Assistant Biosafety Officer
☐ Christa Johnson, Associate VP for Research	☒ Joanie Ryan, Biosafety Office Intern
	☐ Joni Van Sickle, Occupational Health Coord.
Other:	

This meeting was convened at 12:02PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted item.

I. Review of March 10, 2021 IBC meeting minutes

The minutes were not ready for review.

II. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco/).

1. Bowen, Richard

Project: Pathogenesis of Burkholderia pseudomallei infection in swine (21-027B); BSL 3 in vitro, BSL 3 in vivo in pigs, Select Agent. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the above project with the following modifications:

PAPR should be marked YES for both in vitro and in vivo PPE.

2. **Nishimura, Erin**

Agent: Pseudomona aeruginosa– Strain: PA14; BSL 2

The committee unanimously approved of the above project with the following modifications:

The IBC requests all investigators provide a Statement of Experience in the Online IBC Database.

Agent: CeMbio– Strain: 12; BSL2

The committee unanimously approved of the above project with the following modifications:

1. The agent description indicates that the synthetic microbiome contains 12 soil- and nematode-isolated bacterial strains. Please list the 12 strains.
2. The IBC requests all investigators provide a Statement of Experience in the Online IBC Database (https://protocols.research.colostate.edu/rco/).

Project: Caenorhabditis elegans: a model for genetic interaction between the gut microbiota and intestinal epithelial cells (21-024B); BSL 2 in vitro, BSL 2 in vivo in Caenorhabditis elegans, rDNA. NIH Guidelines category non-exempt rDNA: III-D-2

The committee unanimously approved of the above project with the following modifications:

1. Under the Dual Use of Concern section, all seven of the experimental effects were marked YES. These should be changed to NO.
2. The IBC recommends autoclaving both liquid and solid waste, however if bleach is used it should be allowed to sit for at least 24hrs before autoclaving.
3. The IBC requests investigators provide a Statement of Experience in the Online IBC Database (https://protocols.research.colostate.edu/rco/).

3. **Kading, Rebekah**

Agent: Fikirini rhabdovirus– Strain: any; BSL 2

The committee unanimously approved of the above agent as submitted.

Agent: Oita virus– Strain: any; BSL 2

The committee unanimously approved of the above agent as submitted.

Agent: Mount Elgon bat virus– Strain: any; BSL 2

The committee unanimously approved of the above agent as submitted.

Agent: Kern Canyon virus– Strain: any; BSL 2

The committee unanimously approved of the above agent as submitted.

4. **Chen, Chaoping**

Agent: E. coli– Strain: BL21(DE3); BSL 1

The committee unanimously approved of the above project with the following modifications:

Please spell out Escherichia coli for the Agent name instead of E. coli.

Project: Live cell imaging of replication-deficient recombinant HIV particles (21-028B); BSL 2 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: III-D-3

The committee unanimously approved of the above project with the following modifications:

1. A 50% bleach rinse is mentioned under procedures used to protect personnel from exposure to agent during in vitro studies. Please confirm if this is the correct concentration.
2. The IBC recommends autoclaving both liquid and solid waste, however if bleach is used it should be allowed to sit for at least 24hrs prior to autoclaving.
3. The IBC requests all investigators register with the Online IBC Database (https://protocols.research.colostate.edu/rco/), fill in a Statement of Experience and complete the IBC training.
4. Please have all investigators complete the Online BSL1/2 training and the biosafety cabinet training. Both can be found in the EHS training database under the Biosafety tab (http://www.ehs.colostate.edu/WTrainReg/ClassSignUp.aspx).
5. Please have all investigators enroll in the Occupational Health Program (http://www.ehs.colostate.edu/WOHSP/Home.aspx).

Project: Purification of Single Chain Variable Fragments Fused to iRFP (21-029B); BSL 1 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: ?

The committee unanimously approved of the above project with the following modifications:

1. 75% ethanol is mentioned as a method to disinfect E. coli, please confirm if this is the correct concentration.
2. The IBC recommends autoclaving both liquid and solid waste, however if bleach is used it should be allowed to sit for at least 24hrs prior to autoclaving.
3. Please have all investigators register with the Online IBC Database (https://protocols.research.colostate.edu/rco/), fill in a Statement of Experience and complete the IBC training.
4. Please have all investigators enroll in the Occupational Health Program (http://www.ehs.colostate.edu/WOHSP/Home.aspx).

5. **Leach, Jan E.**

Project: QTL engineering for disease resistance in rice (21-030B); BSL 2 in vitro, BSL 2 in vivo in rice, Select Agent, rDNA. NIH Guidelines category non-exempt rDNA: III-E-2

The committee unanimously approved of the above project with the following modifications:

1. The IBC requests that QTL be defined.
2. Please provide a brief description of the biocontainment of the plant pathogens during both in vitro and in vivo experiments.
3. Please have all investigators fill in a Statement of Experience and complete the IBC training in the Online IBC Database (https://protocols.research.colostate.edu/rco/).

Project: Basis of Xanthomonas tissue-specific behavior during plant pathogenesis (21-031B); BSL 2 in vitro, BSL 2 in vivo in Oryza, Select Agent. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the above project with the following modifications:

1. Please define CelA.
2. Xanthomonas campestris pv. leersiae is listed under the list of infectious agents used, however the in vitro and in vivo use for this agent is marked NO. Please clarify if this agent will be used, the BSL used for in vitro and in vivo, and the in vivo species if applicable.
3. Please describe how and where both infectious agents will be used.

4. What is meant by the workshop will feature novel “effector detector” plants used in this project that allow visualization of both the bacterium and effector activity in planta. Will the plant pathogens listed be used during the workshop?
5. Please provide a brief description of the biocontainment of the plant pathogens during both in vitro and in vivo experiments.
6. The IBC requests verification of locations of work.

Project: Effects of climate change on rice disease and resistance (21-033B); BSL 2 in vitro, BSL 2 in rice, Select Agent. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the above project with the following modifications:

1. Under the infectious agents list, in vitro work is marked NO, this should be changed to YES.
2. Also, under the infectious agents list, the in vivo work should specify the in vivo species used (instead of the location).
3. Please provide a brief description of the biocontainment of the plant pathogens during both in vitro and in vivo experiments.
4. The IBC requests all investigators register with the Online IBC Database (https://protocols.research.colostate.edu/rco/), fill in a Statement of Experience and complete the IBC training.

6. Jackson, Mary C.

Project: Role of polysaccharides in Mycobacterium abscessus infection (21-034B); BSL 2 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: III-D-2

The committee unanimously approved of the above project as submitted.

7. Hove, Petronella

Agent: Borrelia burgdorferi– Strain: any; BSL 2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests a little more detail for the Agent Description such as, Borrelia burgdorferi is a spirochete bacterium in the genus Borrelia transmitted by ticks.
2. Please specify the chemical used to inactivate the agent prior to disposal and the concentration used.

Agent: Escherichia coli– Strain: any; BSL1

The committee unanimously approved of the above agent with the following modifications:

1. Some strain of E. coli require BSL2 (for example, E. coli O157). Therefore, the IBC requests that the strains be clarified (such as: any BSL1 strain). Or the biosafety level should be raised to BSL2.
2. Please specify the chemical used to inactivate the agent prior to disposal and the concentration used.

Agent: Borrelia garinii – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests a little more detail for the Agent Description such as, Borrelia garinii is a spirochete bacterium in the genus Borrelia transmitted by ticks.

2. Please specify the chemical used to inactivate the agent prior to disposal and the concentration used.

Agent: Borrelia afzelii – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests a little more detail for the Agent Description such as, Borrelia afzelii is a spirochete bacterium in the genus Borrelia transmitted by ticks.
2. Please specify the chemical used to inactivate the agent prior to disposal and the concentration used.

Project: INVESTIGATION OF A NOVEL CANDIDATE PROTEIN FOR LYME DISEASE CONTROL (21-035B); BSL 2 in vitro, rDNA, Human Origin Material. NIH Guidelines category non-exempt rDNA: III-D-2

The committee unanimously approved of the above project with the following modifications:

1. Under the Infectious agents section, in vitro work is marked as NO for each of the agents. This should be changed to YES.
2. The list of infectious agents use does not include Borrelia garinii or Borrelia afzelii, these should be added.
3. Please have all investigators complete the IBC training (https://protocols.research.colostate.edu/rco/).
4. The IBC requests all investigators complete the BSL1/2 and Blood Borne Pathogen online trainings, and the biosafety cabinet training (http://www.ehs.colostate.edu/WTrainReg/ClassSignUp.aspx).

8. Chatterjee, Delphi

Agent: Mycobacterium leprae – Strain: BSL2

The committee unanimously approved of the above agent with the following modifications:

The IBC requests that a chemical disinfectant and the concentration used be added to methods used to inactivate the agent prior to disposal.

9. Yao, Tingting

Agent: Lentivirus (recombinant) – any: BSL2

The committee unanimously approved of the above agent with the following modifications:

1. There are many lentiviruses, please state the base vector(s) used.
2. Please provide the concentration of bleach used for inactivation.

Project: Generate live-cell sensors for histone ubiquitination (21-036B); BSL2 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: III-D-3

The committee unanimously approved of the above project with the following modifications:

1. The IBC asks the PI to ensure all investigators are listed on the PARF.
2. The IBC requests all investigators register with the Online IBC Database (https://protocols.research.colostate.edu/rco/), fill in a Statement of Experience and complete the IBC training.
3. Please have all investigators complete the BSL1/2 and Blood Borne Pathogen online trainings (http://www.ehs.colostate.edu/WTrainReg/ClassSignUp.aspx).

4. All individuals using a biosafety cabinet need to complete the Biosafety Cabinet Training (http://www.ehs.colostate.edu/WTrainReg/ClassSignUp.aspx).

III. Amendments to be reviewed by full committee

None

IV. New Business

1. **IBC Membership – plant expert**
   IBC plant expert, Dr. Pearce, will be leaving CSU this summer, thus the IBC needs to recruit a new plant member. Since the IBC has a plant member from the Biology, the second plant member should be from the College of Ag. Several names were discussed as potential candidates. The IBC Coordinator will reach out to the department heads with the list of names to get their input on who would be the best fit and have the time to serve on the committee.
2. **IBC non-compliance**
   Our office became aware work in Dr. Yao's lab that started without IBC approval. As this work involves recombinant lentivirus, this will need to be reported to the NIH as an incident report. Dr. Yao has submitted the appropriate AARF and PARF, and has scheduled a Biosafety Lab Visit.

V. Unfinished business

None discussed

VI. Reports

1. **Coordinator's report.**
   a. **Next IBC meeting:** Wednesday, May 12, 2021

2. **Biosafety Officer's report.**
   a. **Incident reports**
      i. Engineering – there was a puddle on the benchtop in the BSL3. Leak from ceiling where electrical piping comes out. Facilities was called and responded. No containment breach and no outside reporting required.
      ii. Safety Concern/ watch – an individual reported 3 nights of having night sweats and night sweats are symptom of TB. There was no incident or known exposure. Occupational Health is following up with the individual.
   b. **Inspections**
   c. **Lab audits/Biosafety Outreach Visit reports**

VII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. **Nalam, Vamsi**
   Agent: Saccharomyces cervisiae – Strain: INVSc1; BSL1
2. **Dow, Steven**

Agent: Third generation, gamma-retrovirus vector (self-inactivating) – Strain: CAR T cell construct; BSL2

3. **Kading, Rebekah**
   Agent: Eastern equine encephalitis virus – Strain: any; BSL3
   Agent: Venezuelan equine encephalitis virus –Strain: any; BSL3
4. **MacNeill, Amy**
   Project: Neo-adjuvant therapy with oncolytic myxoma virus to prevent relapse of spontaneous canine sarcomas (21-017B); BSL2 in vitro and BSL2 in vivo in client owned dogs, rDNA. NIH Guidelines category non-exempt rDNA: III-D-1
5. **Jackson, Mary**
   Project: Assembly and export of mycobacterial lipoglycans (21-021B); in vitro BSL2 and BSL3, rDNA. NIH Guidelines category non-exempt rDNA: III-D-2
6. **Podell, Brendan**
   Agent: Mycobacterium bovis BCG – Strain: any; BSL2
   Project: Markers of immune control for vaccine and antimicrobial TB efficacy studies (21-022B); BSL2 and BSL3 in vitro, BSL2 and BSL3 in vivo in mice and guinea pigs. NIH Guidelines category non-exempt rDNA: NA

VIII. Amended Project or Agent approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

IX. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

X. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

1. 21-020B - Robertson, Gregory - Identifying cell penetrating peptides to target TB; BSL 3 in vitro, BSL 3 in vivo in mice, Human Origin Materials. NIH Guidelines category non-exempt rDNA: N/A
2. 21-023B - Bowen, Richard - West Nile Vaccine Efficacy Studies; BSL 3 in vitro, BSL 3 in vivo in horses. NIH Guidelines category non-exempt rDNA: N/A
3. 21-025B - Reardon, Kenneth - Electro-fermentation to improve product profile; BSL 1 in vitro. NIH Guidelines category non-exempt rDNA: N/A
4. 21-026B - Ordway, Diane - Novel compound against MAC in an in vivo chronic mouse aerosol infection model; BSL 2 in vitro, BSL 3 in vivo in mice. NIH Guidelines category non-exempt rDNA: N/A

Meeting adjourned at 1:34pm
Minutes recorded by CMJohnson

APPROVED MINUTES
Institutional Biosafety Committee
Microsoft Teams – REMOTE
Wednesday, May 12, 2021

Check if Attending (Members):	**Check if Attending (Alternate Members):**
☒ Jessica Ayers, Animal expert	☐ Lon Kendall, Director LAR
☒ Donald Bade, Unaffiliated	☒ Heather Blair, Associate Biosafety Officer *
☐ Richard Bowen, Associate Chair	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large*
☒ Chaoping Chen, Chair	
☒ Jason Cummings, lab rep	***non-voting at this meeting**
☐ Angelo Izzo, Mycobacteria Immunology	
☒ Nicole Marlenee, Assistant Biosafety Officer	
☒ June Medford, Plant/syn bio expert	
☐ Edwin Neas, Unaffiliated	
☒ Ken Olson, Virology	
☒ Stephen Pearce, Plant expert	
☒ Ann Powers, Virology	
☐ Bernard Rollin, Bioethicist	
Non-Voting Members:	
☒ James Graham, EHS Director	
RICRO Staff (non-voting):	**Regular Guests (non-voting):**
☒ Karen Dobos, RICRO Director	☒ Rebecca Moritz, Biosafety Office Director
☒ Adrianna Burney, IBC Intern	☐ Sara Cope, Assistant Biosafety Officer
☐ Christa Johnson, Associate VP for Research	☒ Joanie Ryan, Biosafety Office Intern
	☒ Joni Van Sickle, Occupational Health Coord.
Other: ☒ Jo Rupprecht, Interim RICRO Director	

This meeting was convened at 12:03PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted item.

I. Introduction

Jo Rupprecht is the current Regulatory Affairs Manager at CSU, she will also serve as the Interim RICRO Director while Karen Dobos transitions to her position, and while the search is conducted for a new Director.

II. Review of March 10, 2021 IBC meeting minutes.

The committee unanimously approved of the March meeting minutes without modification.

III. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco/).

1. Leach, Jan - Resubmitted

Project: Basis of Xanthomonas tissue-specific behavior during plant pathogenesis

(21-031B); BSL 2 in vitro, BSL 2 in vivo in Oryza, Select Agent. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the above project as submitted.

The PI resubmitted the PARF and clarified the IBC concerns that were raised during the last meeting.

2. **Charkowski, Amy**

Agent: Clavibacter michiganensis – Strain: any; BSL1

The committee unanimously approved of the above agent with the following modifications:

1. Please provide the room number for the storage location.
2. Pathogenic to plants should be changed from NO to YES.
3. Please provide the concentration of bleach used for inactivation.
4. A Project Approval Request Form (PARF) is also required to work with this agent.

3. **Kading, Rebekah**

Project: Integrating barcoded microcrystal technology with ongoing West Nile virus surveillance (21-038B); BSL2. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the above project with the following modifications:

Please have all investigators register with the Online IBC Database (https://protocols.research.colostate.edu/rco/), fill out a statement of experience, and complete the online IBC at CSU training.

Due to the nature of this project, the PI was asked to fill out an environmental risk assessment. The PI did a very thorough assessment; based on the risk assessment, the IBC has no concerns. The IBC agreed that this project does not involve rDNA. It uses a small piece of DNA attached to a barcode which is not likely to integrate.

4. **Bowen, Richard**

Project: Recombinant BCG-based SARS-CoV-2 Vaccines (21-043B); BSL 2 in vitro, BSL 3 in vivo in hamsters and mice, rDNA. NIH Guidelines category non-exempt rDNA: III-D-2

The committee unanimously approved of the above project with the following modifications:

1. The IBC requests the typo “spile” protein be corrected to “spike” protein.
2. The NIH Guideline category should be changed from III-D-2 to III-D-4.

5. **Reist, Noreen**

Project: Studying synaptic transmission in Drosophila (21-048B); BSL1 in vivo and rDNA. NIH Guidelines category non-exempt rDNA: III-D-4

The committee unanimously approved of the above project with the following modifications:

1. All investigators need to register with the Online IBC Database (https://protocols.research.colostate.edu/rco/), fill out a statement of experience, and complete the online IBC at CSU training.
2. All investigators need to complete the BSL1/2 Online training (http://www.ehs.colostate.edu/WTrainReg/ClassSignUp.aspx).
3. All investigators need update their Occupational Health risk assessment (http://www.ehs.colostate.edu/WOHSP/Home.aspx).

4. The lab needs to schedule a Biosafety Lab Visit.

6. **Chung, Jean**

Project: Proteins expression and purification (21-007B); BSL1 in vitro and rDNA. NIH Guidelines category non-exempt rDNA: III-D-2

The committee unanimously approved of the above project with the following modifications:

1. Please provide a few more details in Project Overview.
2. In vitro PPE says NO to lab coat and YES to facility shoes. This should be changed to YES for lab coat and NO for facility shoes.
3. Please have all investigators register with the Online IBC Database, fill out a statement of experience, and complete the online IBC at CSU training.

IV. Amendments to be reviewed by full committee

None

V. New Business

1. IBC non-compliance

Our office became aware work in Dr. Reist's lab that started without IBC approval. As this work involves transgenic drosophila, this will need to be reported to the NIH as an incident report. Dr. Reist has submitted the appropriate PARF and a Biosafety Lab Visit will be scheduled.

VI. Unfinished business

1. **IBC Membership**

There was a discussion regarding whether the Occupational Health Coordinator should be added as non-voting/ad hoc member of the IBC. The Occupational Health Coordinator routinely provides valuable information relevant to IBC review. It has become common among IBCs nationally to have an Occ Health consultant on committee. The committee agreed that it would be a good idea to add the Occ Health Coordinator as an IBC member. The IBC voted and approved recommending this appointment to the VPR.

VII. Reports

1. **Coordinator's report.**
   a. **Next IBC meeting:** Wednesday, June 9, 2021
   b. **July IBC Meeting –** the scheduled July IBC Meeting has been canceled. If an emergency meeting is needed it will occur during the week of July 26, 2021.

2. **Biosafety Officer's report.**
   a. **Incident reports** – there were no biosafety incidents or near misses this month.
   b. **Inspections** – CSU has been notified that CDC/APHIS will be conducting select agent inspections August 30 – September 3
   c. **Lab audits/Biosafety Outreach Visit reports**

VIII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. **Bowen, Richard**
   Project: Pathogenesis of Burkholderia pseudomallei infection in swine (21-027B); BSL 3 in vitro, BSL 3 in vivo in pigs, Select Agent. NIH Guidelines category non-exempt rDNA: N/A
2. **Nishimura, Erin**
   Agent: Pseudomona aeruginosa– Strain: PA14; BSL 2
   Agent: CeMbio– Strain: 12; BSL2
   Project: Caenorhabditis elegans: a model for genetic interaction between the gut microbiota and intestinal epithelial cells (21-024B); BSL 2 in vitro, BSL 2 in vivo in Caenorhabditis elegans, rDNA. NIH Guidelines category non-exempt rDNA: III-D-2
3. **Chen, Chaoping**
   Agent: E. coli– Strain: BL21(DE3); BSL 1
   Project: Purification of Single Chain Variable Fragments Fused to iRFP (21-029B); BSL 1 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: ?
4. **Yao, Tingting**
   Agent: Lentivirus (recombinant) – any: BSL2
   Project: Generate live-cell sensors for histone ubiquitination (21-036B); BSL2 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: III-D-3
5. **Nalam, Vamsi**
   Agent: Spongospora subterranea – Strain: any; BSL1
   Agent: Beet Curly Top Virus – Strain: any: BSL1

IX. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Withdrawn from review to be read into the minutes.

1. **Hove, Petronella**
   Agent: Borrelia burgdorferi– Strain: any; BSL 2
   Agent: Escherichia coli– Strain: any; BSL1
   Agent: Borrelia garinii – Strain: any; BSL2
   Agent: Borrelia afzelii – Strain: any; BSL2
   Project: INVESTIGATION OF A NOVEL CANDIDATE PROTEIN FOR LYME DISEASE CONTROL (21-035B); BSL 2 in vitro, rDNA, Human Origin Material. NIH Guidelines category non-exempt rDNA: III-D-2

X. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

XI. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

1. 21-032B - Ordway, Diane - Tracking Mycobacterium avium Reinfection in Cystic Fibrosis Mouse Models. BSL 2 in vitro, BSL 2 in vivo. NIH Guidelines category non-exempt rDNA: N/A
2. 21-037B - Basaraba, Randall - Using adjuvants to Repurpose Azithromycin for Pseudomonas aeruginosa. BSL 2 in vitro, BSL in vivo in mice. NIH Guidelines category non-exempt rDNA: N/A
3. 21-039B - Mathiason, Candace - Chronic Wasting Disease Vaccines. BSL 2 in vitro, BSL 2 in vivo in deer. NIH Guidelines category non-exempt rDNA: N/A

4. 21-040B - Ordway, Diane - Role of polysaccharides in Mycobacterium abscessus infection. BSL 2 in vitro, BSL 2 in vivo in mice. NIH Guidelines category non-exempt rDNA: N/A
5. 21-041B - Ordway, Diane - Macrophage concentrating compounds against intracellular nontuberculosis mycobacterial infections. BSL 2 in vitro, BSL 2 in vivo in mice. NIH Guidelines category non-exempt rDNA: N/A
6. 21-042B - Gonzalez Juarrero, Mercedes - Inhaled tigecycline therapy for pulmonary M. abscessus infections. BSL 1 in vitro, BSL 2 in vivo in mice. NIH Guidelines category non-exempt rDNA: N/A

Meeting adjourned at 12:59pm
Minutes recorded by CMJohnson

Approved Minutes
Institutional Biosafety Committee
Microsoft Teams – REMOTE
Wednesday, June 9, 2021

Check if Attending (Members):	**Check if Attending (Alternate Members):**
☒ Jessica Ayers, Animal expert	☐ Lon Kendall, Director LAR
☒ Donald Bade, Unaffiliated	☒ Heather Blair, Associate Biosafety Officer *
☐ Richard Bowen, Associate Chair	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large*
☒ Chaoping Chen, Chair	
☒ Jason Cummings, lab rep	***non-voting at this meeting**
☐ Angelo Izzo, Mycobacteria Immunology	
☒ Nicole Marlenee, Assistant Biosafety Officer	
☐ June Medford, Plant/syn bio expert	
☐ Edwin Neas, Unaffiliated	
☒ Ken Olson, Virology	
☒ Stephen Pearce, Plant expert	
☒ Ann Powers, Virology	
☐ Bernard Rollin, Bioethicist	
Non-Voting Members:	
☒ James Graham, EHS Director	
RICRO Staff (non-voting):	**Regular Guests (non-voting):**
☒ Karen Dobos, RICRO Director	☒ Rebecca Moritz, Biosafety Office Director
☒ Adrianna Burney, IBC Intern	☐ Sara Cope, Assistant Biosafety Officer
☐ Christa Johnson, Associate VP for Research	☒ Joanie Ryan, Biosafety Office Intern
	☒ Joni Van Sickle, Occupational Health Coord.
Other: ☒ Jo Rupprecht, Interim RICRO Director	

This meeting was convened at 12:02PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted item.

I. Review of April 14, 2021 and May 12, 2021 IBC meeting minutes.
Both sets of minutes were approved with some formatting corrections.

II. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco/).

1. Schountz, Tony

Agent: Cedar/Nipah virus chimera – Strain: any; BSL3

The committee unanimously approved of the above agent with the following modifications:

1. Minimal biosafety level should be changed to BSL2.
2. Vaccine available for people and vaccine used for personnel were both marked YES. Please clarify what vaccine this is referring to.
3. The IBC requests confirmation on the correct storage location.

Project: Cedar/Nipah-GF chimeric virus susceptibility in animals (21-055B); BSL3 in vitro and BSL3 in vivo in hamsters, deer mice, and bats; rDNA. NIH Guidelines category non-exempt rDNA: III-D-1

The committee unanimously approved of the above project with the following modifications:

1. The IBC reviewed the request to conduct this work at ABSL2. The references provided indicated previous work in hamsters and bats, and thus these species have been approved for ABSL2. As a reference for deer mice was not found, the IBC recommends this species remain at ABSL3 until additional information indicating otherwise is obtained.
2. The IBC requests confirmation of the location for in vitro work, as well as the ABSL2 locations for bats and hamsters, and the ABSL3 location for deer mice.

2. Leach, Jan

Agent: Russian Wheat Aphid (Diuraphis noxia) – Strain: any; BSL1

The committee unanimously approved of the above agent with the following modifications:

The IBC request a chemical disinfectant be added under methods of inactivation, and the soil of infested plants also be autoclaved.

There was discussion/question regarding whether these aphids were already in CO.

Project: Understanding the role of the aphid microbiome in Russian wheat aphid virulence (21-056B); BSL1 in vitro and BSL1 in vivo in wheat and barley; rDNA. NIH Guidelines category non-exempt rDNA: III-E-2

The committee unanimously approved of the above project with the following modifications:

The IBC requests that soil be autoclaved in addition to autoclaving the plants.

Good amount of detail regarding containment; sufficient containment practices in place to minimize the risk of release.

3. Borlee, Brad

Project: Defense Against Burkholderia pseudomallei Infections: Subunit Vaccine and Monoclonal Antibody/Nanobody Technologies (21-059B); BSL2 and BSL3 in vitro. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project with the following modifications:

Please ensure all investigators are registered with the Online IBC Database.

Project: Inhibition of quorum sensing (21-065B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project with the following modifications:

1. In the Project Overview, the IBC requests that quorum sensing be briefly described, as well as how midges and mosquitoes bacteria will be tested for their ability to inhibit quorum sensing.
2. The IBC recommends that safety glasses be added to the PPE used.
3. Please ensure the profiles within the IBC database are current and accurate.

Agent: Chromobacterium violaceum – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests the building be added to the storage location.
2. Vesphene IIse has been discontinued; please provide an alternate chemical disinfectant.

4. Henry, Charles

Agent: Salmonella enterica – Strain: Serovar Typhimurium; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests a secondary contact be added.
2. Please confirm the storage location.
3. Please provide the concentration of bleach used for inactivation.

Project: Detection of foodborne pathogens (21-061B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously tabled the decision of the above project and specifically requested more information on the following:

1. The IBC requests more information in the Project Overview. For example, what assays will be performed to demonstrate multiplexed detection of foodborne pathogens?
2. The IBC requests that Dr. Henry's experience working with bacteria be expanded.
3. The IBC requests that all individuals working on the project be added to the PARF.

The IBC agreed to re-review the PARF by email once the additional information was provided. The Biosafety Office recent conducted a lab visit and everything looked good.

5. Anthony, Russell

Project: Placental-Fetal Hormonal Interactions (21-062B); BSL2 in vitro and BSL2 in vivo sheep; human samples; rDNA. NIH Guidelines category non-exempt rDNA: III-D-4

The committee unanimously approved of the above project with the following modifications:

1. When using 10% bleach for decontamination, the IBC recommends waiting 24 hours before autoclaving.
2. The IBC requests that all investigators update their statement of experience.

There was a discussion regarding the carcasses going to the landfill after the products of conception have been removed. This practice has been established and approved by NIH. The IBC Coordinator will locate the documentation that discusses this procedure.

6. Tjalkens, Ronald

Agent: Streptococcus pneumonia – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. Please give a short description of the Streptococcus pneumonia agent, including its virulence, host range
and what type of disease it causes.
2. Pathogenic for animals should be changed from NO to YES.
3. Bleach concentration under Methods of Inactivation, should be changed from 0.1% to 10%.
4. The information under the Moving agents out of containment is relevant to SARS-CoV-2 and should be moved to the SARS-CoV-2 AARF.

Project: Streptococcus/SARS-CoV-2 interactions (21-066B); BSL3 in vivo in mice and hamsters. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project with the following modifications:

Please clarify whether in vitro assays or agent manipulation will be performed. And if so, what biosafety level will the work be conducted at.

7. **Bowen, Richard**

Project: Defense Against Burkholderia pseudomallei Infection: Subunit Vaccine and Monoclonal Antibody/Nanobody Technologies (21-067B); BSL3 in vitro and BSL3 in vivo in mice. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project with the following modifications:

[redacted] is listed as location of work at the top of the PARF, but not listed under in vitro or in vivo uses. Please clarify if [redacted] will be used.

8. **Kading, Rebekah**

Agent: Japanese encephalitis virus – Strain: any; BSL3

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests that the building name be added to the storage location.
2. Please provide the percentage of Microchem Plus used for inactivation.

Project: Effects of environmental temperature on arbovirus vector competence of various mosquito species (21-068B); BSL3 in vitro and BSL3 in vivo mosquitoes. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project with the following modifications:

Culex quinquefasciatus is not select agent approved; please confirm that part of the project will not start until the select agent amendment is approved.

III. Amendments to be reviewed by full committee

None

IV. New Business

None

V. Unfinished business

1. IBC Membership – the IBC voted to nominate Dr. Roberts as the new plant expert
2. Yao – NIH/OSP Incident Report – we heard back from NIH on June 3rd that they did not need any additional information. Therefore, this incident is now closed.

VI. Reports

1. **Coordinator's report.**
   a. **Next IBC meeting:** Wednesday, August 11, 2021
   b. **NO scheduled IBC Meeting in July;** if there is an urgent need to meet it will be on July 28, 2021

2. **Biosafety Officer's report.**
    a. **Incident reports –** none to report
    b. **Inspections –** The Biosafety Office is preparing for the CDC/USDA Select Agent inspection. It will be hybrid inspection with one week of document review and interviews, and another week of facility review/inspection. This will be during the last couple weeks of August.
    c. **Lab audits/Biosafety Outreach Visit reports**

VII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. **Kading, Rebekah**
   Project: Integrating barcoded microcrystal technology with ongoing West Nile virus surveillance (21-038B); BSL2. NIH Guidelines category non-exempt rDNA: ??
2. **Bowen, Richard**
   Project: Recombinant BCG-based SARS-CoV-2 Vaccines (21-043B); BSL 2 in vitro, BSL 3 in vivo in hamsters and mice, rDNA. NIH Guidelines category non-exempt rDNA: III-D-2
3. **Nalam, Vamsi**
   Project: Development of molecular tools to study movement of Potato virus Y in susceptible and resistant varieties (21-093B); BSL1 in vitro and BSL1 in vivo in tobacco and potato, rDNA. NIH Guidelines category non-exempt rDNA: III-E-1
   Project: Development of CRISPR/Cas9-mediated viral resistance to Beet Curly Top Virus (21-015B); BSL1 in vitro and BSL1 in vivo in tobacco, rDNA. NIH Guidelines category non-exempt rDNA: III-D-2
4. **Leach, Jan E.**
   Project: QTL engineering for disease resistance in rice (21-030B); BSL 2 in vitro, BSL 2 in vivo in rice, Select Agent, rDNA. NIH Guidelines category non-exempt rDNA: III-E-2
   Project: Effects of climate change on rice disease and resistance (21-033B); BSL 2 in vitro, BSL 2 in rice, Select Agent. NIH Guidelines category non-exempt rDNA: N/A

VIII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Withdrawn from review to be read into the minutes.

IX. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

X. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

1. 21-045B-Ordway, Diane - Novel compounds against pulmonary Nontuberculous mycobacterial infections BSL 2 in vitro. NIH Guidelines category non-exempt rDNA: NA
2. 21-046B- Ordway, Diane - In vivo characterization of Encochleated Amikacin (CAMK) in the CF mouse model. BSL 2 in vitro, BSL 2 in vivo in mice. NIH Guidelines category non-exempt rDNA: NA
3. 21-047B-Jackson, Mary - Integrated genomics and molecular tools to tackle leprosy treatment BSL 2 in vitro, Human Origin Material. NIH Guidelines category non-exempt rDNA: NA

4. 21-049B-Ordway, Diane - Inhaled Nitrite Immune Induction and Activity against Intracellular Drug Sensitive and Drug Resistant M. tuberculosis Infections BSL 3 in vitro, BSL 3 in vivo in mice, Human Origin Materials. NIH Guidelines category non-exempt rDNA: NA
5. 21-050B-Ordway, Diane - Evaluation of MPL compounds and Oxazolidinones against M. abscessus in a SCID mouse infection model BSL 2 in vitro, BSL 2 in vivo in mice. NIH Guidelines category non-exempt rDNA: NA
6. 21-051B-Thamm, Douglas - Safety and Effectiveness of a Flow-Through Device for the Capture of Circulating Tumor Cells in Dogs BSL 1 in vitro, BSL 1 in vivo in dogs, Human Orgin Material. NIH Guidelines category non-exempt rDNA: NA
7. 21-052B-Schountz, Tony - Isolation of coronaviruses from wild rodents BSL3 in vitro/field study. NIH Guidelines category non-exempt rDNA: NA
8. 21-054B-Ordway, Diane - Experimental Testing of Novel Therapeutic against Nontuberculosis Mycobacteria BSL 2 in vitro, BSL 2 in vivo in mice. NIH Guidelines category non-exempt rDNA: NA

Meeting adjourned at 1:36pm
Minutes recorded by CMJohnson

APPROVED MINUTES
Institutional Biosafety Committee
Microsoft Teams – REMOTE
Wednesday, August 11, 2021

Check if Attending (Members):	**Check if Attending (Alternate Members):**
☒ Jessica Ayers, Animal expert	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large*
☒ Donald Bade, Unaffiliated	☐ Lon Kendall, Director LAR
☒ Richard Bowen, Associate Chair	☒ Nicole Marlenee, Assistant Biosafety Officer*
☒ Chaoping Chen, Chair	
☐ Jason Cummings, lab rep	***non-voting at this meeting**
☒ June Medford, Plant/syn bio expert	
☒ Rebecca Moritz, Biosafety Office Director	
☒ Edwin Neas, Unaffiliated	
☒ Ken Olson, Virology	
☒ Ann Powers, Virology	
☒ Robyn Roberts, Plant expert	
Non-Voting Members:	
☒ James Graham, EHS Director	
☒ Joni Van Sickle, Occupational Health Coord.	
RICRO Staff (non-voting):	**Regular Guests (non-voting):**
☒ Adrianna Burney, IBC Intern	☒ Heather Blair, Associate Biosafety Officer
☒ Karen Dobos, RICRO Consultant	☐ Sara Cope, Assistant Biosafety Officer
☒ Jo Rupprecht, Interim RICRO Director	☒ Joanie Ryan, Biosafety Office Intern
Other:	

This meeting was convened at 12:03PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted item.

I. New Member Introductions

The new members (Robyn Roberts, Rebecca Moritz, and Joni Van Sickle) were asked to introduce themselves. The rest of the committee introduced themselves and welcomed the new members.

II. Review of June 9, 2021 IBC meeting minutes.

The minutes were not available for review.

III. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco/).

1. Reynolds, Melissa

Agent: Streptococcus – Strain: Streptococcus pneumoniae; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests the agent name be changed to Streptococcus pneumoniae, and the specific strains being used be indicated.
2. Under Agent Description, the IBC requests a statement or two regarding what the does, i.e., host range and types of infectious the agent causes.

2. Bosco-Lauth, Angela

Agent: Rift Valley fever virus– Strain: any; BSL3

The committee unanimously approved of the above agent as submitted.

Agent: Oropouche virus– Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

Please provide the room number for the storage location.

Project: Transmission and pathogenesis of bunyaviruses in an animal model (21-071B); BSL 3 in vitro, BSL3 in vivo in hamsters, Select Agent. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the above project with the following modifications:

The IBC requested a typo in the first line of the Project Overview be corrected.

3. Ragan, Izabela

Agent: SARS-CoV– Strain: any; BSL3

The committee unanimously approved of the above agent as submitted.

Agent: MERS-CoV– Strain: any; BSL3

The committee unanimously approved of the above agent as submitted.

Agent: SARS-CoV-2– Strain: any; BSL3

The committee unanimously approved of the above agent as submitted.

Project: Development of an animal model and companion multiplexing immunoassay for SARS-CoV-1, SARS-CoV-2 and MERS-CoV (21-072B); BSL 3 in vitro, BSL 3 in vivo in hamsters, Select Agent. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the above project as submitted.

4. Dobos, Karen

Agent: Langat Virus – Strain: Attenuated only; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. Under Methods used to inactivate agent for disposal, please clarify what percentage of bleach will be used.
2. The IBC requests clarification regarding the storage location.

Agent: Venezuelan Equine Encephalitis Virus – Strain: TC-83 / other attenuated strains; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests clarification regarding how "other attenuated strains" are defined and suggests either deleting this or changing it to "other strains excluded from the SA list".
2. Under Methods used to inactivate agent for disposal, please clarify what percentage of bleach will be used.

Agent: Venezuelan Equine Encephalitis Virus – Strain: Any; BSL3

The committee unanimously approved of the above agent with the following modifications:

The IBC requests a chemical disinfectant be added to the Methods used to inactivate agent for disposal.

5. Ehrhart, Nicole

Agent: Adeno-associated virus– Strain: any; BSL 2

The committee unanimously approved of the above agent with the following modifications:

1. The minimal biosafety level and human risk group should both be changed to 1.
2. The IBC requests a chemical disinfectant and its concentration be added to the Methods used to inactivate agent for disposal

There was a discussion regarding which biosafety level should be listed on the AARF. For example, the agent is a BSL1 agent, however the PI will be using it at BSL2. It was pointed out that the AARF asks for the minimum BSL, and therefore the minimum BSL should be listed. If the PI choose to work with the agent at a higher BSL, this should be specified in the PARF.

Project: Genetically reprogramming pancreatic alpha cells into insulin producing β-like cells for the treatment of diabetes (21-074B); BSL2 in vivo in mice, rDNA. NIH Guidelines category non-exempt rDNA: III-D-4

The committee unanimously approved of the above project with the following modifications:

1. Please clarify if the cloning is being done in the lab at CSU or if the vector was created elsewhere.
2. In the Project Overview, please describe how the vector is being used/introduced in the mice and how the mice will be assessed to determine if gene editing was successful.
3. The IBC recommends wearing safety glasses since a biosafety cabinet is not being used.
4. Please confirm/update the location of the in vivo work.
5. Please confirm/update the method of disposition of infected animals.
6. The IBC requests the statement to be added to Mechanisms in place for containment and disposition of infected animals: Any unused AAV will be inactivated via autoclave. Following infection in the mice, AAV are reported to no longer be excreted 72 hours after inoculation, nor are they active in the bedding waste. Cages are labeled with a biohazard sticker for the first 72 hours and no cages are open during that time unless absolutely necessary. In which case they are opened in a BSC.
7. The IBC requests all investigators register with the Online IBC Database.
8. The IBC requests all investigators complete the BSL1/BSL2 Online Training.

6. **Kading, Rebekah**

Agent: deer mouse coronavirus – Strain: any; BSL2

The committee unanimously approved of the above project as submitted.

Project: Coronavirus detection in field-caught deer mice (21-075B); BSL3 in vitro. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the above project with the following modifications:

The IBC requests all investigators register with the Online IBC Database.

Submitted after the deadline; review if time permitted

7. **Mayo, Christie**

Agent: Avian Influenza Virus– Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests clarification regarding which strains are being used (i.e. H?N?) and confirmation that H5 and H7 viruses will excluded.
2. The Human Risk Group should be changed from 1 to 2.
3. Under storage location, please provide the building for the room listed.

Agent: Mannheimia haemolytica – Strain: any; BSL2
Agent: Trueperella pyogenes– Strain: any; BSL2
Agent: Parainfluenza virus 3 (PI3) – Strain: any; BSL2
Agent: bovine herpesvirus (BHV-1) – Strain: any; BSL2
Agent: Bovine respiratory syncytial virus (BRSV) – Strain: any; BSL2
Agent: Bovine viral diarrhea virus (BVDV) – Strain: any; BSL2
Agent: Pasturella multocida– Strain: any; BSL2

The committee unanimously approved of the above agents with the following modifications:

1. Confirm correct human risk group.
2. Under storage location, please provide the building for the room listed.

Project: Novel Approach to Diagnose and Genetically Characterize High Consequence Pathogens Affecting Animal Health (21-076B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously tabled of the above project and specifically asked for more information regarding the following:

1. The IBC requests more details regarding what work and/or manipulations are being done with the avian influenza and the other agents?
2. Pasteurella multocida, Mannheimia haemolytica, and Trueperella pyogenes are all mentioned in the Project Overview. If these agents will be used, they should be added to the list of infectious agents used.
3. If avian influenza virus will be used it should be added to the list of infectious agents used and noted that H5 and H7 strains will be excluded.
4. The IBC recommends the use of safety glasses.
5. All individuals listed on the PARF need to register with the Online IBC Database, fill out the statement of experience and complete the IBC at CSU online training.

The IBC agreed to re-review the PARF by email once the additional information is obtained.

IV. New Business

1. IBC Protocol Subcommittee

A subcommittee is being formed to review the current IBC forms and processes and determine if any changes should be made prior to moving to Kuali Protocols (KP). The IBC was asked if any members wanted to be on the subcommittee. They were also asked to think about any aspects of the current IBC Database that they really liked or did not like.

V. Unfinished business

1. IBC membership

a. We are waiting to hear back from the VPR regarding the bioethicist position on the committee.

b. There was a suggestion to reconsider adding a faculty member with Mycobacteria expertise to the IBC. At the time the decision was made to not replace Angelo Izzo, Karen Dobos was routinely attending the meetings (as RICRO Director) however now that she is transitioning to a different position there is a potential gap. The committee discussed Dr. Dobos as a potential nominee and agreed to recommend her to Dr. Rudolph for appointment.

2. IBC non-compliance – Reist lab

We received word back from NIH/OSP that they did not need any additional information at this time. This incident is considered closed.

VI. Reports

1. Coordinator's report.

a. Next IBC meeting: Wednesday, September 8th, 2021

b. October National Biosafety and Biosecurity Month

1. **Poster contest –** the announce will go out later this week
2. **RAM Safe Pledge –** will take place during the month of October

2. Biosafety Officer's report.

a. Incident reports

i. Two mouse bites – one from a CWD infected mouse, one from a TB infected mouse. All proper procedures were followed. Individuals are following up with Occ Health. No outside reporting required.

ii. Good catch/needlestick – the needle was clean/hadn't been used yet. Proper procedures were followed. No outside reporting required.

iii. Inventory – the Biosafety Office was asked to assist with disposal of some archive lyoph vials and found select agents in the archive. The SA vials were documented and then destroyed. The incident was reported to the CDC. Biosafety is following up that lab and others in the area.

b. **Inspections –** the Biosafety Office is preparing for the Select Agent inspection; inspectors will be on campus the last week of August.

VII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. **Schountz, Tony**
   Agent: Cedar/Nipah virus chimera – Strain: any; BSL3
   Project: Cedar/Nipah-GF chimeric virus susceptibility in animals (21-055B); BSL3 in vitro and BSL3 in vivo in hamsters, deer mice, and bats; rDNA. NIH Guidelines category non-exempt rDNA: III-D-1
2. **Leach, Jan**
   Agent: Russian Wheat Aphid (Diuraphis noxia) – Strain: any; BSL1
   Project: Understanding the role of the aphid microbiome in Russian wheat aphid virulence (21-056B); BSL1 in vitro and BSL1 in vivo in wheat and barley; rDNA. NIH Guidelines category non-exempt rDNA: III-E-2
3. **Borlee, Brad**
   Project: Defense Against Burkholderia pseudomallei Infections: Subunit Vaccine and Monoclonal Antibody/Nanobody Technologies (21-059B); BSL2 and BSL3 in vitro. NIH Guidelines category non-exempt rDNA: NA
   Agent: Chromobacterium violaceum – Strain: any; BSL2
   Project: Inhibition of quorum sensing (21-065B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA: NA
4. **Anthony, Russell**
   Project: Placental-Fetal Hormonal Interactions (21-062B); BSL2 in vitro and BSL2 in vivo sheep; human samples; rDNA. NIH Guidelines category non-exempt rDNA: III-D-4
5. **Tjalkens, Ronald**
   Agent: Streptococcus pneumonia – Strain: any; BSL2
   Project: Streptococcus/SARS-CoV-2 interactions (21-066B); BSL3 in vivo in mice and hamsters. NIH Guidelines category non-exempt rDNA: NA
6. **Bowen, Richard**
   Project: Defense Against Burkholderia pseudomallei Infection: Subunit Vaccine and Monoclonal Antibody/Nanobody Technologies (21-067B); BSL3 in vitro and BSL3 in vivo in mice. NIH Guidelines category non-exempt rDNA: NA
7. **Kading, Rebekah**
   Agent: Japanese encephalitis virus – Strain: any; BSL3
   Project: Effects of environmental temperature on arbovirus vector competence of various mosquito species (21-068B); BSL3 in vitro and BSL3 in vivo mosquitoes. NIH Guidelines category non-exempt rDNA: NA
8. **Reist, Noreen**
   Project: Studying synaptic transmission in Drosophila (21-048B); BSL1 in vivo and rDNA. NIH Guidelines category non-exempt rDNA: III-D-4

VIII. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

IX. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

1. 21-044B - Nett, Terry - Development of a Radioimmunotitration Assay to Measure IgG/IgM in Serum from COVID19 Patients, for Surveillance; BSL 2 in vitro, Human Origin Material. NIH Guidelines category non-exempt rDNA: NA
2. 21-057B - Ordway, Diane - Chronic Testing of OG doses Therapeutic against Mycobacterium abscessus; BSL 2 in vitro, BSL 2 in vivo. NIH Guidelines category non-exempt rDNA: NA
3. 21-063B - Lark, Daniel - Developing an in vitro model of endothelial extracellular vesicle trafficking; BSL 1 in vitro, Human Origin Material. NIH Guidelines category non-exempt rDNA: NA
4. 21-064B - Borlee, Brad - Midge colony rearing; BSL 2 in vitro. NIH Guidelines category non-exempt rDNA: NA
5. 21-069B - Karoly, Hollis - Exploring Intoxication During Acute Alcohol and Cannabis Co-Administration: A Focus on Cannabinoid Content and Order Effects; Human Origin Materials. NIH Guidelines category non-exempt rDNA: NA
6. 21-070B - Karoly, Hollis - Effects of Cannabinoids on Alcohol Consumption and the Gut-brain Axis; Human Origin Materials. NIH Guidelines category non-exempt rDNA: NA
7. 21-073B - Akkina, Ramesh - Exploring the features of HIV exceptional elite controllers in humanized mice; BSL 2 in vitro, BSL 2 in vivo in mice, Human Origin Materials. NIH Guidelines category non-exempt rDNA: NA

Meeting adjourned at 1:09pm
Minutes recorded by CMJohnson

APPROVED MINUTES
Institutional Biosafety Committee
Microsoft Teams – REMOTE
Wednesday, September 8, 2021

Check if Attending (Members):	**Check if Attending (Alternate Members):**
☒ Jessica Ayers, Animal expert	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large*
☒ Donald Bade, Unaffiliated	☐ Lon Kendall, Director LAR
☐ Richard Bowen, Associate Chair	☒ Nicole Marlenee, Assistant Biosafety Officer*
☒ Chaoping Chen, Chair	
☒ Jason Cummings, lab rep	***non-voting at this meeting**
☒ June Medford, Plant/syn bio expert	
☒ Rebecca Moritz, Biosafety Office Director	
☒ Edwin Neas, Unaffiliated	
☒ Ken Olson, Virology	
☐ Ann Powers, Virology	
☒ Robyn Roberts, Plant expert	
Non-Voting Members:	
☒ James Graham, EHS Director	
☒ Joni Van Sickle, Occupational Health Coord.	
RICRO Staff (non-voting):	**Regular Guests (non-voting):**
☐ Adrianna Burney, IBC Intern	☒ Heather Blair, Associate Biosafety Officer
☒ Jo Rupprecht, Interim RICRO Director	☒ Joanie Ryan, Biosafety Office Intern
Other:	

This meeting was convened at 12:03PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted item.

I. Review of June 9, 2021 and August 11, 2021 IBC meeting minutes.
Both sets of minutes were approved without modification.

II. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco/).

1. Smith, Bret

Agent: adeno-associated virus (AAV) – Strain: any; BSL1

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests more information specific to the agent be added to the Agent Description. Something like the following statement would be helpful: Adeno-associated viruses (AAV) are small viruses that are replication-defective, nonenveloped viruses and

have linear single-stranded DNA (ssDNA) genome of approximately 4.8 kilobases. AAV are not currently known to cause disease but can cause a very mild immune response.
2. Under Methods of Inactivation, the IBC requests that 10% bleach be used instead of ethanol.
3. The IBC requests that autoclave be added as a Method of Inactivation.

Project: Synaptic organization and plasticity (21-079B); BSL1 in vitro, BSL1 in vivo in mice, rDNA. NIH Guidelines category non-exempt rDNA: III-D-4

The committee unanimously approved of the above project with the following modifications:

1. Project utilizes Select Agent(s) should be changed to NO. Quantity of TTX must remain below 500mg at a time to be exempt from SA.
2. Please clarify location of in vivo uses.
3. Under Mechanisms in place for containment and disposition of infected animals, the IBC requests the following practice and language be added to let animal care staff know when it's safe to handle to the animals: Any unused AAV will be inactivated via autoclave. Following infection in the mice, AAV are reported to no longer be excreted 72 hours after inoculation, nor are they active in the bedding waste. Cages are labeled with a biohazard sticker for the first 72 hours and no cages are open during that time unless absolutely necessary. In which case they are opened in a BSC.
4. An investigator indicated in their experience statement that she will not be working with any infectious agent. Please clarify their role in the project.
5. Please ensure all investigators provide a statement of experience working with biohazardous materials in the IBC database.
6. All new labs are required to schedule a Biosafety Outreach Visit.

2. Bosco-Lauth, Angela

Agent: Usutu virus – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

The IBC requests that a chemical disinfectant be added to the Methods of Inactivation.

Agent: St. Louis encephalitis virus – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests room number be added to the storage location.
2. The IBC requests that a chemical disinfectant be added to the Methods of Inactivation.

Project: Heterologous challenge of birds with flaviviruses (21-083B); BSL3 in vitro and BSL3 in vivo in sparrows. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the above project as submitted; approval can be granted once issues with the agents are resolved.

3. **Borlee, Brad**

Agent: morganella morganii – Strain: any; BSL2

The committee unanimously approved of the above agent as submitted.

Agent: Elizabethkingia meningoseptica – Strain: any; BSL2

The committee unanimously approved of the above agent as submitted.

Agent: rhizoctonia solani – Strain: any; BSL1

The committee unanimously approved of the above agent as submitted.

Agent: Bacillus cereus – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:
The IBC requests that the Strain be changed from ANY to ANY EXCEPT FOR Bacillus cereus Biovar anthracis.

Project: Isolation of bacteriaphage to kill antibiotic resistant bacteria (21-086B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the above project as submitted.

III. Amendments to be reviewed by full committee

None

IV. New Business

1. **DRAFT – CSU IBC Biosafety Incident Review Procedure**
   The IBC Coordinator presented the draft incident review document to the IBC. The purpose of this document is to ensure a consistent and transparent incident review process. To give the committee ample time to review, it was decided to email the document to the IBC and allow one week to submit comments.

V. Unfinished business

1. **IBC membership**
   The two unresolved IBC memberships are the bioethicist and Mycobacterium specialist positions:
   - **a.** The VPR has determined that instead of having a designated bioethicist on the committee that the IBC should utilize the Bioethics Advisory Committee (BAC) when ethical concerns arise. There were several questions regarding the logistics of how this would work. It was suggested that if an IBC member identified a concern, they could notify the IBC Coordinator who would then invite Sam Halabi (the BAC Chair). Another option would be to send the monthly agenda to Sam and then he could decide which meetings to attend based on the agenda. The concern was raised that things may get missed by not having a bioethicist at the meetings all the time, and that having a bioethicist present for

real time feedback has been extremely valuable to the committee. After some discussion, it was decided to try it out this new set up for a while and if it is not working, things could be re-evaluated.

b. The committee had nominated Dr. Dobos to serve as the Mycobacterium specialist, however due to her commitments in her new role, the VPR suggested the IBC select an alternate nominee. The IBC discussed a few individuals and decided to nominate [redacted]. The IBC Coordinator will reach out to him to determine his interest in serving on the committee.

2. IBC Protocol Subcommittee

No update at this time

VI. Reports

1. Coordinator's report.

a. ABSA election results – the ABSA International election results were just announced, Ms. Heather Blair was selected for the Nominating Committee and Ms. Rebecca Moritz was elected as the President-Elect. Congratulations to both!!

b. Next IBC meeting: Wednesday, October 13, 2021 – this will hopefully be an in-person meeting, more details to come

c. October National Biosafety and Biosecurity Month

1. **Poster contest – Deadline September 20th**
2. **RAM Safe Pledge – starting October 1st**

2. Biosafety Officer's report.

a. Select Agent Inspection Update – The Select Agent inspectors were here last week. Everything went very well. Currently only have the preliminary report, should receive the final report by the end of September. Once CSU receives the report, we will have 30 days to respond.

b. Incident reports

i. There were three protocol breaches: two involved individuals not signing in and/or using the personnel locator board properly; one involving an autoclaved biohazard bag that was found outside on the path between two buildings on main campus with mice carcasses in it. Biosafety is following up. No outside reporting required.

ii. There was a spill of CWD mouse water containing bleach. A carboy fell off cart and cracked and spilled onto the floor. The spill was mopped up and remaining water placed in another carboy; later the spill area was re-bleached with fresh disinfectant. No outside reporting required.

c. Lab audits/Biosafety Outreach Visit reports

VII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. Bosco-Lauth, Angela

Agent: Oropouche virus– Strain: any; BSL2

Project: Transmission and pathogenesis of bunyaviruses in an animal model (21-071B); BSL 3 in vitro, BSL3 in vivo in hamsters, Select Agent. NIH Guidelines category non-exempt rDNA: N/A

2. **Dobos, Karen**
   Agent: Langat Virus – Strain: Attenuated only; BSL2
   Agent: Venezuelan Equine Encephalitis Virus – Strain: TC-83 / other attenuated strains; BSL2
   Agent: Venezuelan Equine Encephalitis Virus – Strain: Any; BSL3
3. **Ehrhart, Nicole**
   Agent: Adeno-associated virus– Strain: any; BSL 1
   Project: Genetically reprogramming pancreatic alpha cells into insulin producing β-like cells for the treatment of diabetes (21-074B); BSL2 in vivo in mice, rDNA. NIH Guidelines category non-exempt rDNA: III-D-4
4. **Kading, Rebekah**
   Project: Coronavirus detection in field-caught deer mice (21-075B); BSL3 in vitro. NIH Guidelines category non-exempt rDNA: N/A

VIII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Withdrawn from review to be read into the minutes.

IX. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

X. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

1. 21-077B - Zabel, Mark - Generation and collection of aerosols containing heat-inactivated SARS-CoV-2; BSL2 in vitro; human samples. NIH Guidelines category non-exempt rDNA: N/A
2. 21-078B - Guth, Amanda - Human Blood Donor Program; BSL 2 in vitro, Human Origin Material. NIH Guidelines category non-exempt rDNA: N/A
3. 21-080B - Ragan, Izabela - Evaluating the efficacy of an inactivated, whole virion vaccine against COVID-19 in a hamster model; BSL 3 in vitro, BSL 3 in vivo in hamsters. NIH Guidelines category non-exempt rDNA: N/A
4. 21-081B - Gonzalez Juarrero, Mercedes - Precursor-rRNA: A physiologic metric for informed regimen design and cystic fibrosis pathogen monitoring; BSL 2 in vitro, BSL 2 in vivo in mice. NIH Guidelines category non-exempt rDNA: N/A
5. 21-084B - Robertson, Gregory - Testing of Standard Drugs for Mycobacterium Tuberculosis (MTB) in Animal Models for MTB; BSL 3 in vivo in mice. NIH Guidelines category non-exempt rDNA: N/A

Meeting adjourned at 1:13pm
Minutes recorded by CMJohnson

APPROVED MINUTES
Institutional Biosafety Committee
Translational Medicine Institute (TMI) Board Room
Wednesday, October 13, 2021

Check if Attending (Members):	**Check if Attending (Alternate Members):**
☒ Jessica Ayers, Animal expert	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large*
☐ Donald Bade, Unaffiliated	☐ Lon Kendall, Director LAR
☐ Richard Bowen, Associate Chair	☒ Nicole Marlenee, Assistant Biosafety Officer*
☒ Chaoping Chen, Chair	
☒ Jason Cummings, lab rep	***non-voting at this meeting**
☒ June Medford, Plant/syn bio expert	
☒ Rebecca Moritz, Biosafety Office Director	
☒ Edwin Neas, Unaffiliated	
☐ Ken Olson, Virology	
☐ Ann Powers, Virology	
☒ Robyn Roberts, Plant expert	
Non-Voting Members:	
☐ James Graham, EHS Director	
☒ Joni Van Sickle, Occupational Health Coord.	
RICRO Staff (non-voting):	**Regular Guests (non-voting):**
☐ Adrianna Burney, IBC Intern	☒ Heather Blair, Associate Biosafety Officer
	☒ Joanie Ryan, Biosafety Office Intern
Other: Alan Rudolph, Vice President for Research; Sam Halabi, Senior Associate Vice President for Health Policy and Ethics	

The meeting was convened at 12:07PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected or left the room during discussion and/or committee determination on the conflicted item. Sam Halabi attended via Teams, all others attended in person.

I. Guest visitors Alan Rudolph (Vice President for Research) and Sam Halabi (Senior Associate Vice President for Health Policy and Ethics)

The committee discussed the need for a bioethicist on the IBC with Dr. Rudolph and Prof. Halabi. It was suggested that the IBC Chair could reach out to the Bioethics Advisory Committee (BAC) whenever an issue came up that needed more attention. However, several members of the committee felt strongly that it was important to have someone in the meetings on a routine basis. After some discussion, it was agreed that someone from the BAC could attend the IBC meetings ether on a rotating or ad hoc basis, and that a communication plan would need to be worked out. Dr. Rudolph thanked the members for their service on the IBC.

Dr. Rudolph and Prof. Halabi left the meeting.

II. Review of September 8, 2021 IBC meeting minutes.

The minutes were approved without modification.

III. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco/).

1. Schountz, Tony

Agent: Adenovirus Serotype 5, Clone Ad5-CMV-hACE2/RSV-eGFP, Recombinant– Strain: any; BSL 2

The committee unanimously approved of the above agent with the following modifications:

1. It was mentioned in the PARF that the vector is replication defective. The IBC suggests adding this to the Agent description.
2. It was also mentioned that in the PARF that the vector will be obtained from BEI Resources. This information should also be added to the AARF.

Project: Expression of hACE2 in bats challenged with SARS-CoV-2 (21-088B); BSL 2 in vivo in Jamaican fruit bats. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the above project with the following modifications:

The PARF lists the adenovirus vector being used at BSL2 and SARS-CoV-2 being used at BSL3. For the text boxes in the PPE sections, please identify what tasks will be done under BSL2 and which require BSL3 for both in vitro and in vivo work.

Agent: RaTG13-CoV – Strain: any; BSL3

The committee unanimously approved of the above agent with the following modifications:

The IBC requests that microchem be added to the disinfectants.

Project: RaTG13-CoV infection of Jamaican fruit bats (21-091B); BSL3 in vitro and BSL3 in vivo in Jamaican fruit bats and deer mice. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the above project with the following modifications:

Deer mice are mentioned under in vivo work, however it is not clear how they will be used. The IBC requests clarification regarding the use of deer mice.

2. Bosco-Lauth, Angela

Agent: Ngari virus– Strain: any; BSL1

The committee unanimously approved of the above agent as submitted.

IV. Amendments to be reviewed by full committee

1. Linke, Lyndsey (see attached)

Project: E. coli laboratory cloning strain transformation and molecular cloning activities (20-019B); BSL 1 in vitro; BSL 1 in vivo in in mice, chickens; Human Origin Material. NIH Guidelines category non-exempt rDNA: III-D-4

Request to add CRISPR and gene targets

The committee unanimously approved of the above amendment as submitted.

2. **Borlee, Brad (see attached)**

Project: Isolation, characterization and transformation of natural endosymbiotic bacteria from Aedes aegypti for paratransgenesis to establish refractoriness to infection and transmission of arboviruses (17-003B); BSL 2 in vitro; BSL 2 in vivo in mosquitoes and midges. NIH Guidelines category non-exempt rDNA: III-D-4

Request to add vectors

The committee unanimously approved of the above amendment as submitted.

V. New Business

1. **Information reported to IBC regarding incident reports**

There was a discussion regarding what f information the IBC wanted to see every month regarding incident reports. For example, does the committee want to see everything that is reported every month, or would they prefer to only see the important incidents monthly (such as exposures or those requiring outside reporting) along with a quarterly report for all incidents which would put everything into context. The committee agreed that they still wanted to hear about all the incidents, but that putting the minor incidents into a quarterly report would be beneficial. It was agreed that this new reporting would start in January with the first quarterly report given in March.

VI. Unfinished business

1. **IBC membership – TB expertise**

The IBC Coordinator reached out to the MIP Department Head for suggestions regarding a new member with TB expertise. Dr. Brendan Podell was recommended and is willing to serve. The committee agreed that he would be an excellent choice and approved forwarding this recommendation to the VPR.

2. **IBC Protocol Subcommittee – survey**

The protocol subcommittee has put together two different surveys, one for researchers and one for IBC members. The subcommittee is requesting that all members complete the survey, and if you are also a PI that you should fill that one out too.

3. **DRAFT – CSU IBC Biosafety Incident Review Procedure**

This document was presented to the committee during the September meeting and then the committee was given a week to review and comment. No additional comments were received; the document will be posted as is.

VII. Reports

1. **Coordinator's report.**
   a. **Next IBC meeting:** Wednesday, November 10, 2021
   b. **October National Biosafety and Biosecurity Month**
      1. **Poster contest – poster contest winner!**
      2. **RAM Safe Pledge – started October 1st – submit your pledge today!**

2. **Biosafety Officer's report.**
   a. **Select Agent Inspection Update** – we have not received the final CDC inspection report yet
   b. **Incident reports**

i. **Protocol breach** – improper use of airlock and sample entry. Individual was re-trained. No outside reporting required.

ii. **Protocol breach** – inside a BSL3 freezer, a bag of infected mice carcasses was improperly stored. The individual responsible was contacted. The was no loss of containment, however a CDC Form 3 was filled out.

c. **Lab audits/Biosafety Outreach Visit reports**

VIII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. **Smith, Bret**

   Agent: adeno-associated virus (AAV) – Strain: any; BSL1

   Project: Synaptic organization and plasticity (21-079B); BSL1 in vitro, BSL1 in vivo in mice, rDNA. NIH Guidelines category non-exempt rDNA: III-D-4

2. **Bosco-Lauth, Angela**

   Agent: Usutu virus – Strain: any; BSL2

   Agent: St. Louis encephalitis virus – Strain: any; BSL2

   Project: Heterologous challenge of birds with flaviviruses (21-083B); BSL3 in vitro and BSL3 in vivo in sparrows. NIH Guidelines category non-exempt rDNA: N/A

3. **Borlee, Brad**

   Agent: Bacillus cereus – Strain: ANY EXCEPT FOR Bacillus cereus Biovar anthracis; BSL2

IX. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Withdrawn from review to be read into the minutes.

X. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

XI. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

Meeting adjourned at 1:45pm
Minutes recorded by CMJohnson

APPROVED MINUTES
Institutional Biosafety Committee
Microsoft Teams – REMOTE
Wednesday, November 10, 2021

Check if Attending (Members):	**Check if Attending (Alternate Members):**
☒ Jessica Ayers, Animal expert	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large*
☒ Donald Bade, Unaffiliated	☐ Lon Kendall, Director LAR
☒ Richard Bowen, Associate Chair	☒ Nicole Marlenee, Assistant Biosafety Officer*
☒ Chaoping Chen, Chair	
☒ Jason Cummings, lab rep	***non-voting at this meeting**
☒ June Medford, Plant/syn bio expert	
☐ Rebecca Moritz, Biosafety Office Director	
☒ Edwin Neas, Unaffiliated	
☒ Ken Olson, Virology	
☒ Brendan Podell, Mycobacteria specialist	
☒ Ann Powers, Virology	
☒ Robyn Roberts, Plant expert	
Non-Voting Members:	
☐ James Graham, EHS Director	
☒ Joni Van Sickle, Occupational Health Coord.	
RICRO Staff (non-voting):	**Regular Guests (non-voting):**
☐ Adrianna Burney, IBC Intern	☐ Heather Blair, Associate Biosafety Officer
	☒ Joanie Ryan, Biosafety Office Intern
Other:	

The meeting was convened at 12:30PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted item.

I. New Member Introduction

New committee member, Dr. Brendan Podell was introduced. He is an Assistant Professor in MIP. The rest of the IBC introduced themselves and welcomed Dr. Podell to the committee.

II. Review of October 13, 2021 IBC meeting minutes.

October minutes not available for review.

III. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco/).

1. Peccoud, Jean

Agent: Vesicular Stomatitis Virus – Strain: Indiana; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. Pathogenic to animals should be changed from NO to YES.

2. IBC requests confirmation of the correct storage location.
3. Under Methods of Inactivation for Disposal, the PARF indicates 10% bleach for 30 min. The IBC requests confirmation that this is the correct procedure.
4. The IBC requests that autoclaving be added to the Methods for Inactivation, however it should be noted that any items that have been bleached should sit for 24 hours before autoclaving.
5. PARF mentions fixing samples, the method for this should be placed in inactivation section of AARF.
6. The IBC requests that all investigators update their statement of experience to reflect work/training with BSL2 agents and remove any investigators who are no longer at CSU.

There was a discussion regarding whether or not an APHIS transport permit to get the virus. However, the virus is being generated by reverse engineering.

Project: Transition: Rational Design of Viral Vectors (21-094B); BSL1 and BSL2 in vitro. NIH Guidelines category non-exempt rDNA: III-D-3

The committee unanimously approved of the above project with the following modifications:

1. The IBC requests more information regarding how virulence and/or attenuation will be evaluated.
2. Use of N95 masks was indicated under PPE that will be used. The IBC requests confirmation whether N95 masks or a different type of face mask will be used.
3. Has the Biosafety Office reviewed the use of BSL2 agents in this lab space.
4. No other investigators are listed on the PARF. All lab personnel working on the project should be added to the PARF.

2. Nordgren, Tara

Agent: Streptococcus Pneumoniae – Strain: Serotype 19; ATCC 49619; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests the building and room number for the Storage Location.
2. The IBC requests that autoclaving be added to the Methods for Inactivation, however it should be noted that any items that have been bleached should sit for 24 hours before autoclaving.

Project: Omega-3 fatty acids induce macrophage IL-22 signaling to promote resolution of dust-induced lung inflammation (21-095B); BLS2 in vitro and BSL2 in vivo in mice, toxin use, and rDNA. NIH Guidelines category non-exempt rDNA: III-D-4

The committee unanimously approved of the above project with the following modifications:

1. Under the Infectious Agents section in vivo use is marked BSL1, but then marked BSL2 in the In Vivo Uses Section below; these should both be marked BSL2.
2. Under PPE used for in vivo work lab coats, scrubs and back closing gowns are all listed. Please confirm whether these will all be used.
3. All lab personnel should be added to the PARF once they are identified.

3. Bowen, Richard

Agent: Bacillus cereus biovar anthracis – Strain: any; BSL3

The committee unanimously approved of the above agent as submitted.

There was a question regarding whether or not 3% hydrogen peroxide was an appropriate for inactivating the agent. Yes, Biosafety has tested this.

Project: Brucellosis vaccine testing (Pascual) (21-096B); BSL3 in vitro and BSL3 in vivo in goats, and rDNA. NIH Guidelines category non-exempt rDNA: III-D-1

The committee unanimously approved of the above project with the following modifications:
The IBC requests that the comment regarding DURC review be removed.

4. **Weir, Tiffany**

Agent: Pseudomonas aeruginosa – Strain: PA01, PAK, PA14; BSL2 (Stored)

The committee unanimously approved of the above agent as submitted.

IV. Amendments to be reviewed by full committee

1. **Bowen, Richard (see attached)**

Project: Anthrax Vaccine Efficacy Against Diverse Strains of Bacteria (19-016B); BSL3 in vitro and BSL3 in vivo rabbits and guinea pigs. NIH Guidelines category non-exempt rDNA: N/A

Amendment request: Please consider amending this protocol to add Bacillus cereus biovar anthracis and recombinant strains of B. anthracis to be used at BSL3 in vitro and BSL3 in vivo in guinea pigs; I believe that the appropriate rDNA category for these is III-D-1

The committee unanimously approved of the above amendment with the following clarification:
The IBC requests clarification regarding which animal model this amendment is referring to.

2. **Bowen, Richard (see attached)**

Project: Virulence of Environmental Isolates of Burkholderia pseudomallei (19-018B); BSL3 in vitro and BSL3 in vivo in mice. NIH Guidelines category non-exempt rDNA: N/A

Amendment request: As an extension to this project, we propose to passage strains of B. pseudomallei through amoebae (Acanthamoeba) to test the hypothesis that such passage will transiently increase virulence such as has been observed with Legionella. Because B. pseudomallei is a select agent, a DURC review will likely be required**.**

The committee unanimously approved of the above amendment as submitted.

3. **Kim, Seonil (see attached)**

Project: Investigation of calcium (17-030B); BSL1 in vitro and BSL1 in vivo in mice, and rDNA. NIH Guidelines category non-exempt rDNA: III-D-4

Amendment request: We would like to add the following AAV lines on the list. They are on BSL1: AAV1-syn-jGCaMP8s, AAV1-syn-FLEX-jGCaMP8s, AAV1-FLEX-GCaMP8s, AAV1-CaMK2-Cre

The committee unanimously approved of the above amendment as submitted.

V. New Business

None

VI. Unfinished business

1. **IBC Protocol Subcommittee – survey (**https://forms.gle/fcxYLnnWx6qp5BGQ6**)**
   Please fill out the survey

VII. Reports

1. **Coordinator's report.**
   a. **Next IBC meeting:** Wednesday, December 8, 2021
   b. **October National Biosafety and Biosecurity Month**
      1. **Poster contest – poster contest winner!**
      2. **RAM Safe Pledge –** the winners will be announced soon

2. **Biosafety Officer's report.**
   a. **Inspection Update –** none
   b. **Incident reports –** An unexpected shipment of Mtb lung tissue samples was received by one of the TB labs. The samples are being shipped back. No exposure or outside reporting required
   c. **Lab audits/Biosafety Outreach Visit reports**

VIII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. **Schountz, Tony**
   Agent: Adenovirus Serotype 5, Clone Ad5-CMV-hACE2/RSV-eGFP, Recombinant– Strain: any; BSL 2
   Project: Expression of hACE2 in bats challenged with SARS-CoV-2 (21-088B); BSL 2 in vivo in Jamaican fruit bats. NIH Guidelines category non-exempt rDNA: III-D-4
   Agent: RaTG13-CoV – Strain: any; BSL3
   Project: RaTG13-CoV infection of Jamaican fruit bats (21-091B); BSL3 in vitro and BSL3 in vivo in Jamaican fruit bats and deer mice. NIH Guidelines category non-exempt rDNA: N/A
2. **Mayo, Christie**
   Project: Novel Approach to Diagnose and Genetically Characterize High Consequence Pathogens Affecting Animal Health (21-076B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA: N/A

IX. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Withdrawn from review to be read into the minutes.

X. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

XI. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

1. 21-089B - Ordway, Diane - Therapeutic efficacy of OZ439 in chronically MAC-infected C3HeB/FeJ mice; BSL 2 in vitro, BSL 2 in vivo in mice. NIH Guidelines category non-exempt rDNA: N/A

2. 21-090B - Georgiaras, Ifigenia - Evaluation of the effect of a plant protease inhibitor on the motility and cell morphology of foodborne pathogens; BSL 2 in vitro. NIH Guidelines category non-exempt rDNA: N/A
3. 21-092B - Ordway, Diane - Experimental Testing of Novel Therapeutic against Mycobacterial avium species; BSL 2 in vivo in mice. NIH Guidelines category non-exempt rDNA: N/A

Meeting adjourned at 1:10pm
Minutes recorded by CMJohnson

APPROVED MINUTES
Institutional Biosafety Committee
Microsoft Teams – REMOTE
Wednesday, December 8, 2021

Check if Attending (Members):	**Check if Attending (Alternate Members):**
☐ Jessica Ayers, Animal expert	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large*
☒ Donald Bade, Unaffiliated	☒ Lon Kendall, Director LAR
☐ Richard Bowen, Associate Chair	☐ Nicole Marlenee, Assistant Biosafety Officer*
☒ Chaoping Chen, Chair	
☒ Jason Cummings, lab rep	***non-voting at this meeting**
☐ June Medford, Plant/syn bio expert	
☒ Rebecca Moritz, Biosafety Office Director	
☒ Edwin Neas, Unaffiliated	
☒ Ken Olson, Virology	
☒ Brendan Podell, Mycobacteria specialist	
☒ Ann Powers, Virology	
☒ Robyn Roberts, Plant expert	
Non-Voting Members:	
☒ James Graham, EHS Director	
☒ Joni Van Sickle, Occupational Health Coord.	
RICRO Staff (non-voting):	**Regular Guests (non-voting):**
☐ Adrianna Burney, IBC Intern	☐ Heather Blair, Associate Biosafety Officer
	☒ Joanie Ryan, Biosafety Office Intern
Other:	

The meeting was convened at 12:12PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted item.

I. Review of October 13, 2021 and November 8, 2021 IBC meeting minutes.
Minutes were not available for review.

II. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco/).

1. Markus, Steven M

Project: Regulation of Dynein-mediated Transport (21-097B); BSL1 in vitro. NIH Guidelines category non-exempt rDNA: III-E-1

The committee has TABLED their decision pending additional information, specifically the IBC requested:

1. More detail in the Project Overview; it is unclear how the bacteria and yeast will be used.
2. What PPE will be used in any phase of the work with this agent in vitro?

3. Request the PI to add all personnel working on the project to the PARF.

2. **Kato, Takamitsu**

Project: Generation and analysis of DNA repair gene knockout mammalian cells by CRISPR (21-098B); BSL 2 in vitro, Human Origin Material. NIH Guidelines category non-exempt rDNA: N/A

The committee unanimously approved of the above project as submitted.

III. Amendments to be reviewed by full committee

None

IV. New Business

1. **February 9, 2022 – meeting in person/IRE training**

It has been over six years since the CSU DURC Policy was put into place. It is time to review our policy and procedures, as well as update the training for the IRE. We are hoping to have an in-person meeting for our February 9th IBC meeting. This would allow the committee to go through the IRE Training and then have a discussion regarding our current policy and procedures. The IBC Coordinator will send an update with the location.

V. Unfinished business

1. **IBC Protocol Subcommittee update**

No update at this time

VI. Reports

1. **Coordinator's report.**
   a. **Next IBC meeting:** Wednesday, January 12, 2022
   b. **October National Biosafety and Biosecurity Month**
      1. **RAM Safe Pledge – winners announced**

2. **Biosafety Officer's report.**
   a. **Inspection Update**
   b. **Incident reports**
   c. **Lab audits/Biosafety Outreach Visit reports**

VII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. **Peccoud, Jean**

Agent: Vesicular Stomatitis Virus – Strain: Indiana; BSL2

Project: Transition: Rational Design of Viral Vectors (21-094B); BSL1 and BSL2 in vitro. NIH Guidelines category non-exempt rDNA: III-D-3

2. **Nordgren, Tara**

Agent: Streptococcus Pneumoniae – Strain: Serotype 19; ATCC 49619; BSL2

Project: Omega-3 fatty acids induce macrophage IL-22 signaling to promote resolution of dust-induced lung inflammation (21-095B); BLS2 in vitro and BSL2 in vivo in mice, toxin use, and rDNA. NIH Guidelines category non-exempt rDNA: III-D-4

3. **Bowen, Richard**
   Project: Brucellosis vaccine testing (Pascual) (21-096B); BSL3 in vitro and BSL3 in vivo in goats, and rDNA. NIH Guidelines category non-exempt rDNA: III-D-1
4. **Weir, Tiffany**
   Agent: Pseudomonas aeruginosa – Strain: PA01, PAK, PA14; BSL2 (Stored)

VIII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Withdrawn from review to be read into the minutes.

IX. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

X. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

Meeting adjourned at 12:29pm
Minutes recorded by CMJohnson

APPROVED MINUTES
Institutional Biosafety Committee
Microsoft Teams – REMOTE
Wednesday, January 12, 2022

Check if Attending (Members):	**Check if Attending (Alternate Members):**
☒ Jessica Ayers, Animal expert	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large*
☒ Donald Bade, Unaffiliated	☐ Lon Kendall, Director LAR
☒ Richard Bowen, Associate Chair	☒ Nicole Marlenee, Assistant Biosafety Officer*
☒ Chaoping Chen, Chair	
☒ Jason Cummings, lab rep	***non-voting at this meeting**
☐ June Medford, Plant/syn bio expert	
☒ Rebecca Moritz, Biosafety Office Director	
☒ Edwin Neas, Unaffiliated	
☐ Ken Olson, Virology	
☒ Brendan Podell, Mycobacteria specialist	
☐ Ann Powers, Virology	
☒ Robyn Roberts, Plant expert	
Non-Voting Members:	
☒ James Graham, EHS Director	
☒ Joni Van Sickle, Occupational Health Coord.	
RICRO Staff (non-voting):	**Regular Guests (non-voting):**
☐ Adrianna Burney, IBC Intern	☒ Heather Blair, Associate Biosafety Officer
	☒ Joanie Ryan, Biosafety Office Intern
Other:	

The meeting was convened at 12:04PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted item.

I. Review of IBC meeting minutes from October 13, 2021 and November 8, 2021.
Both sets of minutes were approved without modification.

II. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco/).

1. Gries, Casey

Agent: Staphylococcus aureus – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. Strain is listed as ANY, confirm whether or not any antibiotic resistant strains (such as MRSA) will be used.
2. The IBC requests that autoclaving be added to the Methods used to inactivate the agent prior to disposal.
3. All investigators need to complete the online IBC at CSU training.

Project: Assessment of Staphylococcus aureus pathogenesis (21-102B); BSL2 in vitro and BSL2 in vivo in mice. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project with the following modifications:

1. The Project Overview indicates the use of knock out mutants, how are these made and where they are coming from.
2. Booties were indicated on the PPE list; however, they are not routinely used especially at BSL2. Confirm whether this is correct.
3. In the in vivo section, under Mechanisms in place for containment and disposition of infected animals, for the last sentence: The bag will immediately be placed into a designated vivarium freezer and disposed as biohazardous waste. The IBC requests that the following be added to the end of the sentence: as per LAR SOP.
4. All investigators need to register with the Online IBC Database, fill out a statement of experience, and complete the IBC at CSU online training.
5. All investigators need to complete the online BSL1/BSL2 training and the Biosafety Cabinet training.
6. All investigators need to complete the Occupational Health Risk Assessment.

2. **Bowen, Richard**

Project: Evaluation of vaulted vaccines to protect against Burkholderia pseudomallei infection (21-103B); BSL3 in vitro and BSL3 in vivo in mice. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project as submitted.

3. **Dobos, Karen**

Project: Host-Pathogen studies on Mycobacterium (21-104B); BSL2 and BSL3 in vitro, BSL2 and BSL3 in vivo in mice, rDNA. NIH Guidelines category non-exempt rDNA: III-D-1

The committee unanimously approved of the above project with the following modifications:

1. Under: Briefly elaborate on procedures used to protect personnel from exposure to agent during in vivo studies, the IBC requests that a brief description of procedures and PPE be added for in vivo ABSL2 work.
2. Under the list of PPE used, Back-closing gowns are marked YES for in vitro work and NO for in vivo work. The IBC recommends Back-closing gowns be used during aerosol infections and this should be added to the in vivo PPE list.

4. **Dow, Steven**

Agent: SARS-CoV-2 – Strain: Wuhan, Washington State strains; BSL2

The committee unanimously approved of the above agent as submitted.

1. If only working inactivated virus, then an AARF is not required, and PARF should be submitted instead. Please submit a PARF at your earliest convenience.
2. All investigators need to complete the online BSL1/BSL2 training.

III. Amendments to be reviewed by full committee

None

IV. New Business

None

V. Unfinished business

1. **Markus, Steven – TABLED during December meeting** (see information added)
   Project: Regulation of Dynein-mediated Transport (21-097B); BSL1 in vitro. NIH Guidelines category non-exempt rDNA: III-E-1

   The IBC reviewed the additional information. Once the personnel complete the required training, this PARF can be approved.

2. **February 9, 2022 – meeting in person/IRE training**
   In light of the current surge in COVID cases, it was decided to postpone this in-person meeting until the March IBC Meeting (scheduled for March 9th).

3. **IBC Protocol Subcommittee update**
   No updates at this time.

VI. Reports

1. **Coordinator's report.**
   a. **Next IBC meeting:** Wednesday, February 9, 2022, via Teams

2. **Biosafety Officer's report.**
   a. **Inspection Update –** the Biosafety Office received notification from the Select Agent Program that CSU is due for its registration renewal inspection later this year. Working to get this scheduled potentially at the end of May.
   b. **Incident reports**
   c. **Lab audits/Biosafety Outreach Visit reports**

VII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

VIII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Withdrawn from review to be read into the minutes.

IX. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

X. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

1. 21-099B - Shomaker, Lauren - Mindfulness-based Intervention for Depression and Insulin Resistance in Adolescents; Human Origin Material. NIH Guidelines category non-exempt rDNA: NA
2. 21-100B - Ordway, Diane - Macrophage concentrating compounds against M.avium; BSL 2 in vitro, BSL 2 in vivo in mice. NIH Guidelines category non-exempt rDNA: NA
3. 21-101B - Bowen, Richard - Qualification of a new reference for West Nile Virus Vaccine, Killed Virus; BSL 3 in vitro, BSL 3 in vivo in horses. NIH Guidelines category non-exempt rDNA: NA

Meeting adjourned at 12:47pm
Minutes recorded by CMJohnson

APPROVED MINUTES
Institutional Biosafety Committee
Microsoft Teams – REMOTE
Wednesday, February 9, 2022

Check if Attending (Members):	**Check if Attending (Alternate Members):**
☐ Jessica Ayers, Animal expert	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large*
☒ Donald Bade, Unaffiliated	☐ Lon Kendall, Director LAR
☐ Richard Bowen, Associate Chair	☐ Nicole Marlenee, Assistant Biosafety Officer*
☒ Chaoping Chen, Chair	
☒ Jason Cummings, lab rep	***non-voting at this meeting**
☒ June Medford, Plant/syn bio expert	
☒ Rebecca Moritz, Biosafety Office Director	
☒ Edwin Neas, Unaffiliated	
☒ Ken Olson, Virology	
☒ Brendan Podell, Mycobacteria specialist	
☒ Ann Powers, Virology	
☒ Robyn Roberts, Plant expert	
Non-Voting Members:	
☒ James Graham, EHS Director	
☒ Joni Van Sickle, Occupational Health Coord.	
RICRO Staff (non-voting):	**Regular Guests (non-voting):**
☐ Adrianna Burney, IBC Intern	☐ Heather Blair, Associate Biosafety Officer
	☒ Joanie Ryan, Biosafety Office Intern
Other:	

The meeting was convened at 12:03PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted item.

I. Review of IBC meeting minutes from December 8, 2021 and January 12, 2022
Both sets of minutes were approved without modification.

II. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco/)

1. Ackerson, Christopher

Project: Clonable Nanoparticles (22-005B); BSL1 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: III-E-1

The committee unanimously approved of the above project with the following modifications:

1. Need to submit AARFs for the other agents listed, Pseudomonas moravenesis stanleyae and Rhodococcus erythropolis.
2. The IBC requests that lab coats be used in the lab and added to the list of PPE.

3. All investigators need to register with Online IBC Database, fill out a statement of experience, and complete the IBC at CSU online training.
4. All investigators need to complete the online BSL1/BSL2 training.

2. Nachappa, Punya

Agent: Beet curly top virus – any: BSL1

Project: Beet curly top virus resistance in sugar beet and hemp (22-010B); BSL1 in vivo in sugar beet. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously TABLED of the above agent and project, specifically requesting the following information:

1. The IBC requests specification/confirmation about which strains will be used. In PARF, it is stated that strains from Colorado will be used, but AARE requests any. Are there plans to get strains from across the world? A Federal permit is required if the BCTV strains come from out of state (Colorado).
2. More information about the vector (beet leafhopper) is needed. What is the host range, does it only infect beet, or is it a pest to other plants? Since BCTV infects hundreds of plant species, knowing the vector host range would be helpful to understand containment strategies.
3. The location listed is not suitable for the proposed studies. A different greenhouse location is needed. Please work with the Greenhouse Manager to arrange that.
4. Secondary containment of the vector to prevent greenhouse spread is needed.
5. Safety glasses should be used and listed for PPE.

III. Amendments to be reviewed by full committee

1. Borlee, Brad

Project: Cultivation of biofilms in a continuous flow biofilm reactor (13-102B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA: NA

Amendment request: add S. aureus mutants (see attached)

The committee unanimously approved of the above amendment request as submitted.

IV. New Business

1. Safety glasses/eye protection

There is a recommendation to revisit the current eye protection policy. Currently, eye protection is only required in BSL2 and BSL3 under the following circumstances: while working with animals outside of the biosafety cabinet; while transporting large volumes and/or high concentrations of broth cultures; or by persons who are wearing contact lenses (and highly recommended all other times). There is a recommendation to update the policy and require eye protection at all times in labs with biological agents. The IBC discussed this and agreed that it would be a good idea to update the policy, but they wanted to see a written document before voting on anything. The IBC Coordinator will work with the Biosafety Office to put together a draft for the next meeting.

V. Unfinished business

1. **March 9, 2022 – meeting in person/IRE training –** as long as everyone feels comfortable with it, we will have an in person meeting in March to go over the IRE training.
2. **IBC Protocol Subcommittee update –** the committee is gathering information from other institutions

VI. Reports

1. **Coordinator's report.**
   a. **Next IBC meeting:** Wednesday, March 9, 2022 –

2. **Biosafety Officer's report.**
   a. **Inspection Update –** the Select Agent Registration renewal inspection is being planned for the end of May.
   b. Incident reports – splash in the eye – the individual was cleaning out the BSC after a necropsy of M. abscesses infected mice, then ethanol that the surgical tools had been in splashed into the person's eye. All appropriate procedures were followed. The individual is following up with Occupational Health. No outside reporting required.
   c. **Lab audits/Biosafety Outreach Visit reports –** Biosafety Outreach Visits are currently on hold to give the Biosafety Officers an opportunity to get caught up and close out previous visits.
   d. **The search for a new ABSO (to replace Sara Cope) is moving forward with interviews plans at the end of February.**

VII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. **Gries, Casey**
   Agent: Staphylococcus aureus – Strain: any; BSL2
   Project: Assessment of Staphylococcus aureus pathogenesis (21-102B); BSL2 in vitro and BSL2 in vivo in mice. NIH Guidelines category non-exempt rDNA: NA
2. **Dobos, Karen**
   Project: Host-Pathogen studies on Mycobacterium (21-104B); BSL2 and BSL3 in vitro, BSL2 and BSL3 in vivo in mice, rDNA. NIH Guidelines category non-exempt rDNA: III-D-1

VIII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Withdrawn from review to be read into the minutes.

IX. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

X. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

1. 22-001B - Gonzalez Juarrero, Mercedes - Preclinical testing of Janssen compounds against pulmonary mycobacterium abscessus infection; BSL2 in vitro and BSL2 in vivo in mice. NIH Guidelines category non-exempt rDNA: NA
2. 22-004B - Bowen, Richard - One year duration of immunity to rabies in ferrets; BSL2 in vitro and BSL2 in vivo in ferrets. NIH Guidelines category non-exempt rDNA: NA

Meeting adjourned at 12:42pm
Minutes recorded by CMJohnson

APPROVED MINUTES
Institutional Biosafety Committee
Infectious Disease Research Center – RIC D100 (Seminar Room)
Wednesday, March 9, 2022

Check if Attending (Members):	**Check if Attending (Alternate Members):**
☐ Jessica Ayers, Animal expert	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large*
☒ Donald Bade, Unaffiliated	☐ Lon Kendall, Director LAR
☒ Richard Bowen, Associate Chair	☒ Nicole Marlenee, Assistant Biosafety Officer*
☒ Chaoping Chen, Chair	
☒ Jason Cummings, lab rep	***non-voting at this meeting**
☒ June Medford, Plant/syn bio expert	
☒ Rebecca Moritz, Biosafety Office Director	
☒ Edwin Neas, Unaffiliated	
☒ Ken Olson, Virology (12:30pm)	
☒ Brendan Podell, Mycobacteria specialist	
☐ Ann Powers, Virology	
☒ Robyn Roberts, Plant expert	
Non-Voting Members:	
☒ James Graham, EHS Director	
☒ Joni Van Sickle, Occupational Health Coord.	
RICRO Staff (non-voting):	**Regular Guests (non-voting):**
☐ Adrianna Burney, IBC Intern	☒ Heather Blair, Associate Biosafety Officer
	☐ Joanie Ryan, Biosafety Office Intern
Other:	

The meeting was convened at 12:03PM. Quorum was maintained throughout. Any member with a conflict of interest left the room during discussion and/or committee determination on the conflicted item.

I. Review of IBC meeting minutes from February 9, 2022.
Minutes approved as written.

II. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco/)

1. Nachappa, Punya (Tabled from last month)

Agent: Beet curly top virus – any: BSL1

The committee unanimously approved of the above agent with the additional information provided

Project: Beet curly top virus resistance in sugar beet and hemp (22-010B); BSL1 in vivo in sugar beet. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project with the following modifications:
The IBC requests the PI consult with the Greenhouse Manager and confirm the greenhouse location of the work.

2. **Jackson, Mary**

Project: Repurposing antimalarials for the treatment of NTM infections (22-014B); BSL2 in vitro and rDNA. NIH Guidelines category non-exempt rDNA: III-D-1

The committee unanimously approved of the above project as submitted.

III. Amendments to be reviewed by full committee

1. **Wyckoff, John**

Agent: SARS-CoV-2 – any: BSL3

Project: Manufacture of SARS-CoV-2 viral stocks and development of inactivated vaccine and/or antigen (20-045B); BSL3 in vitro. NIH Guidelines category non-exempt rDNA: NA

Amendment request: We plan to obtain two additional strains that have genes introduced that produce reporter molecules so that we can use them as positive controls in our viral titration assay. These two strains are designated: Rescued SARS-CoV2mNG reporter virus and Rescued SARS-CoV2nLuc reporter virus. Rooms where these viruses will be stored and/or used include [redacted]

The committee unanimously approved of the above amendment request pending the rDNA section of the PARF be filled out.

IV. New Business

None

V. Unfinished business

1. **IRE Training –** Ms. Moritz conducted at DURC/IRE training for the group. Topics included an overview of the DURC policy, several case studies, and discussion regarding whether any of our IRE policies/procedures need to be updated.
2. **Safety glasses/eye protection** – no update
3. **IBC Protocol Subcommittee update –** no update

VI. Reports

1. **Coordinator's report.**
   a. **Next IBC meeting:** Wednesday, April 13, 2022 –

2. **Biosafety Officer's report.**
   a. **Inspection Update -** the Select Agent Registration renewal inspection is being planned for the end of May.
   b. **Incident reports –** a researcher pricked their finger with a dissection needle while performing a necropsy on an animal infected with wild type H18N11 influenza A virus. This is considered a low-risk event; this virus has not been shown to infect humans. The individual is following up with Occupational Health. The virus was made via reverse genetics and thus an incident report is being submitted to NIH/OSP.
   c. **Lab audits/Biosafety Outreach Visit reports**

VII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

VIII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Withdrawn from review to be read into the minutes.

IX. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

X. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

1. 22-003B - Ordway, Diane - Novel approaches to tackle pulmonary Nontuberculous mycobacterial infections; BSL2 in vitro and BSL2 in vivo in mice. NIH Guidelines category non-exempt rDNA: NA
2. 22-008B - Jackson, Mary - Deciphering leprosy transmission in Cote d Ivoire BSL2 in vitro, human samples. NIH Guidelines category non-exempt rDNA: NA
3. 22-009B - Ragan, Izabela - Evaluating countermeasures and devices to reduce/eliminate SARS-CoV-2 in the environment; BSL3 in vitro and BSL3 in vivo in hamsters. NIH Guidelines category non-exempt rDNA: NA
4. 22-011B - Bell, Christopher - Ergogenic Properties of Magnesium Supplementation; Human samples. NIH Guidelines category non-exempt rDNA: NA
5. 22-012B - Bell, Christopher - Influence of Edible Marijuana on Endurance Exercise Performance - Human samples. NIH Guidelines category non-exempt rDNA: NA
6. 22-013B - Moreno, Julie - Using a rodent model of multiple sclerosis; toxin. NIH Guidelines category non-exempt rDNA: NA

Meeting adjourned at 1:15pm
Minutes recorded by CMJohnson

APPROVED MINUTES
Institutional Biosafety Committee
Microsoft Teams – REMOTE
Wednesday, April 13, 2022

Check if Attending (Members):	**Check if Attending (Alternate Members):**
☐ Jessica Ayers, Animal expert	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large
☒ Donald Bade, Unaffiliated	☐ Lon Kendall, Director LAR
☒ Richard Bowen, Associate Chair	☒ Nicole Marlenee, Assistant Biosafety Officer*
☒ Chaoping Chen, Chair	
☐ Jason Cummings, lab rep	***non-voting at this meeting**
☐ June Medford, Plant/syn bio expert	
☒ Rebecca Moritz, Biosafety Office Director	
☒ Edwin Neas, Unaffiliated	
☒ Ken Olson, Virology (12:30pm)	
☐ Brendan Podell, Mycobacteria specialist	
☐ Ann Powers, Virology	
☐ Robyn Roberts, Plant expert	
Non-Voting Members:	
☒ James Graham, EHS Director	
☒ Joni Van Sickle, Occupational Health Coord.	
RICRO Staff (non-voting):	**Regular Guests (non-voting):**
☐ Adrianna Burney, IBC Intern	☒ Heather Blair, Associate Biosafety Officer
	☒ Joanie Ryan, Biosafety Office Intern
Other:	

The meeting was convened at 12:03PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted item.

I. Review of IBC meeting minutes from March 9, 2022.
Minutes were unavailable for review

II. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco/)

1. **Schountz, Tony**
   Agent: Bat sarbecovirus – Stain: any; BSL3

The committee unanimously approved of the above agent with the following modifications:

1. Since the virus can infect bats, the IBC requests that Pathogenic to animals be changed from NO to YES.
2. The IBC suggests adding a statement indicating something to the effect that not a lot of information is known about the virus, therefore it will be handled at BSL3 out of an abundance of caution.

There was a discussion regarding what should be the appropriate biosafety level. There are no BSL4 coronaviruses, thus BSL3 is sufficient and should be used until more information/data is generated.

2. **Podell, Brendan**

Agent: Mycobacterium tuberculosis (multidrug resistant) – Strain: any; BSL3

The committee unanimously approved of the above agent with the following modifications:

1. The human risk group should be changed from 2 to 3.
2. The IBC requests the percentage of vesphene be added.

There was a discussion as to why the M.tb vaccine is not used. Currently, the only vaccine is M. bovis BCG, however it is not approved in the US.

3. **Bowen, Richard**

Agent: Nairobi sheep disease (Ganjam) virus – Stain: any; BSL3

The committee unanimously approved of the above agent with the following modifications:

The IBC requests the % of Neutral Q be added

Project: Development of an Animal Model for Nairobi Sheep Disease (22-018B); BSL3 in vitro and BSL3 in vivo in sheep and goats. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project with the following modifications:

1. The IBC requests confirmation of PAPR vs N95 use. PARF indicates PAPR for in-vitro uses and N95 for in-vivo uses.
2. IBC requests typos be corrected.

Project: Testing Medical Countermeasures Against Influenza in Mice (22-016B); BSL3 in vitro and BSL3 in vivo, rDNA. NIH Guidelines category non-exempt rDNA: III-D-2

The committee unanimously approved of the above project with the following modifications:

1. Since high path avian influenza is being used, Tyvek must be added to PPE, instead of back closing gown
2. Spelling of RBL needs to be corrected, RBA to RBL.

There was a question regarding whether the carcasses are incinerated. The carcasses are always autoclaved prior to leaving the BSL3 and may also be incinerated under certain circumstances.

4. **Bosco-Lauth, Angela**

Agent: E. coli – Strain: any; BSL1
Agent: Salmonella spp – Strain: any; BSL2
Agent: Campylobacter spp. – Strain: any; BSL2
Agent: Pseudomonas spp – Strain: any; BSL1

The committee unanimously approved of the above agents with the following modifications:

1. The IBC requests E. coli be spelled out.
2. For E. coli and Pseudomonas, the minimal biosafety level should be changed to 2 since these are potentially pathogenic.
3. The percentage of Neutral Q and bleach used for inactivation should be added.

Project: Isolation of enteric organisms from field-collected samples (22-019B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project with the following modifications:

1. The eID for one of the investigators needs to be corrected.
2. The IBC requests clarification of what work is happening in each location listed.

5. **Akkina, Ramesh**

Agent: SHIV – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests that the agent name be spelled out instead of SHIV.

2. In the Agent Description, the IBC requests that following be added: These are retroviruses that are typically made up of an SIV backbone and HIV envelope protein or other HIV genes.

Project: A dual-purpose hu-mouse model for evaluating SIV and HIV cure strategies (22-023B); BSL2 in vitro and BSL2 in vivo in mice, human samples, rDNA. NIH Guidelines category non-exempt rDNA: III-E-1

The committee unanimously approved of the above project once approval for the associated agent is finalized.

6. **Slayden, Richard**

Agent: Mycobacterium abscessus – Strain: any; BSL2
Agent: Mycobacterium intracellulare – Strain: any; BSL2
Agent: Mycobacterium avium – Strain: any; BSL2

The committee unanimously approved of the above agents without modifications.

Project: Efficacy Evaluation of Novel Therapeutics against Nontuberculosis Mycobacteria (NTM) (22-025B); BSL2 in vitro and BSL3 in vivo in mice, rDNA. NIH Guidelines category non-exempt rDNA: III-D-1

The committee unanimously approved of the above project with the following modifications:

1. CLSI is mentioned in the project overview. Please define CLSI.
2. The IBC recommends eye protection be added to in vitro PPE.

III. Amendments to be reviewed by full committee

1. **Schountz, Tony**

Project: RaTG13-CoV infection of Jamaican fruit bats (21-091B); BSL3 in vitro and BSL3 in vivo in Jamaican fruit bat, deer mice, rDNA. NIH Guidelines category non-exempt rDNA: III-D-1

Amendment request: Add Bat Sarbecovirus to this protocol.
Add Horseshoe bat to in vivo uses species exposed to the agent

The committee unanimously approved of the above amendment request with the rDNA information provided.

2. **Dow, Steven (see additional information attached)**

Project: CAR T cell therapy for bone cancer in dogs (21-016B); BSL2 in vitro and BSL2 in vivo in mice, rDNA. NIH Guidelines category non-exempt rDNA: III-D-4

Amendment request: The amendment to the protocol now proposes to use the CAR T cells generated in the original CAR T cell protocol to treat n = 9 pet dogs with metastatic

bone cancer at the FACC, in a dose-escalation trial as described in the IACUC and CRB submissions.
The CAR T cells will be generated from autologous T cells, and will be subjected to QC controls and screening for replication competent virus. Each dog in the trial will receive a single i.v. infusion of CAR T cells, will be observed for 24h in hospital, and then released to their owners.
The third generation retroviral vector to be used in this study has been widely used in human clinical oncology in thousands of treated patients, and the presence of replication competent virus has not been identified.
The questionnaire provided by Christine Johnson has been addressed, and additional supplemental information has also been provided to Christy as attachments.

The committee unanimously approved of the above amendment request with the additional information provided.

The PI confirmed that the use of client-owned animals meets the criteria outlined in the FDA CVM document titled "Release of Client-Owned Animals When Conducting a Study to Develop Human Therapeutics Using Recombinant or Synthetic Nucleic Acid Molecules." This is non-replicating retrovirus and similar studies have been performed in humans. Everything is well documented; the IBC has no concerns.

IV. New Business

1. **IBC Membership**
   Dr. Olson will not be renewing his membership on the IBC; thus, the committee needs to recruit a new virologist. Dr. Olson recommended Dr. Tony Schountz as his replacement. The committee agreed that Dr. Schountz had the appropriate expertise and would be a good choice. Backup candidates were also discussed in the event that Dr. Schountz is not able to serve. Backup candidates included, [redacted].

V. Unfinished business

1. **IRE Discussion –** hold for next month
2. **Safety glasses/eye protection –** no update
3. **IBC Protocol Subcommittee update –** no update

VI. Reports

1. **Coordinator's report.**
   a. **New office name = ORCC- Office of Research Collaboration and Compliance –** is office includes the IBC and IACUC Coordinators, and the Biosafety Office
   b. **New Assistant Biosafety Officer = Joanie Ryan –** congratulations to Joanie!
   c. **Next IBC meeting:** Wednesday, May 11, 2022
   d. **Biosafety and Biosecurity Fair – October National Biosafety and Biosecurity Month –** a subcommittee is being formed to plan this in person event. If anyone is interested in helping out with this, they should email the IBC Coordinator.

2. **Biosafety Officer's report.**
   a. **Inspection Update**

b. **Incident reports – quarterly report –** a draft of the quarterly report was given to the IBC; this document is still considered a work in progress. The IBC was asked to review the document and provide feedback regarding the format and the balance of information. The meeting was running out of time, and it was decided to collect feedback via email.

c. Lab audits/Biosafety Outreach Visit reports

VII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. Nachappa, Punya

Project: Beet curly top virus resistance in sugar beet and hemp (22-010B); BSL1 in vivo in sugar beet. NIH Guidelines category non-exempt rDNA: NA

VIII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Withdrawn from review to be read into the minutes.

IX. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

X. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

Meeting adjourned at 1:24pm
Minutes recorded by CMJohnson

Colorado State University- Quarterly Biological Safety Incident Report

There is no such thing as zero risk when conducting life science research. However, good biosafety and biosecurity practices help minimize the risks. There are over 175 principal investigators running laboratories that work with biological materials and/or recombinant or synthetic nucleic acids at Colorado State University (CSU). These laboratories range from Biosafety Level 1 (BSL-1) to BSL-3 with enhancement, as well as Animal Biosafety Level 1-3 (ABSL-1, ABSL-2, ABSL-3),Arthropod Containment Level 1-3 (ACL-1, ACL-2, ACL-3), and plant containment (BSL-1P and BSL-2P). Each laboratory has multiple researchers working, frequently over 40 hours a week, with many of these hours spent directly handling biological materials, recombinant or synthetic nucleic acids, and/or plants or animals containing the previous materials. The total number of researcher hours handling these materials annually is unknown. However, it can be assumed that the denominator is substantial.

This quarterly report describes incidents that have happened at CSU laboratories. Appropriate characterization of the actual risks of an incident to the researchers themselves, CSU, the environment, and the surrounding community based on a thorough incident review is presented. For this report, an incident is defined as:

- An event that may have caused a potential exposure of an individual to potentially infectious biological materials and/or recombinant or synthetic nucleic acids; and/or
- A facility issue or other issue that could result in a potential release or loss of containment of biological materials and/or recombinant or synthetic nucleic acids; and/or
- An occurrence with biological materials and/or recombinant synthetic nucleic acids that required reporting to a regulatory or oversight agency

Between January 1, 2022, and March 31st, 2022, four incidents in CSU laboratories that met the above definition.

Description of Incident	Biosafety Level	Reporting Obligation
MTA SOP	BSL-3	None
Temporary autoclave wall	BSL_3	None
Eye splash	ABSL-2	None
Needle stick	ABSL-2	NIH OSP

Incident #1

Containment Level: BSL-3

Description: the first incident occurred when the doors on both ends of the material transfer area leading to a laboratory were opened at the same time. Once realized, the doors were closed immediately.

Risk Assessment: while this is a deviation from facility procedures, there was minimal risk to the researchers, CSU, the environment, and the community. There are never open samples in the material transfer rooms and the facility has engineering controls in place that create negative air pressure. Negative air pressure is achieved by drawing air from the BSL-2 area (material transfer area) into the laboratory, creating a negative pressure cascade that separates the BSL-3 environment from the BSL-2

environment. The air is decontaminated by HEPA filtration before exhausting from the facility. Also, the laboratory had not used high consequence agents for several weeks prior to the event.

Corrective action: more visible signage has been placed on the outer door leading into the material transfer area. Researchers who use the material transfer area were retrained on the proper procedure to look through windows into the space before opening either door.

Reporting Requirements: This incident did not require a report to any outside agencies.

Incident #2

Containment Level: BSL-3

Description: the second incident occurred at the beginning of the workday when it was noticed that a temporary plastic wall constructed for autoclave replacement was found to have a large hole/slash going through the layers of plastic. Upon identification, staff reported the issues to the facility manager and biosafety. Staff decontaminated the area as a precaution and replaced the temporary plastic wall. All individuals were wearing the appropriate PPE while these tasks were being done. No work had been performed in the space directly affected by the incident.

Risk Assessment: while the temporary wall was breached, there was minimal risk to the researchers, CSU, the environment, and the community. This is because the negative airflow is designed to flow from the locker rooms into the autoclave hallway and then into the laboratories. No work with infectious agents was performed when the wall was discovered and the evening before when researchers left for the day. Additionally, all active research inside the laboratories was within primary containment, thus minimizing anything risks. Out of an abundance of caution, CSU Occupational Health was contacted and concurred with the determined risk level.

Corrective Action: if there are future needs for a temporary plastic wall, staff will examine the wall at regular frequencies to ensure it is intact.

Reporting Requirements: This incident did not require a report to any outside agencies.

Incident #3

Containment Level: ABSL-2

Description: a researcher was removing necropsy tools, used to necropsy animal infected with *Mycobacterium abcessus,* from ethanol after an hour of soaking when the individual splashed themselves in the eye with the ethanol. The research flushed their eyes with water and notified Biosafety and Occupational Health.

Risk Assessment: the researcher was exposed to ethanol in their eye and potential exposure to the agent, which may have been on the tools they were working with. Occupational Health contacted the Occupational Medicine and Infectious Disease physicians. This incident was not a risk to the environment or the community, and the individual remains healthy with no damage to their eye.

Corrective Action: the researchers will wear safety glasses to help prevent splashes to the eyes.

Reporting Requirements: This incident did not require a report to any outside agencies.

Incident #4

Containment Level: ABSL-2

Description: a researcher was performing a necropsy with H18N11 infected bats when their hand slipped while pulling back the skin to pin. The dissection needle in their other hand punctured their left middle finger. The individual washed the wound and notified Occupational Health.

Risk Assessment: the bat was infected with an agent that is not known to infect humans and grows poorly in tissue culture. There is minimal risk to the individual and no risk to the community or environment. Occupational Health contacted Occupational Medicine and Infectious Disease physicians and, out of an abundance of caution, baseline serum was taken for potential future testing.

Corrective Action: the researchers will pull the skin for pin placement before picking up the dissection needle.

Reporting Requirements: Because this incident involved a reverse-engineered infectious clone of H18N11, the incident was reported to the NIH.

APPROVED MINUTES
Institutional Biosafety Committee
Microsoft Teams – REMOTE
Wednesday, May 11, 2022

Check if Attending (Members):	Check if Attending (Alternate Members):
☒ Jessica Ayers, Animal expert	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large
☒ Donald Bade, Unaffiliated	☐ Lon Kendall, Director LAR
☒ Richard Bowen, Associate Chair	☒ Nicole Marlenee, Assistant Biosafety Officer*
☒ Chaoping Chen, Chair	
☒ Jason Cummings, lab rep	*non-voting at this meeting
☒ June Medford, Plant/syn bio expert	
☒ Rebecca Moritz, Biosafety Office Director (arrived 12:37pm)	
☒ Edwin Neas, Unaffiliated	
☒ Ken Olson, Virology (12:30pm)	
☒ Brendan Podell, Mycobacteria specialist	
☐ Ann Powers, Virology	
☒ Robyn Roberts, Plant expert	
Non-Voting Members:	
☐ James Graham, EHS Director	
☒ Joni Van Sickle, Occupational Health Coord.	
RICRO Staff (non-voting):	Regular Guests (non-voting):
☐	☒ Heather Blair, Associate Biosafety Officer
	☒ Joanie Ryan, Assistant Biosafety Officer
Other:	

The meeting was convened at 12:12PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted item.

I. Review of IBC meeting minutes from March 9, 2022 and April 13, 2022.
Both sets of minutes approved with no changes.

II. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco/)

1. Obregon, Andres

Agent: Mycobacterium tuberculosis – Strain: H37Rv, CDC1551, HN878, Erdman; BSL3

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests that the vesphene percentage be changed from 5% to 2.5%.
2. Please provide the room number for the storage location.

Agent: Mycobacterium bovis, BCG – Strain: BCG; BSL2

The committee unanimously approved of the above agent with the following modifications:

The IBC requests that the vesphene percentage be changed from 5% to 2.5%

Project: Developing a Multivalent Subunit Particle Vaccine Against Tuberculosis (22-026B); BSL3 in vitro and BSL3 in vivo in mice. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project with the following modifications:

1. Under in vivo PPE, Tyveks are marked YES, and back closing gowns are marked NO. However, this area typically does not use Tyveks. Please confirm if this is correct.
2. Please specify what work will be done in [redacted].
3. All investigators need to register with the Online IBC Database, fill in a Statement of Experience, and complete the online IBC at CSU training.

2. Podell, Brendan

Agent: Non-tuberculous mycobacteria – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1.The IBC requests the risk group be changed from 1 to 2.
2. A PARF is also needed to work with the agent.

3. Jackson, Mary

Project: Monitoring treatment efficacy in leprosy (22-028B); BSL2 in vitro, human samples, rDNA. NIH Guidelines category non-exempt rDNA: III-D-2

The committee unanimously approved of the above project with the following modifications:

1. Throughout the PARF BSL2 is indicated, however in the section Briefly elaborate on procedures used to protect personnel from exposure, it states: Since the bacteria will be inactivated, all work will be performed at BSL1 level. Please clarify.
2. The IBC recommends that eye protection be added to the in vitro PPE used.

Project: Characterization of a new mechanism of resistance to dapsone in Mycobacterium leprae (22-029B); BSL2 and BSL3 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: III-D-1

The committee unanimously approved of the above project without modifications.

4. Peccoud, Jean

Project: Self-amplifying DNA vaccine (22-031B); BSL2 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: III-E-1

The committee unanimously approved of the above project with the following modifications:

1. The IBC requests the human cell lines being used be added to the Human origin material section.
2. All investigators need to register with Online IBC Database, complete the BSL1/2 training, and Occ Health risk assessment.

III. Amendments to be reviewed by full committee

1. Dow, Steven

Agent: Third generation, gamma-retrovirus vector (self-inactivating) – Strain: CAR T cell construct; BSL2

Project:CAR T cell therapy for bone cancer in dogs (21-016B); BSL2 in vitro, BSL2 in vivo in mice and client owned dogs, rDNA. NIH Guidelines category non-exempt rDNA: III-D-4
Amendment request: We wish to add a dual-targeting CAR T cell construct to this agent approval. The new vector, produced by colleagues at Children's Hosp Denver, is based on the same retroviral backbone as the originally approved singe B7-H3 CAR. The new construct contains the gene for a chemokine receptor (CXCR1/2) plus the B7-H3 CAR, for better T cell targeting. The new vector is delivered to canine T cells using the same viral transduction protocol as for the original B7-H3 construct. Details of the new vector can be provided if needed.

The committee unanimously approved of the above amendment request without modifications.

2. **Charkowski, Amy**

Project: Potato pathogen research (16-121B); BSL1 in vitro and BSL1 in vivo in solanaceous plants, rDNA. NIH Guidelines category non-exempt rDNA: III-E-2
Amendment request: 1) Spongospora subterranean added; 2) we recently identified a set of proteins in wild potato that confer resistance to bacterial pathogens. We will clone a subset of these genes and test them for activity in virulence assays.

The committee unanimously approved of the above amendment request without modifications.
This agent is commonly found in potting soil; no issues.

3. **Leach, Jan**

Project:QTL engineering for disease resistance in rice (21-030B); BSL2 in vitro and BSL2 in rice, rDNA. NIH Guidelines category non-exempt rDNA: III-E-2
Amendment request: Rhizoctonia solani added

The committee unanimously approved of the above amendment request without modifications.

4. **Nishimura, Marc**

Project: Structure-Function Analyses of Plant NLR Receptors (20-025B); BSL1 in vitro and BSL1 in vivo in Arabidopsis, Brachypodium, Nicotiana spp. NIH Guidelines category non-exempt rDNA: III-E-2
Amendment request: Addition to Non-exempt recombinant DNA section:
To better understand the enzymatic products of plant and prokaryotic TIR proteins, we will generate Bacillus subtilis strains that contain a plasmid expressing wild-type or mutant components of the prokaryotic Thoeris TIR-based anti-viral immune system. The goal is to understand how the enzymatic products of plant and prokaryotic TIRs overlap and/or differ. Experiments in the prokaryotic Bacillus subtilis/SP01 bacteriophage system are necessary to verify that results obtained in planta with this anti-viral system are generalizable back to the endogenous bacterial system.
-Addition to Infectious agents:
Add SP0-1 bacteriophage in vitro/in vivo in Bacillus subtilis at BSL1
-Bacterial infections with bacteriophage will be performed, contained, and sterilized similarly to bacteria. SP01 is destroyed after 5min at 70C, or by ethanol/bleach. Autoclaving and 10% bleach treatments that sterilize the host, Bacillus subtilis, also destroy phage (Bacillus spores resistant to 70% ethanol).

-Additions to recombinant DNA specific items:
3) add Bacillus vector: pHT-01 (E. coli/B. subtilis shuttle vector)
4) add Bacillus subtilis
-Additions to in vivo uses:
Species exposed to the agent: add Bacillus subtilis

The committee unanimously approved of the above amendment request with the following clarification:

The amendment request states: Autoclaving and 10% bleach treatments that sterilize the host, Bacillus subtilis, also destroy phage (Bacillus spores resistant to 70% ethanol). However, bleach will damage the autoclave. Please confirm that sterilization treatment will be either autoclaving or 10% bleach; or items that have been bleached will be allowed to sit for 24hrs before autoclaving.

IV. New Business

None

V. Unfinished business

1. **IRE Discussion follow up (see attached)**
   There was a follow-up discussion regarding potential changes to the IRE composition. The were asked to consider the following questions:
   1. What is our IRE missing/lacking?
   2. Does the current IRE structure make the best use of everyone's time?
   3. Our current structure has an IRE and Biosecurity Advisory Team, is this redundant?

   In discussing these questions, the committee was presented with a possible alternative to the current committee composition, which would be made up of a stand along committee. The committee was open to the idea of a stand-alone IRE that use ad hoc expertise based on the particular project being reviewed. The new IRE would be smaller and would only meet on a "as needed" bases. The IRE would still report back to the IBC. The IBC agreed to start pursuing this IRE change. Rebecca will discuss the potential changes with Alan and come back to the committee.
2. **IBC Membership updates**
   As a reminder, Ken Olson is retiring and therefore not renewing his membership; the committee suggested to recruit Tony Schountz as Ken's replacement. Tony has agreed to serve, and his nomination has been forwarded to Dr. Rudolph for approval. Both of our non-affiliated members have agreed to serve another term. Continuing with the Biosafety Officer IBC member rotation, starting July 1 Joanie Ryan will be the primary BSO member and Rebecca Moritz will be the alternate BSO.
3. **Safety glasses/eye protection** – no update
4. **IBC Protocol Subcommittee update** – we have been given permission to look at vender IBC protocol systems. A small group of us will be demo-ing several venders in the next couple of weeks.

VI. Reports

1. **Coordinator's report.**
   a. **Next IBC meeting:** Wednesday, June 8, 2022
   b. **Cancelling July IBC meeting**

c. **Biosafety and Biosecurity Fair – October National Biosafety and Biosecurity Month**

2. **Biosafety Officer's report.**
   a. **Inspection Update**
   b. **Incident reports**
   c. **Lab audits/Biosafety Outreach Visit reports**

VII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. **Schountz, Tony**
   Agent: Bat sarbecovirus – Stain: any; BSL3
2. **Podell, Brendan**
   Agent: Mycobacterium tuberculosis (multidrug resistant) – Strain: any; BSL3
3. **Bowen, Richard**
   Agent: Nairobi sheep disease (Ganjam) virus – Stain: any; BSL3
   Project: Development of an Animal Model for Nairobi Sheep Disease (22-018B); BSL3 in vitro and BSL3 in vivo in sheep and goats. NIH Guidelines category non-exempt rDNA: NA
   Project: Testing Medical Countermeasures Against Influenza in Mice (22-016B); BSL3 in vitro and BSL3 in vivo, rDNA. NIH Guidelines category non-exempt rDNA: III-D-2
4. **Bosco-Lauth, Angela**
   Agent: E. coli – Strain: any; BSL1
   Agent: Salmonella spp – Strain: any; BSL2
   Agent: Campylobacter spp. – Strain: any; BSL2
   Agent: Pseudomonas spp – Strain: any; BSL1
   Project: Isolation of enteric organisms from field-collected samples (22-019B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA: NA
5. **Akkina, Ramesh**
   Agent: SHIV – Strain: any; BSL2
   Project: A dual-purpose hu-mouse model for evaluating SIV and HIV cure strategies (22-023B); BSL2 in vitro and BSL2 in vivo in mice, human samples, rDNA. NIH Guidelines category non-exempt rDNA: III-E-1
6. **Slayden, Richard**
   Project: Efficacy Evaluation of Novel Therapeutics against Nontuberculosis Mycobacteria (NTM) (22-025B); BSL2 in vitro and BSL3 in vivo in mice, rDNA. NIH Guidelines category non-exempt rDNA: III-D-1

VIII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Withdrawn from review to be read into the minutes.

IX. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

X. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

1. 22-015B - Robertson, Gregory - In vitro mutant prevention and resistance frequency determination for Mycobacterium tuberculosis under ambient atmospheric conditions; BSL3 in vitro. NIH Guidelines category non-exempt rDNA: NA
2. 22-017B - Henao-Tamayo, Marcela - Animal models for vaccines and treatment of SARs-CoV-2; BSL2 in vivo in hamsters and mice; BSL3 in vitro; BSL3 in vivo in hamsters and mice. NIH Guidelines category non-exempt rDNA: NA
3. 22-022B - Georgnaras, Ifigenia - Evaluation of silver nanoparticles in solution for their antimicrobial effects and their effects on the color and microbial shelf-life of meat; BSL2 in vitro. NIH Guidelines category non-exempt rDNA: NA
4. 22-024B - Broussard, Josiane - Countermeasures to Circadian Misalignment; Human samples. NIH Guidelines category non-exempt rDNA: NA
5. 22-027B - Ragan, Izabela - Evaluating Therapeutics for the Treatment and/or Prevention of SARS-CoV-2 Infections in Small Animal Models; BSL3 in vitro and BSL3 in vivo in mice. NIH Guidelines category non-exempt rDNA: NA

Meeting adjourned at 1:00pm
Minutes recorded by CMJohnson

APPROVED MINUTES
Institutional Biosafety Committee
Microsoft Teams – REMOTE
Wednesday, June 8, 2022

Check if Attending (Members):	Check if Attending (Alternate Members):
☐ Jessica Ayers, Animal expert	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large
☒ Donald Bade, Unaffiliated	☒ Lon Kendall, Director LAR
☒ Richard Bowen, Associate Chair	☒ Nicole Marlenee, Assistant Biosafety Officer*
☒ Chaoping Chen, Chair	
☒ Jason Cummings, lab rep	*non-voting at this meeting
☐ June Medford, Plant/syn bio expert	
☒ Rebecca Moritz, Biosafety Office Director	
☐ Edwin Neas, Unaffiliated	
☒ Ken Olson, Virology (12:30pm)	
☒ Brendan Podell, Mycobacteria specialist	
☐ Ann Powers, Virology	
☒ Robyn Roberts, Plant expert	
Non-Voting Members:	
☒ James Graham, EHS Director	
☒ Joni Van Sickle, Occupational Health Coord.	
RICRO Staff (non-voting):	Regular Guests (non-voting):
☐	☒ Heather Blair, Associate Biosafety Officer
	☒ Joanie Ryan, Assistant Biosafety Officer
Other: Scott Van Scotter, Biosafety Trainer	

The meeting was convened at 12:03PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted item.

I. Review of IBC meeting minutes from May 11, 2022.
The minutes were not yet available for review.

II. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco/)

1. Bowen, Richard

Project: Comprehensive in vivo Screening of Viral Pathogens of Pandemic Potential (22-041B); BSL3 in vitro and in vivo in mice and hamsters. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project with the following modifications:

1. Under in vitro uses, N95 is currently marked YES and PAPR is marked. These should be switched.

Agent: Crimean-Congo Hemorrhagic Fever Virus Pseudovirus – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests the Risk Group be changed from 1 to 2.
2. Under methods of inactivation, please add a chemical disinfectant and the concentration used.

2. Gaines, Todd

Project: Investigation of transcription factor for herbicide resistance in rice (22-045B); rDNA. NIH Guidelines category non-exempt rDNA: III-E-2

The committee unanimously approved of the above project without modifications.

3. Kim, Seonil

Agent: Lentivirus – Stain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests the name of the agent be changed to Lentiviral vector.
2. Please specify which generation lentiviral vector will be used.
3. Please describe the source of the agent, for example, will you be making it yourself with a kit or obtaining from a colleague.
4. The IBC requests confirmation that [redacted].
5. Will an autoclave be used to inactive lentiviral particles?

Project: Lentivirus (22-047B); BSL2 in vitro and BSL2 in vivo in mice, rDNA. NIH Guidelines category non-exempt rDNA: III-D-4

The committee unanimously approved of the above project with the following modifications:

1. The IBC requests that the title of the PARF be changed to something more descriptive of the project.
2. Eye protection should be added to PPE used for in vivo work.
3. No other investigators are listed on the PARF. Please be sure to add all laboratory personnel.
4. It is recommended to conduct the in vivo lentiviral vector infections at [redacted] and then move the mice to [redacted] for the behavioral studies. The PI should contact LAR and BSO to determine the appropriate location for this work.
5. The lab is due for a Biosafety Outreach Visit.

4. Ragan, Izabela

Agent: Mayaro virus – Strain: FPI, BE; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. Pathogenic for animals should be changed from NO to YES.
2. Under methods of inactivation, please specify the chemical disinfectant and the concentration used.
3. Please clarify what is meant by heat inactivation. Should this be changed to autoclaving?

Agent: Dengue virus – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. Under methods of inactivation, please specify the chemical disinfectant and the concentration used.
2. Please clarify what is meant by heat inactivation. Should this be changed to autoclaving?

Agent: Leishmania – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. Request the PI specify the species.
2. Under methods of inactivation, please specify the chemical disinfectant and the concentration used.
3. Please clarify what is meant by heat inactivation. Should this be changed to autoclaving?

Agent: Zika virus – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. Pathogenic for animals should be changed from NO to YES.
2. Under methods of inactivation, please specify the chemical disinfectant and the concentration used.
3. Please clarify what is meant by heat inactivation. Should this be changed to autoclaving?

Agent: Yellow Fever virus – Strain: any; BSL3

The committee unanimously approved of the above agent with the following modifications:

1. Please clarify whether lab personnel will be vaccinated.
2. Under methods of inactivation, please specify the chemical disinfectant and the concentration used.
3. Please clarify what is meant by heat inactivation. Should this be changed to autoclaving?

Agent: Vaccinica virus – Strain: Ankara (MVA); BSL2

The committee unanimously approved of the above agent with the following modifications:

1. Please correct the agent name from Vaccinica virus to Vaccinia virus.
2. The risk group should be changed from 1 to 2.
3. Under methods of inactivation, please provide the percentage of Neutral Q, and remove the comment about pipette boats.

Agent: Encephalomyocarditis virus – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The risk group should be changed from 1 to 2.
2. Under methods of inactivation, please provide the percentage of Neutral Q, and remove the comment about pipette boats.

Agent: Monkeypox – Strain: any; BSL3

The committee unanimously approved of the above agent with the following modifications:

1. The agent name should be changed from Monkeypox to Monkeypox virus.
2. To exclude select agent strains, the IBC requests the strain be changed from Any to West African clade strains.
3. Under methods of inactivation, please specify the chemical disinfectant and the concentration used.
4. Please clarify what is meant by heat inactivation. Should this be changed to autoclaving?

Project: The efficacy of blood pathogen reduction technology on monkeypox in blood transfusion products (22-044B); BSL3 in vitro, human sample. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project with the following modifications:

1. No other investigators are listed on the PARF. Please be sure to add all personnel who are working on the project.

Project: Development of a Flow Through Photochemical Reactor for High-Volume Vaccine Manufacturing (22-046B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project without modifications.

5. Henao-Tamayo, Marcela

Agent: transformed fluorescent mycobacterium tuberculosis – Strain: H37Rv and CDC1551; BSL3

The committee unanimously approved of the above agent with the following modifications:

1. Since the vaccine is not specifically used for people working in the lab, Vaccine used for personnel should be changed to NO.
2. Under Methods of Inactivation, the concentration of vesphene should be changed from 2.3% to 2.5%.

Agent: Mycobacterium abscessus – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The risk group should be changed from 1 to 2.
2. Pathogenic for animals should be changed from NO to YES.

Agent: Mycobacterium kansasii – Strain: any; BSL1

The committee unanimously approved of the above agent with the following modifications:

1. The risk group should be changed from 1 to 2.
2. Pathogenic for animals should be changed from NO to YES.

Project: BCG mediated trained immunity (22-049B); BSL3 in vitro and BSL3 in vivo in mice, rDNA. NIH Guidelines category non-exempt rDNA: III-D-4

The committee unanimously approved of the above project with the following modifications:

1. If vaccinating animals with M. bovis BCG, it must be added to the agent list.
2. Under in vivo uses, please add the building and room number.
3. Also, under in vivo uses, please add species exposed to the agent and the route of exposure.
4. If doing aerosol infections, then PAPR and a back closing gown need to be added to in vivo PPE list.
5. Booties should be removed from in vitro PPE list.
6. Under Mechanisms in place for containment and disposition of infected animals, Animals will be autoclaved, should be changed to animal carcasses will be autoclaved.
7. In rDNA section, NIH Guidelines category III-D-4 should be added.

6. Vilander, Allison

Agent: Lactobacillus acidophilus – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. Antibiotic resistant was marked YES. Please clarify what the resistance is.
2. Please provide the [redacted] number for agent storage.
3. Under methods of inactivation, please specify a chemical disinfectant and the concentration used.

Agent: Escherichia coli – Strain: CUMT8; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. Please define EED.
2. Risk group should be changed from 1 to 2.
3. Please provide [redacted] number for agent storage.
4. Under methods of inactivation, please specify a chemical disinfectant and the concentration used.

Agent: Murine rotavirus – Strain: any; BSL2

The committee unanimously approved of the above agent without modifications.

Project: Characterization of immune response to oral rotavirus vaccination in a murine model of environmental enteric dysfunction (22-035B); BSL2 in vivo mice, rDNA. NIH Guidelines category non-exempt rDNA: III-D-4

The committee unanimously approved of the above project with the following modifications:

1. Need to add [redacted] numbers to locations of work.
2. The IBC requests the following statement be removed: There are no safety concerns related to this project at this time.
3. The IBC recommends safety glassed be added to PPE used for both in vitro and in vivo work.
4. The IBC requests that [redacted] provide a bit more detail in their statement of experience. This should include approximately how long they have worked with these agents and any specialized training received.

7. Gentry-Weeks, Claudia

Project: In vitro replication of a bacterial metabolic enzyme cascade (22-036B); BSL2 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: III-D-1

The committee unanimously approved of the above project with the following modifications:

1. The building name should be added to the locations of work.
2. The IBC requests the following statement be removed: There are no safety concerns related to this project.
3. The IBC recommends safety glassed be added to PPE used for in work.
4. No other investigators are listed on the PARF. Please be sure to add all laboratory personnel working on the project.

Project: Expression of chimeric protein genes in Pichia pastoris (22-038B); BSL2 in vitro, rDNA? NIH Guidelines category non-exempt rDNA: ??

The committee unanimously approved of the above project with the following modifications:

1. The building name should be added to the locations of work.
2. The IBC requests the rDNA section be filled out. The IBC Coordinator will send you the questionnaire.
3. No other investigators are listed on the PARF. Please be sure to add all laboratory personnel working on the project.

8. Obregon, Andres

Agent: Mycobacterium abscessus – Strain: any; BSL2

The committee unanimously approved of the above agent without modifications.

Agent: Mycobacterium avium – Strain: any; BSL2

The committee unanimously approved of the above agent without modifications.

III. Amendments to be reviewed by full committee

1. **Karkhoff-Schweizer, RoxAnn**

Project: Basic molecular and genetic skills for recombinant work within E. coli and P. aeruginosa strains (14-093B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA: NA

Amendment request:

1. Under E. coli....need to change strains to "any that are RG-1"

2. Under Pseudomonas aeruginosa....need to change strain to "any laboratory strain; example, PAO1"

2. Need to change the non-exempt recombinant DNA section. Presently, says "none". Needs to change to "YES". Example, I have E. coli strains with a non-recombinant plasmid; or E. coli strains with recombinant plasmids. These recombinants contain a cloned in gene fragment from Escherichia or Pseudomonas**.**

The committee unanimously approved of the above amendment without modifications.

IV. New Business

None

V. Unfinished business

1. **IBC membership -** Dr. Rudolph approved all IBC member nominations. Beginning July 1, 2022, Tony Schountz will replace Ken Olson. Joanie Ryan will replace Rebecca Moritz as Primary BSO/IBC member, and Rebecca will replace Nikki Marlenee as Alternate BSO/IBC member.

2. **IBC Protocol Subcommittee update –** no update at this time

VI. Reports

1. **Coordinator's report.**
   a. **Next IBC meeting:** Wednesday, August 10, 2022
   b. **Cancelling July IBC meeting**- Many staff and IBC members will be unavailable, so we are cancelling the July meeting. We will assess the need for an emergency meeting if something urgent should arise.
   c. **Save the Date - 2022 Biosafety and Biosecurity Fair! –** Tuesday, October 11, 2022, from 11am to 2pm at LSC

2. **Biosafety Officer's report.**
   a. **Inspection Update –** The CDC Select Agent inspection took place during the week of May 23rd. A couple of minor items were noted, and overall the inspection went well.
   b. **Incident reports**
   c. **Lab audits/Biosafety Outreach Visit reports**

VII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. **Obregon, Andres**

   Agent: Mycobacterium tuberculosis – Strain: H37Rv, CDC1551, HN878, Erdman; BSL3
   Agent: Mycobacterium bovis, BCG – Strain: BCG; BSL2
   Project: Developing a Multivalent Subunit Particle Vaccine Against Tuberculosis (22-026B); BSL3 in vitro and BSL3 in vivo in mice. NIH Guidelines category non-exempt rDNA: NA

2. **Jackson, Mary**

   Project: Monitoring treatment efficacy in leprosy (22-028B); BSL2 in vitro, human samples, rDNA. NIH Guidelines category non-exempt rDNA: III-D-2

3. **Peccoud, Jean**

   Project: Self-amplifying DNA vaccine (22-031B); BSL2 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: III-E-1

4. **Nishimura, Marc**

   Project: Structure-Function Analyses of Plant NLR Receptors (20-025B); BSL1 in vitro and BSL1 in vivo in Arabidopsis, Brachypodium, Nicotiana spp. NIH Guidelines category non-exempt rDNA: III-E-2
   Amendment request: Addition to Non-exempt recombinant DNA section and bacterial species

VIII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Withdrawn from review to be read into the minutes.

IX. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

X. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

Meeting adjourned at 1:20pm
Minutes recorded by CMJohnson

APPROVED MINUTES
Institutional Biosafety Committee
Microsoft Teams – REMOTE
Wednesday, August 10, 2022

Check if Attending (Members):	**Check if Attending (Alternate Members):**
☐ Jessica Ayers, Animal expert	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large
☐ Donald Bade, Unaffiliated	☐ Lon Kendall, Director LAR
☒ Richard Bowen, Associate Chair	☒ Rebecca Moritz, Biosafety Office Director*
☒ Chaoping Chen, Chair	
☒ Jason Cummings, lab rep	***non-voting at this meeting**
☒ June Medford, Plant/syn bio expert	
☒ Edwin Neas, Unaffiliated	
☒ Brendan Podell, Mycobacteria specialist	
☐ Ann Powers, Virology	
☒ Robyn Roberts, Plant expert	
☒ Joanie Ryan, Assistant Biosafety Officer	
☐ Tony Schountz, Virology	
Non-Voting Members:	
☒ James Graham, EHS Director	
☒ Joni Van Sickle, Occupational Health Coord.	
Regular Guests (non-voting):	**ORCC Staff (non-voting):**
☒ Heather Blair, Associate Biosafety Officer	
☒ Nicole Marlenee, Assistant Biosafety Officer	
☒ Scott Van Scotter, Biosafety Trainer	
Other:	

The meeting was convened at 12:20PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted items.

I. New IBC members

Dr. Joanie Ryan, Assistant Biosafety Officer and new IBC member was introduced. Dr. Tony Schountz is unable to attend and will be introduced during the next meeting.

II. Review of IBC meeting minutes from May 11, 2022 and June 8, 2022 (no meeting in July).

May IBC minutes were approved as written. June minutes were not yet available.

III. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco/)

1. Vilander, Allison

Agent: Rhesus rotavirus – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests the risk group be changed from 1 to 2.
2. The IBC recommends 10% bleach as a disinfectant for this agent.
3. As a reminder, a PARF is also needed for this work.

2. Thamm, Douglas

Project: Protein Translation Inhibition in Osteosarcoma (22-050B); BSL1 in vitro and BSL1 in vivo in mice, human samples, rDNA. NIH Guidelines category non-exempt rDNA: III-E-1

The committee unanimously approved of the above project with the following modifications:

1. Under the DURC section, question 3 was marked YES. Plasmids carrying antibiotic resistance genes for selection are exempt and thus the answer should be changed to NO.
2. Booties are not routinely worn as PPE in the mouse rooms; confirm with the PI that they do intend to use booties and state why.

3. Stenglein, Mark

Agent: Kairi virus – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests the risk group be changed from 1 to 2.
2. Please provide the room number for storage.
3. The IBC requests that autoclaving be added as a method of inactivation.

Agent: Oropouche – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. RG/BSL varies based on specific strain, for example ATCC strain TR9760 is BSL-3. Please specify strain to be used.
2. Please provide the room number for storage.
3. The IBC requests that autoclaving be added as a method of inactivation.

4. Slayden, Richard

Agent: Mouse-adapted influenza A/Puerto Rico/8/34 (H1N1) virus – Strain: PR8; BSL3

The committee unanimously approved of the above agent with the following modifications:

1. The risk group should be changed from 3 to 2.
2. The minimum BSL should also be changed from 3 to 2.

Project: Role of host ADAM-related pathways during primary viral with secondary bacterial pneumonia (22-052B); BSL3 in vitro and BSL3 in vivo in hamsters. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project without modifications.

5. Norton, Andrew

Agent: Puccinia punctiformis – Strain: all; BSL1

The committee unanimously approved of the above agent with the following modifications:

The IBC requests the building and room number for the storage location be added.

There was discussion regarding whether it would be possible for the fungi to mutate and expand its host range. This was determined to be unlikely.

Project: Improving Canada thistle Biological control (22-053B); BSL1 in vitro and BSL1 in vivo Cirsium arvense. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project without modifications.

6. **Popat, Ketul**

Agent: Staphylococcus aureus – Strain: ATCC6538; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. Please provide the concentration of bleach used for inactivation.
2. The IBC requests that Dr. Popat add a bit more information in their statement of experience and include types of bacteria worked with, any specific training completed, and years of experience.

Project: Antibacterial biomaterial surfaces (22-059B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project without modifications.

7. **Bosco-Lauth, Angela**

Agent: Feline leukemia virus (FeLV) – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

The IBC requests the percentage of Neutral Q be added to the methods of inactivation.

Project: FeLV vaccine efficacy in cats (22-056B); BSL2 in vitro and BSL2 in vivo in cats. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project without modifications.

FeLV is not transmissible to humans. However, it was confirmed to be a BSL2 agent.

8. **Khakhar, Arjun**

Project: Using synthetic signaling systems to engineer phenotypes in plants and fungi (22-057B); BSL1 in vitro and BSL1 in vivo in Nicotiana benthamiana, dicots, Seteria viridis, and monocots, rDNA. NIH Guidelines category non-exempt rDNA: III-D-3

The committee unanimously TABLED the above project. Specific concerns include:

1. This is a new faculty member, the IBC felt that this PARF was too broad/too much in one PARF.
2. The IBC requested that the PI meet with one the IBC members and re-submit as a two or three PARFs.

9. **Schountz, Tony**

Agent: Monkeypox virus – Strain: West African clade; BSL3

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests the freezer location be updated as the agent cannot go in the specified room due to vaccination requirements.

Agent: BANAL-236 coronavirus – Strain: any; BSL3

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests the freezer location be updated.
2. As a reminder, inactivation performed for RNA extraction will need to go through the in house validation of inactivation procedure.

Project: Monkeypox virus susceptibility of deer mice and Jamaican fruit bats (22-060B); BSL3 in vitro and BSL3 in vivo in deer mice, Jamaican fruit bats. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project with the following modifications:

1. The location of work needs to be updated as the current room is not available for the agent in use due to vaccination requirements.

Project: BANAL-236 CoV susceptibility of Jamaican fruit bats and deer mice (22-061B); BSL3 in vitro and BSL3 in vivo in deer mice, Jamaican fruit bats. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project with the following modifications:

1. Please update the location of work room number.

IV. Amendments to be reviewed by full committee

1. Stenglein, Mark

Project: Analysis of bunyavirus reassortment (19-085B); BSL2 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: III-D-2

Amendment request: add Kairi virus and Oropouche virus to the PARF.

The committee unanimously approved of the above amendment without modification. Note the PI withdrew the request to add Oropouche virus to this project.

2. Slayden, Richard

Project: Efficacy Evaluation of Novel Therapeutics against Nontuberculosis Mycobacteria (NTM) (22-025B); BSL2 in vitro, BSL3 in vivo, rDNA. NIH Guidelines category non-exempt rDNA: III-D-1

Amendment request: add plasmids mCRISPRed pRSETB (addgene #159454) used to express an RFP and pJDC181 (addgene #60853) used to express click beetle red luciferase.

The committee unanimously approved of the above amendment without modification.

V. New Business

1. Infectious agents – clarifying IBC purview and terminology

It has been brought to our attention that the term “infectious agents” is confusing to some and that perhaps we should use different terminology to describe the IBC purview. It was suggested that a boarder term like “biological agents” might be more helpful and more inclusive of plants and rDNA. It was also suggested that there should have a definition of what is covered under its purview. This is in the CSU Biosafety Policy but should be added elsewhere. No decisions were made yet, the committee was asked to think about possible options.

VI. Unfinished business

1. **IBC Protocol Subcommittee update**
   We are working on a proposal for a commercial product that will be presented to the executive committee once completed.

VII. Reports

1. **Coordinator's report.**
   a. **Next IBC meeting:** Wednesday, September 14, 2022
   b. **Save the Date - 2022 Biosafety and Biosecurity Fair! –** Tuesday, October 11, 2022, from 11am to 2pm at LSC

2. **Biosafety Officer's report.**
   a. **Inspection Update –** the FSAP inspection occurred at the end of May. The Biosafety Office is working on a response to the inspection.
   b. **Incident reports – quarterly report**
      The 2022 Second Quarter Incident Report was presented to the IBC in the updated format. The IBC was reminded that the purpose of this new format is to put the incidents into context and help understand where we may have repeat incidents.
   c. **Lab audits/Biosafety Outreach Visit reports**

VIII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. **Bowen, Richard**
   Project: Comprehensive in vivo Screening of Viral Pathogens of Pandemic Potential (22-041B); BSL3 in vitro and in vivo in mice and hamsters. NIH Guidelines category non-exempt rDNA: NA
   Agent: Crimean-Congo Hemorrhagic Fever Virus Pseudovirus – Strain: any; BSL2
2. **Kim, Seonil**
   Agent: Lentivirus – Stain: any; BSL2
3. **Ragan, Izabela**
   Agent: Mayaro virus – Strain: FPI, BE; BSL2
   Agent: Dengue virus – Strain: any; BSL2
   Agent: Leishmania – Strain: any; BSL2
   Agent: Zika virus – Strain: any; BSL2
   Agent: Yellow Fever virus – Strain: any; BSL3
   Agent: Vaccinia virus – Strain: Ankara (MVA); BSL2
   Agent: Encephalomyocarditis virus – Strain: any; BSL2
   Agent: Monkeypox – Strain: any; BSL3
   Project: The efficacy of blood pathogen reduction technology on monkeypox in blood transfusion products (22-044B); BSL3 in vitro, human sample. NIH Guidelines category non-exempt rDNA: NA
   Project: Development of a Flow Through Photochemical Reactor for High-Volume Vaccine Manufacturing (22-046B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA: NA

4. **Henao-Tamayo, Marcela**
   Agent: transformed fluorescent mycobacterium tuberculosis – Strain: H37Rv and CDC1551; BSL3
   Agent: Mycobacterium abscessus – Strain: any; BSL2
   Agent: Mycobacterium kansasii – Strain: any; BSL1
   Project: BCG mediated trained immunity (22-049B); BSL3 in vitro and BSL3 in vivo in mice, rDNA. NIH Guidelines category non-exempt rDNA: III-D-4
5. **Vilander, Allison**
   Agent: Lactobacillus acidophilus – Strain: any; BSL2
   Agent: Escherichia coli – Strain: CUMT8; BSL2
   Agent: Murine Rotavirus – Strain: any; BSL2
   Project: Characterization of immune response to oral rotavirus vaccination in a murine model of environmental enteric dysfunction (22-035B); BSL2 in vivo mice, rDNA. NIH Guidelines category non-exempt rDNA: III-D-4

IX. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Withdrawn from review to be read into the minutes.

X. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

XI. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

Meeting adjourned at 1:32pm
Minutes recorded by CMJohnson

Colorado State University- Quarterly Biological Safety Incident Report

There is no such thing as zero risk when conducting life science research. However, good biosafety and biosecurity practices help minimize the risks. There are over 175 principal investigators running laboratories that work with biological materials and/or recombinant or synthetic nucleic acids at Colorado State University (CSU). These laboratories range from Biosafety Level 1 (BSL-1) to BSL-3 with enhancement, as well as Animal Biosafety Level 1-3 (ABSL-1, ABSL-2, ABSL-3), Arthropod Containment Level 1-3 (ACL-1, ACL-2, ACL-3), and plant containment (BSL-1P and BSL-2P). Each laboratory has multiple researchers working, frequently over 40 hours a week, with many of these hours spent directly handling biological materials, recombinant or synthetic nucleic acids, and/or plants or animals containing the previous materials. The total number of researcher hours handling these materials annually is unknown. However, it can be assumed that the denominator is substantial.

This quarterly report describes incidents that have happened at CSU laboratories for the second quarter of 2022. Appropriate characterization of the actual risks of an incident to the researchers themselves, CSU, the environment, and the surrounding community based on a thorough incident review is presented. For this report, an incident is defined as:

- An event that may have caused a potential exposure of an individual to potentially infectious biological materials and/or recombinant or synthetic nucleic acids; and/or
- A facility issue or other issue that could result in a potential release or loss of containment of biological materials and/or recombinant or synthetic nucleic acids; and/or
- An occurrence with biological materials and/or recombinant synthetic nucleic acids that required reporting to a regulatory or oversight agency

Between April 1st, 2022, and June 30th, 2022, there were two incidents in CSU laboratories that met the above definition.

Description of Incident	Biosafety Level	Reporting Obligation
Scissors Puncture	ABSL-2	None
Eye splash	ABSL-3	None

Incident #1

Containment Level: ABSL-2

Description: the first incident occurred while a researcher was conducting a necropsy on a mouse infected with Norwegian reindeer chronic wasting disease (CWD). The researcher's hand slipped, and the researcher stabbed their left hand with the tip of the scissors. The researcher immediately washed the wound with soap and water then disinfected the wound with bleach.

Risk Assessment: the researcher took the appropriate first aid to clean the wound and followed up with Occupational Health and the Biosafety Office. CWD is not a human pathogen. However, there is much to learn about prions and there are no therapeutics or other treatments for CWD. There is minimal risk to the researcher and no risk to CSU, the community, and environment because CWD is not a human communicable disease.

Corrective action: there really is no corrective action beyond reminding the researchers to take their time. The laboratory could consider wearing puncture resistant gloves over their nitrile gloves. However, this might alter dexterity while performing the necropsy and is not a common practice.

Reporting Requirements: This incident did not require a report to any outside agencies.

Incident #2

Containment Level: ABSL-3

Description: the second incident occurred when a researcher was performing a tail vein injection on a mouse infected with HN878 *Mycobacterium tuberculosis*. The syringe contained PBS along with a CD45-PE antibody. The mouse moved causing the bevel to come out of the tail where there was a buildup of pressure because the vein was missed. As a result, the PBS in the syringe and possibly some blood from the mouse escaped out of the biosafety cabinet (BSC) and onto the researcher's face. The researcher had been turned sideways to obtain a better view for the injection. The researcher put the mouse in a cage and exited the BSC and the laboratory using the appropriate procedures. The researcher proceeded to the bathroom in the BSL-3 hallway and washed their face and eyes. After this the researcher returned to the laboratory and continued working. However, the researcher did not feel comfortable continuing work and was told by their co-workers to exit the BSL-3 using the appropriate procedures and showering out. The researcher showered out and washed their face/eyes for 15 minutes. Upon being notified, the CSU Biosafety Office and Occupational Health followed up with the researcher. CSU Occupational Health arranged a visit with a physician for the researcher.

Risk Assessment: the researcher felt the PBS land on their face around their eyes and eyelids even though they were wearing prescription glasses and an N-95. It is unclear if any of the PBS landed in their eyes or if there had even been blood that mixed with the PBS in the syringe or on the outside of the needle. *M. tuberculosis* has a low infectious does, but it is usually not found in the blood of infected animals and cannot cause an infection through intact skin or mucous membranes. Out of an abundance of caution, CSU Occupational Health thought it was appropriate for the researcher to see a physician for a consult. There was minimal risk to the researcher, CSU, the environment, and the community because of the risk mitigation and factors described above.

Corrective Action: the researcher has poor eyesight and prescription glasses are needed. The Biosafety Office talked with the researcher and PI about getting prescription safety glasses or adding side shields to their prescription glasses or wearing a face shield or PAPR. It was also discussed that this task could be delegated to more experienced researchers until this specific researcher becomes more proficient.

Reporting Requirements: This incident did not require a report to any outside agencies.

APPROVED MINUTES
Institutional Biosafety Committee
Microsoft Teams – REMOTE
Wednesday, September 14, 2022

Check if Attending (Members):	**Check if Attending (Alternate Members):**
☒ Jessica Ayers, Animal expert	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large
☒ Donald Bade, Unaffiliated	☐ Lon Kendall, Director LAR
☐ Richard Bowen, Associate Chair	☒ Rebecca Moritz, Biosafety Office Director*
☒ Chaoping Chen, Chair	
☒ Jason Cummings, lab rep	***non-voting at this meeting**
☒ June Medford, Plant/syn bio expert	
☐ Edwin Neas, Unaffiliated	
☐ Brendan Podell, Mycobacteria specialist	
☒ Ann Powers, Virology	
☒ Robyn Roberts, Plant expert	
☒ Joanie Ryan, Assistant Biosafety Officer	
☒ Tony Schountz, Virology	
Non-Voting Members:	
☒ James Graham, EHS Director	
☐ Joni Van Sickle, Occupational Health Coord.	
Regular Guests (non-voting):	**ORCC Staff (non-voting):**
☐ Heather Blair, Associate Biosafety Officer	
☐ Nicole Marlenee, Assistant Biosafety Officer	
☒ Scott Van Scotter, Biosafety Trainer	
Other:	

The meeting was convened at 12:20PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted items.

I. New IBC members

New IBC member, Dr. Tony Schountz, was introduced. He is replacing Dr. Ken Olson. Scott Van Scotter was also introduced. He is the new Biosafety Trainer. The committee introduced themselves and welcomed both of them.

II. Review of IBC meeting minutes from June 8, 2022 and August 10, 2022 (no meeting in July).

The June IBC minutes were approved with minor changes. The August minutes were not yet ready for review.

III. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco/)

1. Schountz, Tony

Agent: Human coronavirus OC43 – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

Please provide the room number for the storage location of the agent.

Agent: Hepatitis B virus – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

Please provide the room number for the storage location of the agent.

Project: Experimental infection of Jamaican fruit bats and deer mice with OC43 coronavirus (22-065B); BSL2 in vitro and BSL2 in vivo in deer mice and bats. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project with the following modifications:

1. The IBC requests a brief description of how susceptibility will be determined (i.e., viral load, serum conversion, etc.).
2. Under in vitro uses, the IBC recommends adding eye protection to the PPE used.
3. Please clarify whether the PPE is same for mice as it is for bats, specifically Tyvek & PAPR.
4. Please update the PARF with the specific room locations once they are known.

Project: Susceptibility of Jamaican fruit bats to hepatitis B virus (22-066B); BSL2 in vitro and BSL2 in vivo in Jamaican fruit bats, rDNA. NIH Guidelines category non-exempt rDNA: III-D-4

The committee unanimously approved of the above project with the following modifications:

1. The IBC requests a brief description of how susceptibility will be determined (i.e., viral load, serum conversion, etc.).
2. The IBC recommends adding eye protection to the PPE used in vitro and in vivo.
3. Please update the PARF with the specific room locations once they are known.

2. Ebel, Gregory

Agent: Sindbis virus – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

Please provide the room number for the storage location of the agent.

Project: Universal Vaccines for Tick-borne Flaviviruses (22-067B); BSL3 in vitro and BSL3 in vivo in mice, rDNA. NIH Guidelines category non-exempt rDNA: III-D-3

The committee unanimously approved of the above project with the following modifications:

The IBC recommends adding eye protection to the PPE used in vitro and in vivo.

3. Tonnessen, Brad

Agent: Cytospora plurivora – Strain: any; BSL1

The committee unanimously approved of the above agent with the following modifications:

1. Cytospora is a fungal pathogen, not an oomycte, thus oomycete should be removed from the project description.
2. Pathogenic to plants should be changed from NO to YES.
3. Strains are listed as ANY however USDA permit is required unless only working with isolates from Colorado. Please specify whether using only CO isolates.
4. Storage location should include building and room number.

Project: Continuing Sustainable Organic Farming in the Face of Climate Change in Western Colorado (22-068B); BSL1 in vitro and BSL1 in vivo in peaches. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project with the following modifications:

It is unclear what is being done with Cytospora plurivora. The IBC requests a brief description of how the agent will be used.

4. **Bosco-Lauth, Angela**

Project: HPAIV in peridomestic wildlife (22-069B); BSL3 in vitro and BSL3 in vivo in birds and mammals. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project with the following modifications:

1. Please specify which strain/isolate of HPAIV will be used.
2. Please provide and example of the bird and mammal species that will be used.
3. Please clarify in which situations a PAPR would be used vs and N95.

5. **Zabel, Mark**

Agent: Influenza virus – Strain: A and B; BSL2

The committee unanimously approved of the above project with the following modifications:

1. Human risk category should be changed from 3 to 2.
2. The IBC recommends removing the last sentence in the Agent Description (regarding testing for both influenza and SARS-CoV-2) as this information will be in the PARF.

6. **Gentry-Weeks, Claudia**

Project: Development of a minimal phage for delivery of bacteriolytic agents (22-071B); BSL2 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: III-D-2

The committee unanimously approved of the above project with the following modifications:

1. Under in vitro uses, the building and room number(s) needs to be added.
2. The text box under the PPE list indicates that a biosafety cabinet will be used, thus the biosafety cabinet should be marked YES.
3. All personnel should complete the IBC at CSU online training.

7. **Khakhar, Arjun (tabled PARF last month has been re-written into the two PARFs below)**

Project: Exploring the morphological basis of symbiosis in lichen (22-073B); BSL1 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: III-E-1

The committee unanimously approved of the above project with the following modifications:

1. The IBC requests that a lab coat be used and added to the list of PPE.
2. The IBC requests that the PI update the experience statement to include biosafety training completed.
3. The PI should be aware that Aspergillus niger and nidulans can case pneumonia in rare cases.

Project: Using synthetic signaling systems to engineer phenotypes in plants (22-074B); BSL1 in vitro and BSL1 in vivo in Nicotiana benthamiana, Arabidopsis thaliana, Solanum lycopersicum, rDNA. NIH Guidelines category non-exempt rDNA: III-E-2

The committee unanimously approved of the above project with the following modifications:

1. The IBC requests that a lab coat be used and added to the list of PPE.
2. Under the list of infectious agents, the IBC requests that information be added to the strains to indicate which agents are mutated instead of wild type.
3. The IBC requests that the PI update the experience statement to include biosafety training completed.

8. Slayden, Richard

Agent: Influenza A/Puerto Rico/8/34 (H1N1) virus – Strain: any; BSL3

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests the human risk category be changed from 3 to 2.
2. Since this agent can be handled at BSL2, the IBC recommends changing the minimal biosafety level from 3 to 2.

9. Stewart, Jane

Agent: Fusarium root rot pathogens, multiple species – Strain: any; BSL1

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests a chemical disinfectant be added to the methods of inactivation.
2. Remind the PI to submit a PARF for the work.

10. Chan, Joshua

Agent: Bacillus subtilis – Strain: 168 and its derivatives; BSL1

The committee unanimously approved of the above agent with the following modifications:

The IBC requests a chemical disinfectant be added to the methods of inactivation.

Project: Predicting the Evolutionary Stability of Engineered Microorganisms in Microbial Consortia (22-080B); BSL1 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: ??

The committee unanimously approved of the above project with the following modifications:

1. The IBC requests clarification regarding whether or not a biosafety cabinet will be used.
2. All personnel need to register with the Online IBC Database, fill out a statement of experience, and complete the online IBC at CSU training.
3. All personnel need to complete the online BSL1/BSL2 training and the the Occupational Health risk assessment.

11. Wong, Sing-Wan

Project: Engineering Mesenchymal Stromal Cells to treat Muscle Fibrosis (22-081B); BSL2 in vitro and BSL2 in vivo in mice, rDNA. NIH Guidelines category non-exempt rDNA: III-D-3

The committee unanimously approved of the above project with the following modifications:

Several of the PPE items indicated for both in vitro and in vivo work are not typically used at BSL2. Request clarification regarding what PPE will be used in each circumstance.

IV. Amendments to be reviewed by full committee

None

V. New Business

None

VI. Unfinished business

1. **Khakhar, Arjun (Tabled from August meeting)**

   Project: Using synthetic signaling systems to engineer phenotypes in plants and fungi (22-057B); BSL1 in vitro and BSL1 in vivo in Nicotiana benthamiana, dicots, Seteria viridis, and monocots, rDNA. NIH Guidelines category non-exempt rDNA: III-D-3

   Resubmitted as PARF # 22-073B and 22-074B; 22-057B will be withdrawn

2. **Eye Protection Policy and Roll Out Plan**

   The IBC reviewed the updated Eye Protection Policy and roll out plan. There were questions regarding why face shields are not considered eye protection. This is because with most face shields, the sides and top are not protected. There was a recommendation to add clarification and a reference for why face shields are not eye protection. The roll out plan is a phased process involving a lot of outreach and education, and will take will allow a year before the new policy is fully implemented.

3. **Infectious agents – clarifying IBC purview and terminology**

   No update

4. **IBC Protocol Subcommittee update**

   The proposal has been submitted to leadership and is scheduled for EC discussion on 9/26.

VII. Reports

1. **Coordinator's report.**
   a. **Next IBC meeting: Wednesday, October 12, 2022**
   b. **Save the Date - 2022 Biosafety and Biosecurity Fair! – Tuesday, October 11, 2022, from 11am to 2pm at LSC –** we need volunteers!
2. **Biosafety Officer's report –** being short on time and no urgent items in the BSO report, all items were held for next month
   a. **Biosafety training update**
   b. **Inspection Update**
   c. **Incident reports –**
   d. **Lab audits/Biosafety Outreach Visit reports**

VIII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. **Vilander, Allison**

   Agent: Rhesus rotavirus – Strain: any; BSL2

2. **Thamm, Douglas**

   Project: Protein Translation Inhibition in Osteosarcoma (22-050B); BSL1 in vitro and BSL1 in vivo in mice, human samples, rDNA. NIH Guidelines category non-exempt rDNA: III-E-1

3. **Stenglein, Mark**

   Agent: Kairi virus – Strain: any; BSL2

4. **Slayden, Richard**

   Agent: Mouse-adapted influenza A/Puerto Rico/8/34 (H1N1) virus – Strain: PR8; BSL3

5. **Norton, Andrew**
   Agent: Puccinia punctiformis – Strain: all; BSL1
6. **Popat, Ketul**
   Agent: Staphylococcus aureus – Strain: ATCC6538; BSL2
7. **Bosco-Lauth, Angela**
   Agent: Feline leukemia virus (FeLV) – Strain: any; BSL2
   Project: FeLV vaccine efficacy in cats (22-056B); BSL2 in vitro and BSL2 in vivo in cats. NIH Guidelines category non-exempt rDNA: NA
8. **Schountz, Tony**
   Agent: Monkeypox virus – Strain: West African clade; BSL3
   Agent: BANAL-236 coronavirus – Strain: any; BSL3
   Project: Monkeypox virus susceptibility of deer mice and Jamaican fruit bats (22-060B); BSL3 in vitro and BSL3 in vivo in deer mice, Jamaican fruit bats. NIH Guidelines category non-exempt rDNA: NA
   Project: BANAL-236 CoV susceptibility of Jamaican fruit bats and deer mice (22-061B); BSL3 in vitro and BSL3 in vivo in deer mice, Jamaican fruit bats. NIH Guidelines category non-exempt rDNA: NA

IX. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Withdrawn from review to be read into the minutes.

a. Stenglein, Mark
Agent: Oropouche – Strain: any; BSL2

X. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

XI. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

Meeting adjourned at 1:33pm
Minutes recorded by CMJohnson

APPROVED MINUTES
Institutional Biosafety Committee
Microsoft Teams – REMOTE
Wednesday, October 12, 2022

Check if Attending (Members):	**Check if Attending (Alternate Members):**
☒ Jessica Ayers, Animal expert	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large*
☒ Donald Bade, Unaffiliated	☐ Lon Kendall, Director LAR
☒ Richard Bowen, Associate Chair	☐ Rebecca Moritz, Biosafety Office Director*
☒ Chaoping Chen, Chair	
☒ Jason Cummings, lab rep	***non-voting at this meeting**
☐ June Medford, Plant/syn bio expert	
☒ Edwin Neas, Unaffiliated	
☒ Brendan Podell, Mycobacteria specialist	
☐ Ann Powers, Virology	
☒ Robyn Roberts, Plant expert	
☒ Joanie Ryan, Assistant Biosafety Officer	
☐ Tony Schountz, Virology	
Non-Voting Members:	
☐ James Graham, EHS Director	
☒ Joni Van Sickle, Occupational Health Coord.	
Regular Guests (non-voting):	**ORCC Staff (non-voting):**
☒ Heather Blair, Associate Biosafety Officer	
☒ Nicole Marlenee, Assistant Biosafety Officer	
☒ Scott Van Scotter, Biosafety Trainer	
Other:	

The meeting was convened at 12:08PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted items.

I. Review of IBC meeting minutes from August 10, 2022 and September 14, 2022.
The IBC meeting minutes were not available for review.

II. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco/)

1. Vaaga, Christopher

Agent: AAV2-EF1a-DIO-eYFP – Strain: any: BSL1
Agent: AAV2-EF1a-DIO-mCherry – Strain: any: BSL1
Agent: AAV2-hSyn-eYFP – Strain: any: BSL1
Agent: AAV2-EF1a-DIO-hChR2(H134R)-eYFP – Strain: any: BSL1
Agent: AAV2-hSyn-hChR2(H134R)-eYFP – Strain: any: BSL1

The committee unanimously approved of the above agents with the following modifications:

1. The IBC requests that the above agents be combined into one AAV AARF listing all the variations.
2. Autoclaving should be added to the methods used to inactivate the agent for disposal.

Project: Neural Circuits of Innate Fear (22-084B); BSL1 in vivo in mice, rDNA. NIH Guidelines category non-exempt rDNA: III-D-4

The committee unanimously approved of the above project with the following modifications:

1. The use of glass syringes is mentioned. The IBC requests clarification of what they are used for and whether a plastic alternative is possible.
2. The IBC requests that all investigators complete BSL1/2 online training.
3. The IBC requests that all investigators working in a biosafety cabinet complete biosafety cabinet training.

Project: Behavioral Analysis of Innate Fear (22-087B); BSL1 in vivo in mice, rDNA. NIH Guidelines category non-exempt rDNA: III-D-4

The committee unanimously approved of the above project with the following modifications:

1. The use of glass syringes is mentioned. The IBC requests clarification of what they are used for and whether a plastic alternative is possible.
2. The IBC requests that all investigators complete BSL1/2 online training.
3. The IBC requests that all investigators working in a biosafety cabinet complete biosafety cabinet training.

2. Hemming-Schroeder, Elizabeth

Agent: Plasmodium falciparum – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests additional information regarding heat inactivation, for example if an autoclave is used or a specific temperature and time is used for inactivation.
2. The IBC requests a chemical method of inactivation and concentration such as what is used to clean surfaces and equipment.

Agent: Plasmodium vivax – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests additional information regarding heat inactivation, for example if an autoclave is used or a specific temperature and time is used for inactivation.
2. The IBC requests a chemical method of inactivation and concentration such as what is used to clean surfaces and equipment.

Agent: Plasmodium ovale – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests additional information regarding heat inactivation, for example if an autoclave is used or a specific temperature and time is used for inactivation.
2. The IBC requests a chemical method of inactivation and concentration such as what is used to clean surfaces and equipment.

Agent: Plasmodium malariae – Strain: any; BSL1

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests additional information regarding heat inactivation, for example if an autoclave is used or a specific temperature and time is used for inactivation.
2. The IBC requests a chemical method of inactivation and concentration such as what is used to clean surfaces and equipment.
3. The risk group should be changed from 1 to 2 for this agent.

3. Ragan, Izabela

Agent: Taterapox virus – Strain: V71-I-016; BSL2

The committee unanimously approved of the above agent with the following modifications:

The risk group should be changed from 1 to 2.

4. Atterberg, Shae

Agent: Dermatophyte species (Trichophyton & Microsporum) – any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. Typically IBC PIs are faculty members or permanent employees. The IBC request information regarding who the faculty member or permanent employee involved in this work.
2. The IBC requests the building and room number for the storage location of the agent.
3. The IBC requests more details regarding inactivation prior to disposal. For example, will a chemical disinfectant be used (and at what concentration), will an autoclave be used.
4. Personnel need to complete the IBC at CSU online training and the BSL 1/2 online training.

Project: Black-tailed Prairie Dogs (Cynomys ludovicianus) as carriers of Dermatophyte fungi (22-088B); BSL2 in vivo in prairie dogs. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project with the following modifications:

1. Typically IBC PIs are faculty members or permanent employees. Please specify the faculty member or permanent employee involved in this work.
2. It was noted that in vitro work and in vivo work were marked yes. However, it appears that they are only collecting samples from the prairie dogs and not actually inoculating them with anything. Is this correct?
3. Since an external organization will be collecting the samples, request confirmation that CSU employees will not be handling the prairie dogs?
4. Please clarify why humans are listed as species exposed to the agent – is the investigator diong anything with these samples other than submission to D-lab?
5. Please specify the room numbers for location of work.
6. Personnel need to complete the IBC at CSU online training and the BSL 1/2 online training.

III. Amendments to be reviewed by full committee

1. Schountz, Tony (see attached)

Project: Experimental infection of Jamaican fruit bats with Sosuga virus (20-137B); BSL3 in vitro and BSL3 in vivo in Jamaican fruit bats, deer mice.

Amendment request to add: We will continually passage Sosuga virus on Jamaican fruit bat cells to determine if passaging can lead to a virus better adapted to infect Jamaican fruit bats. rDNA and DURC information also added.

The committee unanimously approved of the above amendment request without modifications.

2. **Schountz, Tony (see attached)**

Project: Infection of Jamaican fruit bats with bat morbillivirus PMV11 (20-077B); BSL2 in vitro and BSL2 in vivo in Artibeus jamaicensis (Jamaican fruit bat).

Amendment request to add: We have determined that PMV11 (Myotis bat morbillivirus) does not infect Jamaican fruit bats. However, another New World bat morbillivirus genome has been discovered, PBZ-1381 morbillivirus (see Figure 2 of https://link.springer.com/article/10.1007/s00705-022-05500-z), in a greater spear-nosed bat (Phyllostomus hastatus), a species much closer to Jamaican fruit bats. Our colleagues who discovered this virus have determined that its fusion and glycoprotein can bind to Jamaican fruit bat CD150, the receptor for morbilliviruses. They are currently constructing a recombinant PMV11 morbillivirus substituted with PBZ-1381 morbillivirus F and G proteins. We will test this virus for its ability to infect Jamaican fruit bats and cells from Jamaican fruit bats as described in the current Project. rDNA information added.

The committee unanimously approved of the above amendment request with the following clarification:

BSL3 work is mentioned in the rDNA section, however the rest of the PARFs is at BSL2. Request clarification of PPE used in each area.

IV. New Business

None

V. Unfinished business

1. **Eye Protection Policy and Roll Out Plan** – no update at this time
2. **Infectious agents – clarifying IBC purview and terminology** – no update at this time
3. **IBC Protocol Subcommittee update** – still waiting for EC to review the proposal

VI. Reports

1. **Coordinator's report.**
   a. **Next IBC meeting: Wednesday, November 9, 2022**
2. **Biosafety Officer's report.**
   a. **Biosafety training update** – Scott Van Scotter gave an update on the changes to the biosafety training modules. Everything is being revised to update content and better align the trainings with universal design
   b. **Inspection Update**
   c. **Incident reports –**
   d. **Lab audits/Biosafety Outreach Visit reports**

VII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. **Schountz, Tony**

Agent: Human coronavirus OC43 – Strain: any; BSL2

Agent: Hepatitis B virus – Strain: any; BSL2

Project: Experimental infection of Jamaican fruit bats and deer mice with OC43 coronavirus (22-065B); BSL2 in vitro and BSL2 in vivo in deer mice and bats. NIH Guidelines category non-exempt rDNA: NA

Project: Susceptibility of Jamaican fruit bats to hepatitis B virus (22-066B); BSL2 in vitro and BSL2 in vivo in Jamaican fruit bats, rDNA. NIH Guidelines category non-exempt rDNA: III-D-4

2. **Ebel, Gregory**
   Agent: Sindbis virus – Strain: any; BSL2
   Project: Universal Vaccines for Tick-borne Flaviviruses (22-067B); BSL3 in vitro and BSL3 in vivo in mice, rDNA. NIH Guidelines category non-exempt rDNA: III-D-3
3. **Tonnessen, Brad**
   Agent: Cytospora plurivora – Strain: any; BSL1
   Project: Continuing Sustainable Organic Farming in the Face of Climate Change in Western Colorado (22-068B); BSL1 in vitro and BSL1 in vivo in peaches. NIH Guidelines category non-exempt rDNA: NA
4. **Bosco-Lauth, Angela**
   Project: HPAIV in peridomestic wildlife (22-069B); BSL3 in vitro and BSL3 in vivo in birds and mammals. NIH Guidelines category non-exempt rDNA: NA
5. **Zabel, Mark**
   Agent: Influenza virus – Strain: A and B; BSL2
6. **Gentry-Weeks, Claudia**
   Project: Development of a minimal phage for delivery of bacteriolytic agents (22-071B); BSL2 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: III-D-2
7. **Khakhar, Arjun**
   Project: Exploring the morphological basis of symbiosis in lichen (22-073B); BSL1 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: III-E-1
   Project: Using synthetic signaling systems to engineer phenotypes in plants (22-074B); BSL1 in vitro and BSL1 in vivo in Nicotiana benthamiana, Arabidopsis thaliana, Solanum lycopersicum, rDNA. NIH Guidelines category non-exempt rDNA: III-E-2
8. **Slayden, Richard**
   Agent: Influenza A/Puerto Rico/8/34 (H1N1) virus – Strain: any; BSL3
9. **Chan, Joshua**
   Agent: Bacillus subtilis – Strain: 168 and its derivatives; BSL1
   Project: Predicting the Evolutionary Stability of Engineered Microorganisms in Microbial Consortia (22-080B); BSL1 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: ??
10. **Wong, Sing-Wan**
    Project: Engineering Mesenchymal Stromal Cells to treat Muscle Fibrosis (22-081B); BSL2 in vitro and BSL2 in vivo in mice, rDNA. NIH Guidelines category non-exempt rDNA: III-D-3

VIII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Withdrawn from review to be read into the minutes.

IX. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

X. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

Meeting adjourned at 12:55pm
Minutes recorded by CMJohnson

APPROVED MINUTES
Institutional Biosafety Committee
Microsoft Teams – REMOTE
Wednesday, November 9, 2022

Check if Attending (Members):	**Check if Attending (Alternate Members):**
☒ Jessica Ayers, Animal expert	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large*
☒ Donald Bade, Unaffiliated	☐ Lon Kendall, Director LAR
☒ Richard Bowen, Associate Chair	☒ Rebecca Moritz, Biosafety Office Director*
☒ Chaoping Chen, Chair	
☒ Jason Cummings, lab rep	***non-voting at this meeting**
☐ June Medford, Plant/syn bio expert	
☒ Edwin Neas, Unaffiliated	
☒ Brendan Podell, Mycobacteria specialist	
☒ Ann Powers, Virology	
☒ Robyn Roberts, Plant expert	
☒ Joanie Ryan, Assistant Biosafety Officer	
☒ Tony Schountz, Virology	
Non-Voting Members:	
☒ James Graham, EHS Director	
☒ Joni Van Sickle, Occupational Health Coord.	
Regular Guests (non-voting):	**ORCC Staff (non-voting):**
☒ Heather Blair, Associate Biosafety Officer	
☒ Nicole Marlenee, Assistant Biosafety Officer	
☒ Scott Van Scotter, Biosafety Trainer	
Other:	

The meeting was convened at 12:05PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted items.

I. Review of IBC meeting minutes from August 10, September 14, and October 12, 2022.
The IBC meeting minutes were not available for review.

II. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco/)

1. Mayo, Christie

Agent: bluetongue virus – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modification:
The IBC requests that a chemical disinfectant be added to the Methods of Inactivation.

Project: Forecasting viral pathogenesis and a means to manage insect vector populations (22-091B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project with the following modification:
The committee requested confirmation whether the plaque assay, growth curves, or TCID and CPE on BHK 21 cells will be performed at CSU or elsewhere.

2. **Ragan, Izabela**

Agent: La Crosse – Strain: any; BSL2 (storage only)

The committee unanimously approved of the above agent with the following modification:

The IBC requests that the agent name be changed to La Crosse virus.

3. **Bowen, Richard**

Project: An Intranasal, Bivalent saRNA Vaccine Against H5N1 and H7N9 Influenza (22-095B); BSL3 in vitro and BSL3 in vivo in ferrets, rDNA. NIH Guidelines category non-exempt rDNA: III-D-2 and III-D-4.

The committee unanimously approved of the above project with the following modification:

The IBC requests the typo “evaaluate" be corrected.

4. **Raabis, Sarah**

Agent: Blautia producta – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. Please add the building to the storage location of the agent.
2. The IBC requests that autoclaving be added of as a Method of inactivation prior to disposal.
3. Please confirm whether a CDC or USDA permit is required.

Agent: Salmonella virus P22 – Strain: any; BSL1

The committee unanimously approved of the above agent with the following modifications:

1. Please add the building to the storage location of the agent.
2. Antibiotic resistance was marked YES. Please specify whether resistance is naturally occurring or engineered and which antibiotics the agent is resistant to.
3. The IBC requests that autoclaving be added of as a Method of inactivation prior to disposal.
4. The IBC requests that the chemical disinfectant be changed to 10% bleach, instead of EtOH.

Agent: Bacteroides fragilis – Strain: any; BSL2
Agent: Enterococcus faecium – Strain: any; BSL1
Agent: Enterococcus faecalis – Strain: any; BSL2
Agent: Prevotella melaninogenica – Strain: any; BSL2
Agent: Providencia alcalifaciens – Strain: any; BSL2

The committee unanimously approved of the above agents with the following modifications:

1. The IBC requests the risk group and BSL be changed from 1 to 2.
2. Please add the building to the storage location of the agent.
3. The IBC requests that autoclaving be added of as a Method of inactivation prior to disposal.
4. Please confirm whether a CDC or USDA permit is required.

Agent: Escherichia coli – Strain: any; BSL2
Agent: Salmonella enterica – Strain: any; BSL2

The committee unanimously approved of the above agents with the following modifications:

1. The IBC requests that the specific strains of E. coli and Salmonella enterica be listed.
2. Please add the building to the storage location of the agent.
3. The IBC requests that autoclaving be added of as a Method of inactivation prior to disposal.
4. Please confirm whether a CDC or USDA permit is required.

5. Antibiotic resistance was marked YES. Please specify whether resistance is naturally occurring or engineered and which antibiotics the agent is resistant to.

Project: Defining Pathways of Colonization Resistance Subversion by Salmonella Dublin in Dairy Calves (22-096B); BSL2 in vitro and BSL2 in vivo in bovine, rDNA. NIH Guidelines category non-exempt rDNA: III-D-1

The committee unanimously approved of the above project with the following modification:

1. It is unclear what work will be performed at CSU and what work will be done at the University of Wisconsin, the IBC requests clarification.
2. Will any in vivo work be conducted at CSU? If no, the in vivo PPE section should be removed.
3. All lab personnel need to complete the online BSL1/BSL2 training.
4. If a biosafety cabinet will be used, Biosafety Cabinet training will need to be completed.
5. A Biosafety Outreach Visit needs to be scheduled.

5. Borlee, Grace

Agent: E. coli – Strain: BL21(DE3); BSL1

The committee unanimously approved of the above agent with the following modifications:

1. Please specify whether the antibiotic resistance is naturally occurring or engineered.
2. The IBC requests a chemical disinfectant be added to the methods of inactivation for disposal.
3. A PARF is also needed to work with this agent.

III. Amendments to be reviewed by full committee

None

IV. New Business

1. Boston University DURC case study

The committee was given the preprinted article *Role of spike in the pathogenic and antigenic behavior of SARS-CoV-2 BA.1 Omicron* (https://www.biorxiv.org/content/10.1101/2022.10.13.512134v1.full) and asked to conduct a DURC risk assessment to discuss at the meeting.

V. Unfinished business

1. Eye Protection Policy and Roll Out Plan – update

Rebecca Moritz will be meeting with the CRADs this month to discuss the new policy and roll out plan.

2. IBC Protocol Subcommittee update

The proposal to purchase ShiShield was approved by EC and is now going to central IT for approval.

3. Infectious agents – clarifying IBC purview and terminology

No update

VI. Reports

1. Coordinator's report.

a. Next IBC meeting: Wednesday, December 14, 2022

2. **Biosafety Officer's report.**
    a. **Inspection Update –** the biosafety group is still finishing up some items from the recent Select Agent inspection
    b. **Incident reports –** no reportable incidents this month
    c. **Lab audits/Biosafety Outreach Visit reports –** the outreach visits are going well

VII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. **Vaaga, Christopher**
    Agent: Adeno-associated virus – Strain: any: BSL1
    Project: Neural Circuits of Innate Fear (22-084B); BSL1 in vivo in mice, rDNA. NIH Guidelines category non-exempt rDNA: III-D-4
    Project: Behavioral Analysis of Innate Fear (22-087B); BSL1 in vivo in mice, rDNA. NIH Guidelines category non-exempt rDNA: III-D-4
2. **Hemming-Schroeder, Elizabeth**
    Agent: Plasmodium falciparum – Strain: any; BSL2
    Agent: Plasmodium vivax – Strain: any; BSL2
    Agent: Plasmodium ovale – Strain: any; BSL2
    Agent: Plasmodium malariae – Strain: any; BSL1
3. **Ragan, Izabela**
    Agent: Taterapox virus – Strain: V71-I-016; BSL2

VIII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Withdrawn from review to be read into the minutes.

IX. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

X. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

Meeting adjourned at 12:55pm
Minutes recorded by CMJohnson

APPROVED MINUTES
Institutional Biosafety Committee
Microsoft Teams – REMOTE
Wednesday, December 14, 2022

Check if Attending (Members):	**Check if Attending (Alternate Members):**
☒ Jessica Ayers, Animal expert	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large*
☒ Donald Bade, Unaffiliated	☐ Lon Kendall, Director LAR
☒ Richard Bowen, Associate Chair	☒ Rebecca Moritz, Biosafety Office Director*
☒ Chaoping Chen, Chair	
☒ Jason Cummings, lab rep	***non-voting at this meeting**
☒ June Medford, Plant/syn bio expert	
☒ Edwin Neas, Unaffiliated	
☒ Brendan Podell, Mycobacteria specialist	
☐ Ann Powers, Virology	
☒ Robyn Roberts, Plant expert	
☒ Joanie Ryan, Assistant Biosafety Officer	
☒ Tony Schountz, Virology	
Non-Voting Members:	
☒ James Graham, EHS Director	
☒ Joni Van Sickle, Occupational Health Coord.	
Regular Guests (non-voting):	**ORCC Staff (non-voting):**
☒ Heather Blair, Associate Biosafety Officer	
☒ Nicole Marlenee, Assistant Biosafety Officer	
☒ Scott Van Scotter, Biosafety Trainer	
Other:	

The meeting was convened at 12:08PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted items.

I. Review of IBC meeting minutes from August 10, September 14, and October 12, 2022.
All three sets of minutes were approved, with the minor typo correction in the August minutes.

II. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco/)

1. Mehaffy, Martha

Project: Characterization of Enzymatic activity of B-glucosidase mutants (22-097B); BSL1 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: III-E-1

The committee unanimously approved of the above project without modifications.

This project will be carried out as part of a 400 level MIP course.

2. Dean, Gregg

Agent: Human rotavirus A – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. It should be noted that the vaccine is only for children.
2. Please elaborate on how UV will be used as a method of inactivation.

3. McCosh, Richard

Agent: AAV-hSyn-DIO-hM3D(Gq)-mCherry – Strain: any; BSL1
Agent: AAV-hSyn-mCherry – Strain: any; BSL1
Agent: AAV-mCherry-flex-dtA – Strain: any; BSL1
Agent: AAV-hSyn-flex-tdTomato-T2A-sypEGFP-WPRE – Strain: any; BSL1

The committee unanimously approved of the above agent with the following modifications:

1. The IBC recommends that all of the AAV AARFs be combined into one AARF and to describe all possible gene products to be expressed in the agent overview.
2. The IBC requests the building name for the storage location be added.
3. The IBC requests that autoclaving be added as a Method for inactivation prior to disposal.

Project: Investigation of neurocircuits that regulate reproduction in mice (22-099B); BSL1 in vivo in mice, rDNA. NIH Guidelines category non-exempt rDNA: III-E-3

The committee unanimously approved of the above project with the following modifications:

1. There was a discrepancy noted in the in vivo biosafety level. Under the infectious agents sections the in vivo use is listed as BSL1, however under the in vivo uses section it is listed as BSL2. Because one of the AAV vectors contains Diphtheria subunits, these mice will need to be housed at BSL2.
2. The NIH Guidelines category should be changed to III-D-4.
3. No other personnel are listed on the PARF, make sure to add personnel, including staff, graduate students, and undergrads.
4. According to our records, this lab has not had a Biosafety Outreach Visit yet and should schedule one at their earliest convenience.

4. Martin, Federico

Project: Test of promoter activation strength (22-098B); plant rDNA. NIH Guidelines category non-exempt rDNA: III-E-2.

The committee unanimously approved of the above project with the following modifications:

1. An Agent Approval Request Form (AARF) needs to be submitted for Agrobacterium tumefaciens.
2. The IBC requests confirm that the Agrobacterium tumefaciens is a disarmed strain.
3. Please specify what is being done with/in Hordeum vulgare.
4. Clarify whether whole plants be used or just plant tissue.
5. Safety glasses/goggles should be marked YES on the list of PPE used.
6. Need to confirm that Dr. Martin is eligible to be the PI on an IBC PARF. Typically, the PI is a faculty member.
7. All individuals working on the project need to register with the Online IBC Database (https://protocols.research.colostate.edu/rco/), fill out the brief personal information and statement of experience, as well as complete the online IBC at CSU training.

5. **Snow, Christopher**

Agent: Escherichia coli – Strain: BL21; BSL1

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests the concentration of bleach used for inactivation be specified.
2. Will autoclaving be used as a method of inactivation?

Project: SBIR Phase II: Sustainable production of high-performance dietary supplements (22-100B); BSL1 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: ??

The committee unanimously approved of the above project without modifications.

6. **Ebel, Gregory**

Agent: Sindbis/Eastern Equine Encephalitis Chimeric Virus (SINV-EEEV) – Strain: SINV TR339; EEEV North American genotype FL93-939; BSL2

Agent: Sindbis/Venezuelan Equine Encephalitis Chimeric Virus (SINV-VEEV) – Strain: SINV TR339; VEEV Subtypes I-VI (genotypes: Trinidad Donkey, subt; BSL2

The committee unanimously approved of the above agents with the following modifications:

1. The IBC requests a chemical disinfectant and its concentration be added to the methods of inactivation.
2. Please provide the room number for the storage location.

Project: Clearance of alphaviruses from avian circulation (22-101B); BSL2 in vitro and BSL2 in vivo in chicks, rDNA. NIH Guidelines category non-exempt rDNA: III-D-4

The committee unanimously approved of the above project with the following modifications:

1. Please specify the room numbers for both in vitro and in vivo work.
2. The IBC requests safety glasses be added for in vitro and in vivo work.
3. Back closing gowns should be added as PPE for in vivo work.

7. **Raabis, Sarah**

Agent: Enterobacter cloacae – Strain: any; BSL2

The committee unanimously approved of the above agent without modifications.

8. **Peccoud, Jean**

Agent: Adenovirus – Strain: Ad5, Ad5/F35; BSL2

The committee unanimously approved of the above agent with the following modifications:

Under Methods of inactivation for disposal, 20% bleach is indicated, however 10% is typically used. Please clarify why 20% bleach.

Agent: Adeno Associated Virus – Strain: AAV1, AAV2, AAV4, AAV5, AAV7, AAV8, AAV9; BSL1

The committee unanimously approved of the above agent with the following modifications:

Under Methods of inactivation for disposal, the autoclave temperature should be changed from 120 to 121.

Project: Development of a technology to certify engineered DNA molecules (22-103B); BSL2 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: III-D-3

The committee TABLED their decision pending additional information. Specifically, the committee had the following questions or issues it asks the PI to address:

1. It is unclear how Adenovirus, AAV, and Vesicular Stomatitis Virus are being used. Please provide more details in the Overview of the Project.
2. VSV Indiana strain typically requires a USDA permit.
3. A PAPR is not required for working with these agents.
4. The IBC recommends that safety glasses be worn at all times in the lab regardless of biosafety cabinet use.

Late submissions, review if time allows

9. McCosh, Richard

Agent: Adeno associated Virus – Strain: any; BSL1

The committee unanimously approved of the above agent with the following modifications:

1. The IBC recommends that all of the AAV AARFs be combined into one AARF and to describe all possible gene products to be expressed in the agent overview.
2. The IBC requests the building name for the storage location be added.
3. The IBC requests that autoclaving be added as a Method for inactivation prior to disposal.

Project: Investigation of genes that regulate reproduction (22-105B); BSL1 in vitro and BSL1 in vivo in mice, rDNA. NIH Guidelines category non-exempt rDNA: III-E-3

The committee unanimously approved of the above project with the following modifications:

1. What strain of E. coli will be used to propagate recombinant plasmids?
2. Will helper virus be used during AAV production?
3. Will the gRNAs on Cas gene be on the same plasmid or separate plasmids?
4. Will expression of the transgenes be transient or persistent?
5. The question, Project utilizes Select Agents should be changed from YES to NO.
6. Please add the room numbers for Painter and Pathology.
7. The IBC requests the following language be added to the PARF: We will coordinate with LAR prior to infections to be sure appropriate signage is available in the room to place on cages. Following infection in the mice, AAV are reported to no longer be excreted 72 hours after inoculation, nor are they active in the bedding waste. Cages will be labeled with 72 hours cage handling direction tags and no cages are to be open during that time unless absolutely necessary; in which case they are opened in a BSC. Any unused AAV will be inactivated via autoclave.
8. The NIH Guidelines category should be changed to III-D-4.
9. No other personnel are listed on the PARF: personnel, including staff, graduate students, and undergrads should be added.

III. Amendments to be reviewed by full committee

1. Bowen, Richard

Project: Anthrax Vaccine Efficacy Against Diverse Strains of Bacteria (19-016B); BSL3 in vitro and BSL3 in vivo in mice, rabbits, guinea pigs, rDNA. NIH Guidelines category non-exempt rDNA: III-D-1

Amendment request: We propose to genetically modify Bacillus anthracis and Bacillus cereus biovar anthracis by conjugation to generate strains in which a fluorescent product (luciferase) is expressed under the control of promoters for known virulence

genes. This will allow ready measurement of the relative level of expression of those virulence factors both in vivo and in vitro. The conjugation process will involve making the recipient strains of bacteria resistant to kanamycin. A document describing the details of this process has been provided to the IBC coordinator.

The committee unanimously approved of the above amendment request with the information provided.

IV. New Business

V. Unfinished business

1. **Eye Protection Policy and Roll Out Plan – update**
   Rebecca Moritz met with the CRADs in November. There was some pushback regarding cost and who would have to pay for safety glasses. But the policy and roll out plan were well received. They liked that we were taking a year to roll it out. There was a suggestion to work with the Cores and roll it out there first. Some were surprised that wearing eye protection at all times in the lab was not already the policy.
2. **IBC Protocol Subcommittee update** – no update
3. **Infectious agents – clarifying IBC purview and terminology** – no update

VI. Reports

1. **Coordinator's report.**
   a. **Next IBC meeting: Wednesday, January 11, 2023**

2. **Biosafety Officer's report.**
   a. **Inspection Update** – The Biosafety group is finishing up responding to outstanding items from the inspection in August. That should be wrapped up soon.
   b. **Incident reports** – There was a bat bite when a researcher was transferring a bat from its cage to the biosafety cabinet. All proper procedures were followed. The incident is not reportable to NIH or CDC. The individual is doing well. More information will be provided in the next quarterly incident report.
   c. **Lab audits/Biosafety Outreach Visit reports**

VII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. **Mayo, Christie**
   Agent: bluetongue virus – Strain: any; BSL2
   Project: Forecasting viral pathogenesis and a means to manage insect vector populations (22-091B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA: NA
2. **Ragan, Izabela**
   Agent: La Crosse – Strain: any; BSL2
3. **Bowen, Richard**

Project: An Intranasal, Bivalent saRNA Vaccine Against H5N1 and H7N9 Influenza (22-095B); BSL3 in vitro and BSL3 in vivo in ferrets, rDNA. NIH Guidelines category non-exempt rDNA: III-D-2 and III-D-4.

4. **Raabis, Sarah**
   - **Agent:** Blautia producta – Strain: any; BSL2
   - **Agent:** Salmonella virus P22 – Strain: any; BSL1
   - **Agent:** Bacteroides fragilis – Strain: any; BSL2
   - **Agent:** Enterococcus faecium – Strain: any; BSL1
   - **Agent:** Providencia alcalifaciens – Strain: any; BSL2
   - **Agent:** Enterococcus faecalis – Strain: any; BSL2
   - **Agent:** Escherichia coli – Strain: any; BSL2
   - **Agent:** Salmonella enterica – Strain: any; BSL2
   - **Agent:** Prevotella melaninogenica – Strain: any; BSL2

VIII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Withdrawn from review to be read into the minutes.

IX. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

X. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

Meeting adjourned at 1:03pm
Minutes recorded by CMJohnson

APPROVED MINUTES
Institutional Biosafety Committee
Microsoft Teams – REMOTE
Wednesday, January 11, 2023

Check if Attending (Members):	**Check if Attending (Alternate Members):**
☒ Jessica Ayers, Animal expert	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large*
☒ Donald Bade, Unaffiliated	☐ Lon Kendall, Director LAR
☒ Richard Bowen, Associate Chair	☐ Rebecca Moritz, Biosafety Office Director*
☒ Chaoping Chen, Chair	
☒ Jason Cummings, lab rep	***non-voting at this meeting**
☐ June Medford, Plant/syn bio expert	
☒ Edwin Neas, Unaffiliated	
☒ Brendan Podell, Mycobacteria specialist	
☒ Ann Powers, Virology	
☒ Robyn Roberts, Plant expert	
☒ Joanie Ryan, Assistant Biosafety Officer	
☒ Tony Schountz, Virology	
Non-Voting Members:	
☒ James Graham, EHS Director	
☒ Joni Van Sickle, Occupational Health Coord.	
Regular Guests (non-voting):	**ORCC Staff (non-voting):**
☒ Heather Blair, Associate Biosafety Officer	
☒ Nicole Marlenee, Assistant Biosafety Officer	
☒ Scott Van Scotter, Biosafety Trainer	
Other:	

The meeting was convened at 12:05PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted items.

I. Review of IBC meeting minutes from November 9, 2022, and December 14, 2022
The minutes were not available for review.

II. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco/)

1. Ragan, Izabela

Project: The detection of neutralizing antibodies against coronaviruses by plaque reduction neutralization tests (22-107B); BSL3 in vitro. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project without modifications.

2. Bosco-Lauth, Angela

Agent: Rabies virus – Strain: any; BSL2

The committee unanimously approved of the above agent without modifications.

Project: Rabies vaccine duration of immunity (23-001B); BSL2 in vitro and BSL2 in vivo in cats, dogs, ferrets. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project with the following modifications:

The IBC requests clarification regarding where the dogs will be housed.

3. **Bowen, Richard**

Agent: Borrelia burgdorferi – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC request a chemical disinfectant be added to the method of inactivation.
2. Please provide the room number for storage.
3. Remind the PI to add this agent to an existing PARF or submit a new PARF.

4. **McCosh, Richard**

Agent: Lentivirus – Strain: any; BSL2

The committee unanimously TABLED their determination of the above agent pending more information. Specifically, the IBC requested the PI address the following:

1. The IBC requests more description of lentiviruses and which vectors you intend to use.
2. What is the source of the lentivirus vectors, will you be purchasing them or generating in your lab?
3. The Risk Group should be changed from 3 to 2.
4. The IBC requests the training completed at CSU be added to your statement of experience.

Project: Generation and use of CNiFER cells to study neurotransmitter, neuropeptide and hormone release (23-002B); BSL2 in vitro, human samples, rDNA. NIH Guidelines category non-exempt rDNA: III-D-1

The committee unanimously TABLED their determination of the above project pending more information. Specifically, the IBC requested the PI address the following:

1. The IBC requests more description of lentiviruses and which lentiviral vectors will be use.
2. What is the source of the lentivirus vectors, will they be purchased or generated in the lab?
3. The Project Overview mentions both in vivo and in vitro work. However, under both the infectious agents list and in vivo uses PPE list, no in vivo work is indicated. Request clarification.

III. Amendments to be reviewed by full committee

None

IV. New Business

None

V. Unfinished business

1. **Eye Protection Policy and Roll Out Plan –** no update
2. **IBC Protocol Subcommittee** – no update

VI. Reports

1. **Coordinator's report.**
   a. **Next IBC meeting: Wednesday, February 8, 2023**

2. **Biosafety Officer's report.**
   a. [redacted] **pipe burst/flooding –** The recent cold snap happened during a time when one of the boilers was being retrofitted. A pipe (which is located outside the building) from the fire suppression system froze and burst. Because of the negative pressure and sloped floors, copious amounts of water were drawn into the building, causing flooding in the hallway and [redacted]. Luckily, no work was going on at time and there is no concern of release or exposure. The water was cleaned up and the repair process has begun.
   b. **Bat facility update -** A local community group has expressed fears surrounding the construction of the new bat facility on [redacted]. They are concerned the facility could be used for research with high-risk group organisms (RG3&4) and worry that a containment failure would be catastrophic to the community and potentially the world. OVPR communications and biosafety are working together to address these concerns and reiterate the purpose of this facility, which is to house current and future research bat breeding colonies and provide ABSL-2 level space. It will not be used for any research involving risk group 3 or 4 organisms.
   c. **Incident reports – Q4 Report – see attached.**
   d. **Inspection Update –** All items for the CDC inspection in August have been addressed and the inspection is now closed.
   e. **Lab audits/Biosafety Outreach Visit reports**

VII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. **Dean, Gregg**
   Agent: Human rotavirus A – Strain: any; BSL2
2. **Snow, Christopher**
   Agent: Escherichia coli – Strain: BL21; BSL1
   Project: SBIR Phase II: Sustainable production of high-performance dietary supplements (22-100B); BSL1 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: ??
3. **Ebel, Gregory**
   Agent: Sindbis/Eastern Equine Encephalitis Chimeric Virus (SINV-EEEV) – Strain: SINV TR339; EEEV North American genotype FL93-939; BSL2
   Agent: Sindbis/Venezuelan Equine Encephalitis Chimeric Virus (SINV-VEEV) – Strain: SINV TR339; VEEV Subtypes I-VI (genotypes: Trinidad Donkey, subt; BSL2
   Project: Clearance of alphaviruses from avian circulation (22-101B); BSL2 in vitro and BSL2 in vivo in chicks, rDNA. NIH Guidelines category non-exempt rDNA: III-D-4

VIII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Withdrawn from review to be read into the minutes.

IX. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

X. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

Meeting adjourned at 12:38pm
Minutes recorded by CMJohnson

Colorado State University- Quarterly Biological Safety Incident Report

There is no such thing as zero risk when conducting life science research. However, good biosafety and biosecurity practices help minimize the risks. There are over 175 principal investigators running laboratories that work with biological materials and/or recombinant or synthetic nucleic acids at Colorado State University (CSU). These laboratories range from Biosafety Level 1 (BSL-1) to BSL-3 with enhancement, as well as Animal Biosafety Level 1-3 (ABSL-1, ABSL-2, ABSL-3), Arthropod Containment Level 1-3 (ACL-1, ACL-2, ACL-3), and plant containment (BSL-1P and BSL-2P). Each laboratory has multiple researchers working, frequently over 40 hours a week, with many of these hours spent directly handling biological materials, recombinant or synthetic nucleic acids, and/or plants or animals containing the previous materials. The total number of researcher hours handling these materials annually is unknown. However, it can be assumed that the denominator is substantial.

This quarterly report describes incidents that have happened at CSU laboratories. Appropriate characterization of the actual risks of an incident to the researchers themselves, CSU, the environment, and the surrounding community based on a thorough incident review is presented. For this report, an incident is defined as:

- An event that may have caused a potential exposure of an individual to potentially infectious biological materials and/or recombinant or synthetic nucleic acids; and/or
- A facility issue or other issue that could result in a potential release or loss of containment of biological materials and/or recombinant or synthetic nucleic acids; and/or
- An occurrence with biological materials and/or recombinant synthetic nucleic acids that required reporting to a regulatory or oversight agency

Between October 1st, 2022, and December 31th, 2022, there were three incidents in CSU laboratories that met the above definition.

Description of Incident	Biosafety Level	Reporting Obligation
Open wound	BSL-3	None
Bat bite	ABSL-3	None
Burst pipe	BSL-3	None

Incident #1

Containment Level: BSL3

Description: the first incident occurred while the person was in a lab to investigate damage to the floor under the biosafety cabinet. While on their hands and knees, the person scuffed their left shin on the floor. While degowning to exit the BSL 3 space, the person noticed the wound. The wound was washed with soap and water and wiped with alcohol. They then applied antiseptic and a band aid. The person filed a workmen's comp form and reported to Biosafety. Nothing further came of this incident and it was closed.

Risk Assessment: the person took the appropriate first aid steps to clean the wound and followed up with Occupational Health and the Biosafety Office. There was no active research in the space where the person scuffed their shin.

Corrective Action: Be more careful/aware when crawling around on the floor in the barrier. Consider using a towel to protect knees on floor.

Reporting Requirements: This incident did not require a report to any outside agencies.

Incident #2

Containment Level: ABSL-3

Description: A researcher was transferring a bat to the biosafety cabinet with their left hand, which had the standard double gloves plus a leather glove. The right hand got too close to the bat and the bat caught the right hand and double gloves with its mouth. The researcher then returned the bat to its cage, as per protocol, and left the room. The gloves were then removed and a small red spot was discovered on the right index finger. It was washed with soap and water and excised. It was then cleaned with iodine. The researcher then proceeded to exit the BSL-3 laboratory and contacted their PI.

This bat had been vaccinated against Middle East Respiratory Syndrome Coronavirus (MERS-CoV). The vaccine was a protein antigen and not recombinant. The bat had then been challenged with MERS-CoV that came from a human isolate five days prior (wildtype, 2014). The bat did not show any clinical signs of MERS.

Risk Assessment: MERS is a respiratory illness caused by a coronavirus (MERS-CoV). Health officials first reported the disease in Saudi Arabia in September 2012.MERS-CoV is thought to spread through a person's respiratory secretions, such as a cough. If not inhaled, this virus will likely not cause infection.

The researcher followed proper protocol for this incident and then reported the incident to both Occupational Health and Biosafety. Several steps were taken to ensure the safety of the researcher. Occupational Health sent the researcher to the emergency room to be evaluated. The State Public Health Department was notified and they asked that the researcher be monitored for symptoms for 14 days. They also developed an action plan with our Occupational Health program in the unlikely case that the researcher developed symptoms.

The bat was euthanized and both oral and anal swabs were tested by PCR for MERS-CoV. All were negative. The head of the bat was transported to the CSU Diagnostic Medical Center to undergo Rabies virus testing out of an abundance of caution. This bat is from a CSU breeding colony of healthy bats that has been closed for over a decade.

The researcher did not develop any symptoms.

Corrective Action: Biosafety met with the researcher and PI to discuss the incident and determine if anything could have been done differently. The researcher was following all protocols, but their right hand got too close to the bat. The PI is going to do a retraining with the entire lab group and stress the importance of being aware of where hands are at all times when handling bats.

Reporting Requirements: This incident did not require a report to any outside agencies.

Incident #3

Containment Level: BSL-3

Description: On Friday, December 23rd around 9:30 pm, RO Moritz was contacted by CSUPD after they responded to a burst pipe from the fire suppression system in the hallway outside the Regional Biocontainment Lab (RBL). This was due to very low temperatures. They proceeded to ask her to come in and assess the situation. She came and assessed the situation and determined she needed assistance. ARO Marlenee joined her on site around 10:30 pm. They donned the appropriate PPE for the space and entered the RBL through the one set of locker rooms that were dry. They proceeded to go through each individual room inside the RBL to determine whether there was water. They proceeded to take all absorbent material out of spill kits and gather all the available disinfectant and made berms in front of all areas where water could potentially get back out of the facility (locker rooms, transfer material rooms). They poured disinfectant in all areas with water. Then they exited the BSL-3 space, following the exit SOP through the dry locker room.

In the morning, RO Moritz returned to assess the stability of the situation and make sure the berms were holding. After donning the appropriate PPE and entering through the dry locker room, she determined the berms were holding and that due to dry air and the number of air changes, water was starting to evaporate. She also determined that the situation could wait until Tuesday when CSU officially opened. She continued to enter the area daily to monitor the situation and take note of the water levels that decreased day by day. On the morning of December 24th, RO Moritz notified the Federal Select Agent program through the emergency phone number and spoke with the Form 3 group. It was determined that since no select agents were out of the freezer in the area that had water in them, a form 3 was not required. Fortunately, no research was active in the areas where water was found due to the holiday.

Risk Assessment: There was no active research going on in the spaces where there was water but the disinfectant was poured in any room with water out of an abundance of caution. The CDC Select Agent group required no further action on their end since there was not a loss of containment.

Corrective Action: CSU was already in the process of replacing both of the boilers due to age. One had been installed but the other had not yet been installed at the time of the piper bursting. Once both new boilers are up and running, it is likely that this will not be an issue in the future. We will follow up with Facilities to determine whether it is possible to take any additional action that would prevent this from occurring in the future.

Reporting Requirements: CDC Select Agent Group was contacted but they determined this was not a reportable event.

APPROVED MINUTES
Institutional Biosafety Committee
Microsoft Teams – REMOTE
Wednesday, March 8, 2023

Check if Attending (Members):	Check if Attending (Alternate Members):
☒ Jessica Ayers, Animal expert	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large*
☒ Donald Bade, Unaffiliated	☐ Lon Kendall, Director LAR
☒ Richard Bowen, Associate Chair	☐ Rebecca Moritz, Biosafety Office Director*
☒ Chaoping Chen, Chair	
☐ Jason Cummings, lab rep	*non-voting at this meeting
☒ June Medford, Plant/syn bio expert	
☒ Edwin Neas, Unaffiliated	
☐ Brendan Podell, Mycobacteria specialist	
☐ Ann Powers, Virology	
☒ Robyn Roberts, Plant expert	
☒ Joanie Ryan, Assistant Biosafety Officer	
☒ Tony Schountz, Virology	
Non-Voting Members:	
☒ James Graham, EHS Director	
☐ Joni Van Sickle, Occupational Health Coord.	
Regular Guests (non-voting):	ORCC Staff (non-voting):
☒ Heather Blair, Associate Biosafety Officer	☒ Michelle Ramey, Assistant Compliance Coord.
☒ Nicole Marlenee, Assistant Biosafety Officer	
☒ Scott Van Scotter, Biosafety Trainer	
Other:	

The meeting was convened at 12:04PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted items.

I. Introduce new ORCC Assistant Compliance Coordinator, Michelle Ramey

Michelle Ramey, the new Assistant Compliance Coordinator, was introduced. She will start by helping with IBC tasks and then will be available to help other units in ORCC. The committee introduced themselves to Michelle and welcomed her.

II. Review of IBC meeting minutes from January 11, 2023 (no meeting in February 2023)

The minutes were approved as written.

III. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco/)

1. Peccoud, Jean (TABLED during December 2022 meeting)

Project: Development of a technology to certify engineered DNA molecules (22-103B); BSL2 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: III-D-3

The committee unanimously approved of the above project with the following clarification:
The IBC requested confirmation on whether or not an APHIS is required for working with VSV.

2. **McCosh, Richard (TABLED during January 2023 meeting)**
   Agent: Lentivirus – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:
The IBC requests Strains be changed from ANY to "listed in description".

The committee discussed that 3rd generation lentivectors will be used.

Project: Generation and use of CNiFER cells to study neurotransmitter, neuropeptide and hormone release (23-002B); BSL2 in vitro, human samples, rDNA. NIH Guidelines category non-exempt rDNA: III-D-1

The committee unanimously approved of the above project with the following modifications:
The PARF indicates in vivo work, thus the in vivo uses and PPE section needs to be filled out.

3. **Bowen, Richard**
   Agent: Human Respiratory Syncytial virus – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:
Please add the dilution of Neutral Q for inactivation.

Project: Development of a dry powder inhalation product against Respiratory Syncytial Virus (23-012B); BSL2 in vitro and BSL2 in vivo in cotton rats. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project with the following modifications:
1. The IBC requests confirmation regarding who is generating the inhalation product.
2. Both N-95 and PAPR are listed as PPE under both in vitro and in vivo uses. Please clarify which will be used.

One committee member had a question as to why cotton rats were used, another confirmed that they were the correct animal model for this virus.

4. **Snow, Christopher**
   Project:Designed Expanded Co-Crystals for Guest Structural Determination (23-103B); BSL1 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: III-E

The committee unanimously approved of the above project with the following modifications:
1. First sentence under Non-exempt rDNA section appears to have a typo, it states ...in E. coli will be modified to either encode single point mutation. It seems that EITHER should be removed.
2. Remind the PI to add other investigators to the PARF.

Submitted after the deadline; review if time allows

5. **Ragan, Izabela**
   Agent: Seasonal Influenza – Strain: Influenza A (H1N1, H3N2), Influenza B (Yamagata,Victoria lineage); BSL2

The committee unanimously approved of the above agent with the following modifications:
The IBC requests that the agent be separated into two AARFs, one for Influenza A virus and one for Influenza B virus.

The committee pointed out that Influenza A virus and Influenza B virus are actually two different agents.

Project: Flu Vaccine Production Using a Novel Pandemic Response and Prevention Manufacturing Method (23-017B); BSL2 in vitro and BSL2 in vivo in mice and ferrets. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project with the following modifications:
1. The IBC recommends respiratory protection, such as N95, for in vivo work.
2. The IBC requests the PI consult with the Biosafety Office and LAR regarding housing and PPE requirements for ferret work.

IV. Amendments to be reviewed by full committee
None

V. New Business
None

VI. Unfinished business

1. **Eye Protection Policy and Roll Out Plan - update**
   The comment period for the new policy and roll out plan has ended. The responses are collated. The comments will be addressed, and the policy will be re-drafted. Once these documents are ready, we will hold a series of open forums to address any additional comments or concerns.
   A member of the committee indicated that several members of their department expressed concern regarding the policy and its implementation. The plan is to work with researchers and address their concerns.

2. **IBC Protocol System -** no update

VII. Reports

1. **Coordinator's report.**
   a. **Next IBC meeting: Wednesday, April 12, 2023**

2. **Biosafety Officer's report.**
   a. **Inspection Update** – none to report
   b. **Incident reports** – none to report
   c. **Lab audits/Biosafety Outreach Visit reports** – currently going well

VIII. Items reviewed and approved by the IBC, and updates given via email in place of February meeting to be read into the minutes.

1. **IBC meeting minutes from November 9, 2022, and December 14, 2022**

2. **Schountz, Tony**
   Agent: Mammalian orthoreovirus – Strain: MRV serotype 1 and MRV serotype 2; BSL2
3. **Gonzalez Juarrero, Mercedes**
   Agent: Mycobacterium kansasii
4. **Updates**
   a. The updated DURC Policy was approved. We are working on identifying potential members for the new IRE. However, until the new IRE is approved and in place, the IBC will continue to conduct DURC reviews as usual.
   b. Eye Protection Policy and Roll Out Plan – we are currently soliciting feedback from stakeholders regarding the changes to the policy. The comment period ends on February 17th.
   c. New IBC protocol management system – we are still in the procurement process with ShiShield and hope to have an update/timeline soon for beginning the implementation process.

IX. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. **Bosco-Lauth, Angela**
   Project: Rabies vaccine duration of immunity (23-001B); BSL2 in vitro and BSL2 in vivo in cats, dogs, ferrets. NIH Guidelines category non-exempt rDNA: NA
2. **Bowen, Richard**
   Agent: Borrelia burgdorferi – Strain: any; BSL2

X. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Withdrawn from review to be read into the minutes.

XI. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

XII. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

Meeting adjourned at 1:03pm
Minutes recorded by CMJohnson

APPROVED MINUTES
Institutional Biosafety Committee
Microsoft Teams – REMOTE
Wednesday, April 12, 2023

Check if Attending (Members):	Check if Attending (Alternate Members):
☒ Jessica Ayers, Animal expert	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large*
☒ Donald Bade, Unaffiliated	☐ Lon Kendall, Director LAR
☒ Richard Bowen, Associate Chair	☒ Rebecca Moritz, Biosafety Office Director*
☒ Chaoping Chen, Chair	
☒ Jason Cummings, lab rep	*non-voting at this meeting
☒ June Medford, Plant/syn bio expert	
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☒ Brendan Podell, Mycobacteria specialist	
☐ Ann Powers, Virology	
☒ Robyn Roberts, Plant expert	
☒ Joanie Ryan, Assistant Biosafety Officer	
☒ Tony Schountz, Virology	
Non-Voting Members:	
☒ James Graham, EHS Director	
☒ Joni Van Sickle, Occupational Health Coord.	
Regular Guests (non-voting):	ORCC Staff (non-voting):
☒ Heather Blair, Associate Biosafety Officer	☒ Michelle Ramey, Assistant Compliance Coord.
☒ Nicole Marlenee, Assistant Biosafety Officer	
☐ Scott Van Scotter, Biosafety Trainer	
Other:	

The meeting was convened at 12:01PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted items.

I. Review of IBC meeting minutes from March 8, 2023

The minutes were approved as written.

II. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco/)

1. Bosco-Lauth, Angela

Agent: Aspergillus – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests that spp be added to the Agent name.
2. Specify the percentage of bleach used for inactivation.
3. Clarification on what is meant by trypsin treatment for inactivation.

2. **Easley, Jeremiah**

Agent: Staphylococcus aureus – Strain: UAMS-1; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests more information regarding what is special about this strain.
2. Under methods of inactivation, a chemical disinfectant for surfaces (including concentration) needs to be identified.

Project: Garwood Medical - Assessing Surgical Technique and Functionality of Novel Device in a Prosthetic Joint Infection Ovine Model - Pilot Study I and II (23-020B); BSL2 in vivo in ovine. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project with the following modifications:

1. The IBC requests more detail about the surgery in the Project Overview.
2. Addition of safety glasses to the in vivo uses PPE list.
3. Confirmation that ABSL1 is appropriate for housing the animals after the surgery.

3. **Stenglein, Mark**

Agent: La Crosse virus – Stain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests autoclaving be added as a method for inactivation prior to disposal.

Agent: Bunyamwera virus – Strain: BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests autoclaving be added as a method for inactivation prior to disposal.

4. **Crick, Dean**

Agent: Corynebacterium tuberculostearicum – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests confirmation of the risk group.
2. Clarification of inactivation for disposal, what is meant by heat.

Agent: Enterococcus faecalis – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests that the risk group be changed from 1 to 2.
2. Pathogenic to animals should be changed from NO to YES.
3. Clarification of inactivation for disposal, what is meant by heat and a chemical disinfectant for surfaces (including concentration) needs to be identified.

Project: Evolutionarily conserved variations in menaquinone structure: Functional implications (23-021B); BSL1 and BSL2 in vitro. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project with the following modifications:

1. IBC requests the removal of the reference to a Fig.1 within the Project Overview as there is no figure.

5. **Mathiason, Candace**

Agent: Scrapie – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests agent name be changed to Scrapie prion.
2. The risk group should be changed from 1 to 2.
3. The IBC requests that a statement be added to the agent description regarding the source of the agent.

6. **Snow, Christopher**

Project: FFAR: SBIR Phase II: Sustainable production of high-performance dietary supplements (23-024B); BSL1 in vitro and rDNA. NIH Guidelines category non-exempt rDNA: III-E-1

The committee unanimously approved of the above project as written.

Once completion of training requirements has been verified, this PARF can be approved.

III. Amendments to be reviewed by full committee

1. **Stenglein, Mark**

Project: Analysis of bunyavirus reassortment (19-085B); BSL2 in vitro and rDNA. NIH Guidelines category non-exempt rDNA: III-D-3

Amendment request to add: Infectious clone plasmids, which contain full-length bunyavirus segments and will be used for rescue of infectious virus. Vector(s) to be used for delivery = pTM1, TVT7R, pT7

The committee unanimously approved of the above project.

2. **MacNeill, Amy**

Project: Poxvirus use in cancer immunotherapy (14-026B); BSL2 in vitro and BSL2 in vivo in mice, rDNA. NIH Guidelines category non-exempt rDNA: III-D-3

Amendment request to add: additional recombinant myxoma virus constructs will be tested, not only MYXV deleted for serp2 expressing lacz.

The committee unanimously TABLED their determination of the above project pending more information. Specifically, the IBC requested the PI address the following:

1. Specify the additional recombinant myxoma virus constructs that will be tested.
2. Please specify which interleukins will be expressed.

IV. New Business

1. Non-Affiliated member search ongoing.

V. Unfinished business

1. **Eye Protection Policy and Roll Out Plan –**
   - In progress, addressing the comments.

2. **IBC Protocol System -update**
   - SciShield agreement signed, discussion on implementation underway.

VI. Reports

1. **Coordinator's report.**
    - **Next IBC meeting: Wednesday, May 10, 2023**

2. **Biosafety Officer's report.**
    - **Inspection Update**
    - **Q1 incident report (see attached)**
    - **Lab audits/Biosafety Outreach Visit reports**

VII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. **Peccoud, Jean**

   Project: Development of a technology to certify engineered DNA molecules (22-103B); BSL2 in vitro, rDNA. NIH Guidelines category non-exempt rDNA: III-D-3

2. **Bowen, Richard**

   Agent: Human Respiratory Syncytial virus – Strain: any; BSL2

   Project: Development of a dry powder inhalation product against Respiratory Syncytial Virus (23-012B); BSL2 in vitro and BSL2 in vivo in cotton rats. NIH Guidelines category non-exempt rDNA: NA

3. **Ragan, Izabela**

   Agent: Influenza A virus – Strain: Influenza A (H1N1, H3N2); BSL2

   Agent: Influenza B virus – Strain: Yamagata and Victoria lineage; BSL2

   Project: Flu Vaccine Production Using a Novel Pandemic Response and Prevention Manufacturing Method (23-017B); BSL2 in vitro and BSL2 in vivo in mice and ferrets. NIH Guidelines category non-exempt rDNA: NA

VIII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Withdrawn from review to be read into the minutes.

IX. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

X. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

Meeting adjourned at 1:22pm
Minutes recorded by MRamey

Colorado State University- Quarterly Biological Safety Incident Report

There is no such thing as zero risk when conducting life science research. However, good biosafety and biosecurity practices help minimize the risks. There are over 175 principal investigators running laboratories that work with biological materials and/or recombinant or synthetic nucleic acids at Colorado State University (CSU). These laboratories range from Biosafety Level 1 (BSL-1) to BSL-3 with enhancement, as well as Animal Biosafety Level 1-3 (ABSL-1, ABSL-2, ABSL-3), Arthropod Containment Level 1-3 (ACL-1, ACL-2, ACL-3), and plant containment (BSL-1P and BSL-2P). Each laboratory has multiple researchers working, frequently over 40 hours a week, with many of these hours spent directly handling biological materials, recombinant or synthetic nucleic acids, and/or plants or animals containing the previous materials. The total number of researcher hours handling these materials annually is unknown. However, it can be assumed that the denominator is substantial.

This quarterly report describes incidents that have happened at CSU laboratories. Appropriate characterization of the actual risks of an incident to the researchers themselves, CSU, the environment, and the surrounding community based on a thorough incident review is presented. For this report, an incident is defined as:

- An event that may have caused a potential exposure of an individual to potentially infectious biological materials and/or recombinant or synthetic nucleic acids; and/or
- A facility issue or other issue that could result in a potential release or loss of containment of biological materials and/or recombinant or synthetic nucleic acids; and/or
- An occurrence with biological materials and/or recombinant synthetic nucleic acids that required reporting to a regulatory or oversight agency

Between January 1st, 2023, and March 31th, 2023, there were two incidents in CSU laboratories that met the above definition.

Description of Incident	Biosafety Level	Reporting Obligation
Mouse bite	BSL-2	None
Spill	BSL-3	None

Incident #1

Containment Level: ABSL-2

Description: The first incident occurred while the researcher was handling a mouse that was infected with Mycobacterium abscessus ATCC19977. The researcher was attempting to scruff the mouse to orally dose it with compounds. The mouse was able to turn in the researcher's grip and bite the left pointer finger. The researcher contained the mouse back in its cage and then proceeded to wash their hands with soap and water. An incident form was completed with Biosafety as was the Occupational Health incident form.

Risk Assessment: The researcher took the appropriate first aid steps to clean the wound and followed up with Occupational Health and the Biosafety Office.

Corrective Action: Biosafety spoke with the researcher to address any concerns related to restraining mice. The person was fairly new to mouse restraint and has gone through retraining with another lab

member. They are going to practice on uninfected mice before handling another infected mouse. The trainer will observe and decide when the researcher is ready to begin working with infected mice. Occupational Health reported that the researcher was under the care of Health Services and that no symptoms occurred. The incident was closed.

Reporting Requirements: This incident did not require a report to any outside agencies because it did not contain any recombinant material.

Incident #2

Containment Level: BSL-3

Description: A researcher placed 96 well plates with vero cells infected with SARS-CoV-2 in a biohazard bag for disposal. The bag was removed from the biosafety cabinet and placed in an autoclave pan. It was observed that the bag had leaked liquid on the biosafety cabinet work space and also in the autoclave pan. The autoclave pan was then immediately placed back in the biosafety cabinet and the material was placed in a second autoclave bag. It was then wiped down with disinfectant and removed from the biosafety cabinet. The autoclave pan and the biosafety cabinet were both thoroughly cleaned with disinfectant and treated as a spill in the cabinet. The floor was also cleaned with disinfectant. The researcher then reported the incident to their supervisor.

Risk Assessment: The researcher took the appropriate steps to disinfect and clean the biosafety cabinet and autoclave pan. The supervisor contacted biosafety. They were then asked to file an incident report form.

Corrective Action: Upon discussion with Biosafety, it was agreed that, moving forward, they would place infectious 96 well plates directly into a pipet boat rather than directly into a biohazard bag. The pipette boat will then be placed in a biohazard bag per usual protocol.

Reporting Requirements: This incident did not require a report to any outside agencies because it did not contain any recombinant material.

APPROVED MINUTES
Institutional Biosafety Committee
Microsoft Teams – REMOTE
Wednesday, May 10, 2023

Check if Attending (Members):	Check if Attending (Alternate Members):
☒ Jessica Ayers, Animal expert	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large*
☒ Donald Bade, Unaffiliated	☐ Lon Kendall, Director LAR
☐ Richard Bowen, Associate Chair	☒ Rebecca Moritz, Biosafety Office Director*
☒ Chaoping Chen, Chair	
☒ Jason Cummings, lab rep	*non-voting at this meeting
☒ June Medford, Plant/syn bio expert	
☐ Edwin Neas, Unaffiliated	
☒ Brendan Podell, Mycobacteria specialist	
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☒ Joanie Ryan, Assistant Biosafety Officer	
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Non-Voting Members:	
☒ James Graham, EHS Director	
☐ Joni Van Sickle, Occupational Health Coord.	
Regular Guests (non-voting):	ORCC Staff (non-voting):
☒ Heather Blair, Associate Biosafety Officer	☒ Michelle Ramey, Assistant Compliance Coord.
☒ Nicole Marlenee, Assistant Biosafety Officer	
☒ Scott Van Scotter, Biosafety Trainer	
Other:	

The meeting was convened at 12:05PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted items.

I. Review of IBC meeting minutes from April 12, 2023

The minutes were approved as written.

II. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco/)

1. Bowen, Richard

Agent: Francisella holarctica – Strain: LVS; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests the agent name be changed to Francisella tularensis subsp. Holarctica.
2. Please spell out the LVS abbreviation

3. The IBC recommends adding a statement in agent description that this strain remains virulent for many animals and retains toxicity for humans. Please also comment on the status of agent as a vaccine.
4. Please provide a chemical disinfectant and its concentration be added to the methods of inactivation.

Project: In vivo and in vitro testing of toxin activity assays (22-093B); BSL2 in vitro, BSL2 in vivo in rats, and toxin. NIH Guidelines category non-exempt rDNA: NA
The IBC did not review this PARF at this meeting, will be reviewed next month.

Project: Survival of anthrax spores in soil following decomposition of carcasses (23-025B); BSL3 in vitro. NIH Guidelines category non-exempt rDNA: NA
The committee unanimously approved of the above project with the following modifications:

1. The committee requests a description of how the soil will be sampled and how the spore concentrations will be determined.
2. Please clarify if the soil/carcass trays will be sealed.
3. It is recommended that the work be completed in the Class II B 2 biosafety cabinet to help reduce the smell in the room.
4. Please specify additional personnel if the PI will not be the only investigator working on the project.
5. Please confirm that the equipment will properly contain the organism and that it can be deconned sufficiently at the end of the study.

Project: Efficacy of a clpB Mutant Vaccine for Protection of Domestic and Wild Rabbits from Inhalational Tularemia (23-027B); BSL3 in vitro, BSL3 in vivo in rabbits. NIH Guidelines category non-exempt rDNA: III-D-1
The committee unanimously approved of the above project as written.

2. Argueso, Cristiana

Agent: Pseudomonas maculicula- Strain: ES4326; BSL1
The committee unanimously approved of the above agent with the following modifications:

1. The committee requests confirmation of agent name - is this a standalone species or a pathovar of Pseudomonas syringae
2. The IBC requests additional agent information, specifically how this pathogen is transmitted among plants and what are the general consequences of the disease for agriculture.

3. Peebles, Christie

Project: Metabolic Engineering of Catharanthus roseus (23-026B); BSL1 in vitro, BSL1 in vivo in Catharanthus roseus. NIH Guidelines category non-exempt rDNA: III-E-2
The committee unanimously approved of the above project with the following modifications:

1. The committee requests clarification regarding whether a laminar flow hood or a biosafety cabinet will be used.
2. Under in vivo uses, please remove the statement: no risk to personnel.
3. Nanoparticle manipulation is mentioned in the overview of project; please confirm use of nanoparticles in this project. If nanoparticles are not used, the statement

should be removed. If nanoparticles will be used, more details regarding their use and disposal are required.
4. Please consult with Occupational health and Chemical Management for the proper disposal of the cancer drugs if they will be extracted.
5. This lab is due for a biosafety outreach visit.

4. Gustafson, Dan

Project: Fluorescent-Labeled Tumor Cells in Drug Studies (23-028B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA: III-D-1

The committee unanimously approved of the above project with the following modifications:

1. The committee requests all personnel training be current.
2. A biosafety outreach visit is required.

5. McCosh, Richard

Project: Investigation of genes that regulate reproduction in sheep (23-030B); BSL1 in vitro, BSL1 in vivo in sheep. NIH Guidelines category non-exempt rDNA: III-D-4

The committee unanimously approved of the above project with the following modifications:

1. The IBC discussed the 3 different disposal methods proposed for the sheep carcasses after the heads are removed. The IBC determined that option 3 is not feasible are requests that it be removed.
2. Liquid waste with bleach going down the drain must be at a final concentration of 10%. Adding 10% bleach to a liquid waste is not sufficient. The IBC requests confirmation that the final concentration will be 10% bleach.
3. Please specify how long liquid waste is in contact with bleach before going down the drain. The recommended contact time is at least 1 hour.
4. Please clarify what is meant by dedicated animal rooms inside of ARBL for sheep or is this the stall barn.
5. The IBC requests all personnel training be current.

Project: Generation and use of CNiFER cells to study neurotransmitter, neuropeptide and hormone release in Sheep (23-031B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA: III-D-4

The committee unanimously approved of the above project with the following modifications:

1. Under the list of infectious agents, the IBC requests that CNiFER cells be added under Used in vivo. It is recognized that these cells are technically not infectious agents, however this is the best way to document the information in our current protocol system.
2. The IBC discussed the 3 different disposal methods proposed for the sheep carcasses after the heads are removed. The IBC determined that option 3 is not feasible are requests that it be removed.
3. Under Mechanisms in place for containment and disposition of infected animals, the statement: The remaining sheep carcass (not exposed to AAV), the reference to AAV should be removed.
4. Liquid waste with bleach going down the drain must be at a final concentration of 10%. Adding 10% bleach to a liquid waste is not sufficient. Please confirm the final concentration will be 10% bleach.

5. Please specify how long liquid waste is in contact with bleach before going down the drain. The recommended contact time is at least 1 hour.
6. Please clarify when booties are worn during in vivo work.
7. Please clarify what is meant by dedicated animal rooms inside of [redacted] for sheep or is this the stall barn.
8. The IBC requests all personnel training be current.

6. Moritz, Rebecca

Agent: Bacillus subtilis- Strain: var. Niger NRS 1221A; BSL1

The committee unanimously approved of the above agent with the following modifications:

1. The committee requests clarification of the source of the agent and the product number.
2. Autoclaving should be added as a disposal method.
3. Please clarify why 20% bleach is used for chemical deactivation, instead of the typical 10%.

Project: Validation of Bigfoot Cell Sorter, Primary Containment Device (23-032B); no in vitro or in vivo use. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously TABLED their determination of the above project pending more information. Specifically, the IBC requested the PI address the following:

1. Please add a statement to the Project Overview indicating that Thermo Fisher personnel, not CSU, will be conducting these experiments.
2. The committee requests that PAPR be worn during nebulization and afterwards.
3. It is recommended to use disposable outerwear, not a fabric laboratory coat, during and after nebulization.
4. Please provide a reference for the validation that 20% Clorox is sufficient to reduce spores by 6 logs.
5. The IBC requests clarification regarding whether the bacteria are vegetative or spores that will be aerosolized. If spores, how are they generated? Are they made in a CSU lab or are they purchased from a company? Are there additives in the spores that limit spore clumping that might lead to more efficient aerosols?
6. Please confirm which Thermo Fisher personnel will be doing the work and comment on how training will be verified.

III. Amendments to be reviewed by full committee

1. MacNeill, Amy (Additional information provided.)

Project: Poxvirus use in cancer immunotherapy (14-026B); BSL2 in vitro and BSL2 in vivo in mice, rDNA. NIH Guidelines category non-exempt rDNA: III-D-3

Amendment request to add: additional recombinant myxoma virus constructs will be tested, not only MYXV deleted for serp2 expressing lacz.

The committee unanimously approved of the above project amendment.

2. Bowen, Richard

Project: Shedding and Transmission of MERS Coronaviruses from Africa versus the Middle East (23-015B); BSL3 in vivo and BSL3 in vitro in alpacas. NIH Guidelines category non-exempt rDNA: III-D-4

Amendment request to add: rDNA section added.

The committee unanimously approved of the above project amendment.

3. **Schountz, Tony**

   Project: Experimental infection of Jamaican fruit bats with 2019-nCoV coronavirus (20-008B); BSL3 in vivo and BSL3 in vitro in bats, deer mice, and hamsters. NIH Guidelines category non-exempt rDNA: NA

   Amendment request to add: "A collaborator at the University of Missouri has generated an infectious clone of SARS-CoV-2 WA1 that has two mutations in its spike protein: 497 P > T and 499 N > T. These mutations are predicted to enhance binding to Jamaican fruit bat ACE2 and likely decrease binding to human ACE2. We want to determine if this virus more efficiently infects Jamaican fruit bats than does the wild-type SARS-CoV-2 (WA1 Washington State isolate). If so, then it will provide valuable information about host range and a more robust infection model of SARS-CoV-2 behavior in bats."

The committee unanimously approved of the above project amendment.

IV. New Business

1. **IBC Membership**

   The IBC needs to recruit a new non-affiliated member. Two candidates were discussed, both were determined to be qualified. The IBC ultimately decided that Dan Frazen would bring a new perspective to the IBC and voted to recommend him for approval by the VPR approval. The committee suggested that the second candidate could be a backup nominee if needed.

   Dr. Jean Peccoud expressed an interest in joining the IBC. The committee discussed the pros and cons of adding another and voted to recommend him for approval by the VPR approval.

2. **NIH incident report**

   An incident report was submitted to the NIH OSP on April 23rd. The incident involved a researcher who poked their thumb while bleeding a mouse infected with Mycobacterium tuberculosis Erdman-Lux, a luciferase expressing strain of M. tuberculosis Erdman. The risk of exposure is considered low, as the mice were previously treated with highly effective therapeutics, and they typically have not found M. tuberculosis in the blood of infected mice. The individual consulted with Occupational Health and is doing fine.

V. Unfinished business

1. **Eye Protection Policy and Roll Out Plan – update**

   There is no official update at this time, due to a number of people travelling the next update will be in July.

2. **IBC Protocol System -update**

   We had our first kick off meeting with SciShield and will soon begin work on configuring the system.

VI. Reports

1. **Coordinator's report.**

   a. **Next IBC meeting: Wednesday, June 14, 2023**

   b. **July IBC meeting moved to July 19, 2023**

2. **Biosafety Officer's report.**
    a. **Inspection Update –** CDC inspectors arrived on April 25th for an unannounced inspection. Eight inspectors were here for 3 days conducting facility inspections.
    b. **Incident reports** – the only incident to report was already discussed above
    c. **Lab audits/Biosafety Outreach Visit reports**

VII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. **Easley, Jeremiah**
    Agent: Staphylococcus aureus – Strain: UAMS-1; BSL2
    Project: Garwood Medical - Assessing Surgical Technique and Functionality of Novel Device in a Prosthetic Joint Infection Ovine Model - Pilot Study I and II (23-020B); BSL2 in vivo in ovine. NIH Guidelines category non-exempt rDNA: NA
2. **Stenglein, Mark**
    Agent: La Crosse virus – Stain: any; BSL2
    Agent: Bunyamwera virus – Strain: BSL2
3. **Crick, Dean**
    Agent: Corynebacterium tuberculostearicum – Strain: any; BSL2
    Agent: Enterococcus faecalis – Strain: any; BSL2
    Project: Evolutionarily conserved variations in menaquinone structure: Functional implications (23-021B); BSL1 and BSL2 in vitro. NIH Guidelines category non-exempt rDNA: NA
4. **Mathiason, Candace**
    Agent: Scrapie – Strain: any; BSL2

VIII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Withdrawn from review to be read into the minutes.

1. **Bosco-Lauth, Angela**
    Agent: Aspergillus – Strain: any; BSL2

IX. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

X. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

Meeting adjourned a 1:40pm
Minutes recorded by CJohnson and MRamey

Approved Minutes
Institutional Biosafety Committee
Microsoft Teams – REMOTE
Wednesday, July 19, 2023

Check if Attending (Members):	Check if Attending (Alternate Members):
☒ Jessica Ayers, Animal expert	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large
☒ Donald Bade, Unaffiliated	☐ Lon Kendall, Director LAR
☒ Heather Blair, Associate Biosafety Officer	☒ Joanie Ryan, Assistant Biosafety Officer *
☒ Richard Bowen, Associate Chair	
☐ Chaoping Chen, Chair	
☒ Jason Cummings, lab rep	*non-voting at this meeting
☒ Dan Frazen, Unaffiliated	
☐ Jean Peccoud,	
☐ Brendan Podell, Mycobacteria specialist	
☒ Ann Powers, Virology	
☐ Robyn Roberts, Plant expert	
☐ Tony Schountz, Virology	
Non-Voting Members:	
☒ James Graham, EHS Director	
☒ Joni Van Sickle, Occupational Health Coord.	
Regular Guests (non-voting):	ORCC Staff (non-voting):
☒ Rebecca Moritz, Biosafety Office Director	☒ Michelle Ramey, Assistant Compliance Coord.
☐ Nicole Marlenee, Assistant Biosafety Officer	
☐ Scott Van Scotter, Biosafety Trainer	
Other:	

The meeting was convened at 12:01PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted items.

I. New IBC Member Introductions

New non-affiliated member Dan Frazen was introduced to the committee. The committee introduced themselves and welcomed Dan to the IBC.

II. Review of IBC meeting minutes from May 10, 2023 (no meeting in June 2023)

The minutes were approved as written.

III. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco/)

1. Robertson, Gregory

Agent: Mycobacterium tuberculosis – Strain: Mc2 6206-Lux; BSL2

The committee unanimously approved of the above agent as submitted.

IBC discussed the concentration of Vesphene III used for decontamination, the dilution requirements will be confirmed by the manufacturer.

2. **Sikes, Katie**

Agent: Adeno-associated viral (AAV) vector – Strain: Serotype 2 and 5; BSL2

The committee unanimously approved of the above agent with the following modifications:

The IBC recommends a less hazardous disinfectant than Peracetic Acid or Iodine

Project: Elucidating the Role of Estrogen as a Regulator of Anterior Cruciate Ligament Injury (23-040B); BSL2 in vivo in mice; rDNA. NIH Guidelines category non-exempt rDNA: III-D-4

The committee unanimously approved of the above project with the following modifications:

1. The PARF indicates the AAV is obtained from commercial entity. The committee requests the PI specify the commercial entity.
2. The IBC requests that safety glasses be added to in vivo PPE used.

3. **Henao-Tamayo, Marcela**

Agent: Mycobacterium tuberculosis H37Ra M. Cherry BSL-2 – Strain: H37Ra; BSL2

The committee unanimously approved of the above agent with the following modifications:

The IBC requests that the Vesphene concentration be corrected from 2.3% to 2.5%.

4. **Woerman, Amanda**

Agent: Escherichia coli – Strain: DH5-alpha; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests that the concentration of bleach used for inactivation be added.

Agent: adeno-associated virus – Strain: neuron-targeting AAVs that are replication-incompetent; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests that the concentration of bleach used for inactivation be added.

Agent: alpha-synuclein prions – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests that the concentration of bleach and NaOH used for inactivation be added to the form.

Agent: human tau prions– Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests that the concentration of bleach and NaOH used for inactivation be added to the form.

There was discussion regarding the nomenclature for the two prions listed above. The IBC requested that the IBC Coordinator confirm with one of our prion researchers that these are indeed considered to be prions.

Project: Investigating prion strain biology (23-039B); BSL2 in vitro and BSL2 in vivo in mice; NIH Guidelines category non-exempt rDNA: III-D-2

The committee unanimously TABLED their determination of the above project pending more information. Specifically, the IBC requested the PI address the following:

1. What is being delivered by CRISPR, what is the target and what effect is it intended to have (downregulation, upregulation, etc.)?
2. What specifically is the lab doing with tau and alpha-synuclein prions?
3. What assays/procedures will be conducted to achieve the four goals listed.
4. Does the lab generate the humanized tau or alpha-synuclein mouse models?
5. Safety glasses should be worn while handling biologicals, as well as chemicals.
6. Provide a brief description of the work to be conducted using non-exempt recombinant and/or synthetic nucleic acid molecules. In the description please indicate, how the molecules will be generated, what are the proposed uses of the molecules, are there any potential safety concerns and the corresponding methods for containment.
7. Assuming that mice are being injected with rAAV, the following statement should be added: Any unused AAV will be inactivated via autoclave. Following infection in the mice, AAV are reported to no longer be excreted 72 hours after inoculation, nor are they active in the bedding waste. Cages are labeled with a biohazard sticker for the first 72 hours and no cages are open during that time unless absolutely necessary. In which case they are opened in a BSC.
8. Besides the AAV precautions listed above, are there any special husbandry precautions for the animals-other than cage changes in BSC. Can bedding and cages otherwise be handled normally?

5. Mann, Kelly/Haselden, Meghan

Agent: recombinant Adeno-associated virus (rAAV) – Strain: expressing naturally occurring genes TGFbR2 and FGF21

The committee unanimously approved of the above agent as submitted.

Project: Rejuvenate Bio Canine Performance Trial (23-038B); BSL1 in vivo in dogs; NIH Guidelines category non-exempt rDNA: III-D-4

The committee unanimously TABLED their determination of the above project pending more information. Specifically, the IBC requested the PI address the following:

There was some confusion since this is an outside company conducting part of the work at their company site and part at CSU. It was unclear if our IBC was providing oversight for work at the company facility or only the work at CSU. The IBC requested that the IBC Coordinator reach out to the PI and get clarification on this issue. If our IBC is only reviewing the work at CSU, then an email vote would be acceptable since the committee has already reviewed this work.

IV. Amendments to be reviewed by full committee

1. Schountz, Tony (see attached)

Project: Experimental infection of Jamaican fruit bats and deer mice with Cedar virus (18-086B); BSL2 in vitro and BSL3 in vivo in deer mice. NIH Guidelines category non-exempt rDNA: NA

Amendment request to add: We want to passage Cedar virus up to 15 times in Jamaican fruit bats to determine if infection becomes more robust. This virus is naturally hosted by flying foxes so Jamaican fruit bats are not a natural reservoir. We have determined that viremia and viuria occur, thus we will collect sera and urine for the passaging in bats. We do not expect this to cause disease in the bats; however, should disease occur we will notify the IBC immediately.

The committee unanimously approved of the above project amendment pending DURC review and clarifications:

The committee requests the in vivo work to be indicated that mice handling be done in the biosafety cabinet.

2. **Schountz, Tony (see attached)**

Project: Experimental infection of Jamaican fruit bats with Sosuga virus (20-137B); BSL3 in vitro and BSL3 in vivo in deer mice. NIH Guidelines category non-exempt rDNA: III-D-4

Amendment request to add: We want to passage Sosuga virus up to 15 times in Jamaican fruit bats to determine if infection becomes more robust. This virus is naturally hosted by Egyptian fruit bats so Jamaican fruit bats are not a natural reservoir. We have determined that the virus replicates in the lungs of Jamaican fruit bats, thus we will collect lungs to make homogenates that will be filtered (0.2 um) for the passaging in bats. We do not expect this to cause disease in the bats; however, should disease occur we will notify the IBC immediately.

The committee unanimously approved of the above project amendment pending DURC review.

V. New Business

None

VI. Unfinished business

1. **Eye Protection Policy and Roll Out Plan – update**
   There will be an update in August

2. **IBC Protocol System -update**
   Work on implementing SciShield has begun. We are starting with the Platform and Inspections Module, which will be ready for roll out to early adopters soon.

VII. Reports

1. **Coordinator's report.**
   a. **Next IBC meeting: Wednesday, August 9, 2023**

2. **Biosafety Officer's report.**
   a. **Inspection Update –** CSU has submitted the responses for the unannounced CDC select agent inspection at the end of April
   b. **Incident reports –** the 2nd Quarterly Report was presented (see attached)
   c. **Lab audits/Biosafety Outreach Visit reports**

VIII. Project Approval Request Forms Reviewed by full IBC via email (no rDNA involved) and Approved After Modification to be read into the minutes.

1. **Bowen, Richard**

   Project: In vivo and in vitro testing of toxin activity assays (22-093B); BSL2 in vitro, BSL2 in vivo in rats, and toxin. NIH Guidelines category non-exempt rDNA: NA

IX. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. **Bowen, Richard**

   Agent: Francisella holarctica – Strain: LVS; BSL2

   Project: Survival of anthrax spores in soil following decomposition of carcasses (23-025B); BSL3 in vitro. NIH Guidelines category non-exempt rDNA: NA

2. **McCosh, Richard**

   Project: Investigation of genes that regulate reproduction in sheep (23-030B); BSL1 in vitro, BSL1 in vivo in sheep. NIH Guidelines category non-exempt rDNA: III-D-4

   Project: Generation and use of CNiFER cells to study neurotransmitter, neuropeptide and hormone release in Sheep (23-031B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA: III-D-4

3. **Moritz, Rebecca**

   Agent: Bacillus subtilis- Strain: var. Niger NRS 1221A; BSL1

   Project: Validation of Bigfoot Cell Sorter, Primary Containment Device (23-032B); no in vitro or in vivo use. NIH Guidelines category non-exempt rDNA: NA

X.Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Withdrawn from review to be read into the minutes.

XI. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

XII. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

Meeting adjourned a 1:08pm
Minutes recorded by CJohnson and MRamey

Colorado State University- Quarterly Biological Safety Incident Report

There is no such thing as zero risk when conducting life science research. However, good biosafety and biosecurity practices help minimize the risks. There are over 175 principal investigators running laboratories that work with biological materials and/or recombinant or synthetic nucleic acids at Colorado State University (CSU). These laboratories range from Biosafety Level 1 (BSL-1) to BSL-3 with enhancement, as well as Animal Biosafety Level 1-3 (ABSL-1, ABSL-2, ABSL-3), Arthropod Containment Level 1-3 (ACL-1, ACL-2, ACL-3), and plant containment (BSL-1P and BSL-2P). Each laboratory has multiple researchers working, frequently over 40 hours a week, with many of these hours spent directly handling biological materials, recombinant or synthetic nucleic acids, and/or plants or animals containing the previous materials. The total number of researcher hours handling these materials annually is unknown. However, it can be assumed that the denominator is substantial.

This quarterly report describes incidents that have happened at CSU laboratories. Appropriate characterization of the actual risks of an incident to the researchers themselves, CSU, the environment, and the surrounding community based on a thorough incident review is presented. For this report, an incident is defined as:

- An event that may have caused a potential exposure of an individual to potentially infectious biological materials and/or recombinant or synthetic nucleic acids; and/or
- A facility issue or other issue that could result in a potential release or loss of containment of biological materials and/or recombinant or synthetic nucleic acids; and/or
- An occurrence with biological materials and/or recombinant synthetic nucleic acids that required reporting to a regulatory or oversight agency

Between April 1st, 2023, and June 30th, 2023, there were three incidents in CSU laboratories that met the above definition.

Description of Incident	Biosafety Level	Reporting Obligation
Needle stick	BSL-2	Yes
PPE breach	BSL-2	None

Incident #1

Containment Level: ABSL-2

Description: The first incident occurred while the researcher was collecting submandibular blood from a mouse with a 4 mm lancet and poked the base of their left thumb while in the process of setting down the lancet to pick up the vial for blood collection. This mouse was infected with Mycobacterium tuberculosis that had been transformed with pFCA-LuxAB. The luciferase signal was expressed from Erdman-Lux. The researcher reported that they normally use a thumb guard for this procedure but did not have one at this particular location and chose to do the procedure anyway. They contained the mouse and washed their hand with soap and water until the bleeding stopped.

Risk Assessment: The researcher took the appropriate first aid steps to clean the wound and followed up with Occupational Health and the Biosafety Office.

Corrective Action: Biosafety discussed the need to have thumb guards accessible at all locations this procedure takes place. The researcher planned to add them the same day we spoke.

Reporting Requirements: The incident required that CSU report it to NIH as it was a recombinant strain.

Incident #2

Containment Level: ABSL-2

Description: It was reported by LAR staff that they observed researchers in the RBL ABSL-2 space who were handling mice and not wearing the required PPE (lab coats and gloves). Signs are posted on the doors listing all PPE requirements for each animal room in this space.

Risk Assessment: Researchers are asked to wear PPE to protect the mice from outside contaminants as well as for their own safety.

Corrective Action: Biosafety sent an email to all researchers in who work in this area and reminded them to follow the PPE requirements for these animal rooms.

Reporting Requirements: This is not a reportable incident.

APPROVED MINUTES
Institutional Biosafety Committee
Microsoft Teams – REMOTE
August 9, 2023

Check if Attending (Members):	Check if Attending (Alternate Members):
☒ Jessica Ayers, Animal expert	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large
☒ Donald Bade, Unaffiliated	☐ Lon Kendall, Director LAR
☐ Heather Blair, Associate Biosafety Officer	☒ Joanie Ryan, Assistant Biosafety Officer *
☒ Richard Bowen, Associate Chair	
☐ Chaoping Chen, Chair	
☒ Jason Cummings, lab rep	*non-voting at this meeting
☐ Dan Frazen, Unaffiliated	
☒ Jean Peccoud,	
☐ Brendan Podell, Mycobacteria specialist	
☐ Ann Powers, Virology	
☒ Robyn Roberts, Plant expert	
☒ Tony Schountz, Virology	
Non-Voting Members:	
☐ James Graham, EHS Director	
☐ Joni Van Sickle, Occupational Health Coord.	
Regular Guests (non-voting):	ORCC Staff (non-voting):
☒ Rebecca Moritz, Biosafety Office Director	☒ Michelle Ramey, Assistant Compliance Coord.
☐ Nicole Marlenee, Assistant Biosafety Officer	
☒ Scott Van Scotter, Biosafety Trainer	
Other:	

The meeting was convened at 12:03PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted items.

I. New IBC Member Introductions

New member Jean Peccoud was introduced to the committee. The committee introduced themselves and welcomed Jean to the IBC.

II. Review of IBC meeting minutes from July 19, 2023

Error identified with the attendance which was corrected prior to start of the meeting and the minutes were approved.

III. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco/)

1. Vilander, Allison

Agent: Recombinant Lactobacillus acidophilus – Strain: Any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests that the Strains be changed from ANY to the specific strains currently on hand, including the recombinant strain.
2. Please clarify whether the antibiotic resistant strains are recombinant or wild type.

2. Braunstein, Miriam

Agent: Mycobacterium tuberculosis – Strain: H37Rv, Erdman, CDC1551 all M. tuberculosis strains; BSL3

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests more specific storage location (if/when available).
2. Please specify the percentage of vesphene used for inactivation.
3. Request clarification regarding whether a tuberculocidal agent is used in addition to vesphene.

Agent: Mycobacterium abscesssus – Strain: ATCC 19977, GD82, GD20, GD01; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. For each of the agents above, the Storage location should be changed to [redacted]
2. Please specify the percentage of vesphene used for inactivation.

Agent: Mycobacterium avium – Strain: MAC 104; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. For each of the agents above, the Storage location should be changed to [redacted]
2. Please specify the percentage of vesphene used for inactivation.

Agent: Mycobacterium smegmatis – Strain: mc2155; BSL1

The committee unanimously approved of the above agent with the following modifications:

1. The biosafety level should be changed from 1 to 2.
2. The Storage location should be changed to [redacted]
3. Please specify the percentage of vesphene used for inactivation.

Agent: Mycobacterium bovis BCG – Strain: BCG vaccine strain; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. For each of the agents above, the Storage location should be changed to [redacted]
2. Please specify the percentage of vesphene used for inactivation.

Agent: Attenuated Mycobacterium tuberculosis double auxotroph strains – Strain: mc26020, 6030, 7000, 6230, 6236; BSL1

The committee unanimously approved of the above agent with the following modifications:

1. The biosafety level should be changed from 1 to 2.
2. The risk group should be changed from 1 to 2.
3. The Storage location should be changed to [redacted]

4. Please specify the percentage of vesphene used for inactivation.

Agent: Mycobacterium fortuitum – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. For each of the agents above, the Storage location should be changed to [redacted]
2. Please specify the percentage of vesphene used for inactivation.

Agent: Mycobacterium marinum – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. For each of the agents above, the Storage location should be changed to [redacted]
2. Please specify the percentage of vesphene used for inactivation.

3. Ehrhart, Nicole

Project: Delivery of senolytics to improve functional outcomes in fracture healing in an elderly model (23-042B); BSL2 in vivo in mice, rDNA. NIH Guidelines category non-exempt rDNA: III-D-4

The committee unanimously approved of the above project with the following modifications:

1. The IBC requests that safety glasses be added to PPE used for in vivo work.
2. Please clarify disposition of animals, it is believed that carcasses are disposed of by LAR.
3. Confirm whether "??-catenin" is beta-catenin.
4. The IBC requests confirmation that the expressed products (rDNA #5) is beta-catenin and luciferase

4. Woerman, Amanda (tabled from last month)

Project: Investigating prion strain biology (23-039B); BSL2 in vitro and BSL2 in vivo in mice; NIH Guidelines category non-exempt rDNA: III-D-2

The committee unanimously approved of the above project with the following modifications:

Animal bedding waste is not routinely incinerated unless requested by the PI. The IBC agrees that the bedding should be incinerated and requests that a statement be modified to indicate this.

IV. Amendments to be reviewed by full committee

None

V. New Business

1. Updated NTM Risk Assessment

There was a request to revisit the required biosafety level for in vivo work with non-tuberculosis mycobacterium (NTM). The current recommendation is that all in vivo work with these be done at BSL3, however this may be higher than what is needed for these agents and puts added strain on BSL3 resources. The biosafety office conducted a thorough risk assessment and determined that BSL2 containment would be sufficient as long as primary containment is used. For example, if they are using a glas-col machine for aerosol exposures, the glas-col would need to be in a bioBUBBLE.

The IBC reviewed the risk assessment and agreed with the changes in procedures.

2. **Proposed Revisions to the *NIH Guidelines***
NIH is seeking public input on a proposal to revise the *NIH Guidelines* to strengthen biosafety practices research involving gene drive modified organisms (GDMOs) in contained research settings. (https://www.federalregister.gov/public-inspection/2023-17178/guidelines-for-research-involving-recombinant-or-synthetic-nucleic-acid-molecules)

The IBC was asked to review the federal register prior to the September meeting, so the committee could decide whether they wanted to submit a comment.

VI. Unfinished business

1. **Eye Protection Policy and Roll Out Plan – update**
The updated policy will be sent to the IBC for final review and approval during the September meeting. An Open Forum to discuss the updated policy and address stakeholder feedback has been scheduled for September 20th 1:30-3pm. This will be a hybrid event.
2. **SciShield - update**
We will soon begin the early adopter phase for the Inspections Module. The Training Module and Biological Registration Module will be implemented in the next few months.

VII. Reports

1. **Coordinator's report.**
    a. **Next IBC meeting: Wednesday, September 13, 2023**
    b. **October National Biosafety Month –** mark your calendar and help spread the word regarding the following Biosafety Month events.
        1. **Poster contest – deadline for submission: September 18th**
        2. **Biosafety and Biosecurity Fair – October 6, 11a-2p**

2. **Biosafety Officer's report.**
    a. **Inspection Update** – the BSO has submitted all responses from the recent FSAP inspection. Now waiting to hear back.
    b. **Incident reports –** The Q2 Quarterly Biological Safety Incident Report was discussed
    c. **Lab audits/Biosafety Outreach Visit reports** – Outreach Visits will move into SciShield

VIII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. **Sikes, Katie**
Agent: Adeno-associated viral (AAV) vector – Strain: Serotype 2 and 5; BSL2
Project: Elucidating the Role of Estrogen as a Regulator of Anterior Cruciate Ligament Injury (23-040B); BSL2 in vivo in mice; rDNA. NIH Guidelines category non-exempt rDNA: III-D-4
2. **Woerman, Amanda**
Agent: adeno-associated virus – Strain: neuron-targeting AAVs that are replication-incompetent; BSL2
Agent: alpha-synuclein prions – Strain: any; BSL2
Agent: human tau prions– Strain: any; BSL2

3. **Mann, Kelly**

Project: Rejuvenate Bio Canine Performance Trial (23-038B); BSL1 in vivo in dogs; NIH Guidelines category non-exempt rDNA: III-D-4

IX. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Withdrawn from review to be read into the minutes.

X. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

XI. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

Meeting adjourned a 12:44pm
Minutes recorded by CJohnson and MRamey

Approved Minutes
Institutional Biosafety Committee
Microsoft Teams – REMOTE
September 13, 2023

Check if Attending (Members):	Check if Attending (Alternate Members):
☒ Jessica Ayers, Animal expert	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large*
☒ Donald Bade, Unaffiliated	☐ Lon Kendall, Director LAR
☐ Heather Blair, Associate Biosafety Officer	☒ Joanie Ryan, Assistant Biosafety Officer
☐ Richard Bowen, Associate Chair	
☒ Chaoping Chen, Chair	
☒ Jason Cummings, lab rep	*non-voting at this meeting
☒ Dan Frazen, Unaffiliated	
☐ Jean Peccoud,	
☒ Brendan Podell, Mycobacteria specialist	
☒ Ann Powers, Virology	
☐ Robyn Roberts, Plant expert	
☒ Tony Schountz, Virology	
Non-Voting Members:	
☒ James Graham, EHS Director	
☐ Joni Van Sickle, Occupational Health Coord.	
Regular Guests (non-voting):	ORCC Staff (non-voting):
☒ Rebecca Moritz, Biosafety Office Director (12:48)	☒ Michelle Ramey, Assistant Compliance Coord.
☒ Nicole Marlenee, Assistant Biosafety Officer	
☒ Scott Van Scotter, Biosafety Trainer	
Other:	

The meeting was convened at 12:02PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted items.

I. Review of IBC meeting minutes from August 9, 2023

The minutes were approved as written.

II. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco/)

1. Bowen, Richard

Project: Vaccine efficacy testing for MERS Coronavirus (23-046B); BSL3 invitro and BSL3 in vivo in mice and alpaca. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project with the following modifications:

1. The IBC requests the PI specify which location is used for work with alpacas and which one for mice.
2. Please add specific room number(s) when known.

3. The IBC requests the PI add tyvek to in vivo PPE for Alpacas and back closing gown for mice if used.

2. Bobadilla, Ana Clara

Agent: Parvoviridae– Strain: Adeno-associated viruses (AAV); BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests the agent name be changed to Adeno-associated viruses (AAV); if using AAV as viral vector then the name should be Adeno-associated viral (AAV) vector.
2. Please list the strains of AAV that will be used. Please indicate whether commercially acquired.
3. The agent description should be changed to be more descriptive of the properties of the virus, such as: Adeno-associated viruses (AAV) are small viruses not associated with pathogenicity and only a very minor immune response. The native virus is not able to replicate in the absence of a helper virus. AAV vectors are commonly used for gene expression.
4. The IBC recommends that autoclaving be added as a method of inactivation prior to disposal.
5. All individuals listed need to fill out the Statement of Experience in the IBC Online Database.

This PI is new to CSU, however, has lots of experience from their previous institution.

3. Bosco-Lauth, Angela

Agent: Heartland virus– Strain: Any; BSL3

The committee unanimously approved of the above agent with the following modifications:

The IBC requests a chemical method of inactivation for disposal be added.

4. Rosenberg, Corey

Agent: RVFV—Strain: MP-12; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests that the agent name, RVFV, be spelled out.
2. Please add Michrochem dilution or clarify if ready to use (RTU).
3. Please add the room number for the storage location.
4. The minimal biosafety level is marked as BSL2, however the under Method(s) of inactivation and testing inactivation, it mentions BSL3; please clarify.
5. All individuals listed need have to updated titles and experience statements.

Project: Mosquito cis-regulatory elements associated with arbovirus infection (23-043B); BSL2 in vitro and BSL3 in vivo in Aedes aegypti or Culex tarsalis. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project with the following modifications:

1. The IBC requests that safety glasses be added for in vitro and in vivo work.
2. Lab coat should be removed from in vivo PPE as these are not used in Phase III.
3. The IBC requests the room number for the cell culture suite be added.

4. All individuals listed need have to updated titles and experience statements.

5. LaRocca, Tom

Agent: Adeno-associated viral (AAV) vector—Strain: Any, BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests that the statement "with fewer associated biosafety concerns" be removed from the last sentence in the agent description.

Project: Adeno-associated virus (AAV) targeting of aging genes (23-045B); BSL2 in vitro and BSL2 in vivo in mice; NIH Guidelines category non-exempt rDNA: III-D-4

The committee unanimously approved of the above project with the following modifications:

1. The IBC requests the PI add a complete list of the genes that will be expressed using the AAV vectors.
2. Please describe containment measures during agent transport from the lab to the animal facility.
3. Under Mechanisms in place for containment and disposition of infected animals, please add a statement indicating that the first cage change needs autoclaving.
4. All individuals listed need to register with the Online IBC Database, fill out the Statement of Experience and complete the IBC at CSU online training.

6. Braunstein, Miriam

Project: Plasmid Construction in E. coli (23-048B); BSL2 in vitro; NIH Guidelines category non-exempt rDNA: III-D-2

The committee unanimously approved of the above project with the following modifications:

1. Please confirm whether a biosafety cabinet will be used.
2. Under Briefly elaborate on procedures used to protect personnel from exposure to agent during in vitro studies, briefly describe decontamination procedures and whether there are in variations of PPE used.
3. Please confirm the NetID for the investigator listed.
4. All individuals listed on the PARF need to register needs to register with the Online IBC Database, fill out the Statement of Experience and complete the IBC at CSU online training.

Project: Mycobacteriophage propagation in Mycobacterium smegmatis (23-049B); BSL2 in vitro; NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project with the following modifications:

1. The building name should be added under Locations of work.
2. Mycobacterium avium is marked NO for in vitro, please clarify if this is correct.
3. The IBC requests an AARF for Mycobacteriophages be submitted.
4. What precautions are taken to ensure propagation of Mycobacteriophages will not impact the work of others using Mycobacterium in the area.
5. Please confirm the NetID for the investigator listed.
6. All individuals listed on the PARF need to register needs to register with the Online IBC Database, fill out the Statement of Experience and complete the IBC at CSU online training.

III. Amendments to be reviewed by full committee

1. Schountz, Tony (see attached)

AARF: BANAL-236 coronavirus

Amendment request to add: two BANAL coronaviruses, BANAL-52 and BANAL-103

The committee unanimously approved of the above agent as submitted.

Project: BANAL CoV susceptibility of Jamaican fruit bats and deer mice (22-061B); BSL3 in vitro and BSL3 in vivo in deer mice and Jamaican Fruit Bats; NIH Guidelines category non-exempt rDNA: NA

Amendment Request to add: BANAL-52 coronaviruses to the PARF and rDNA information added

The committee unanimously approved of the above project as submitted.

2. Mayo, Christie

AARF: bluetongue virus – Strain: any; BSL2

Amendment request to add: Agent description section: Global bluetongue virus strains. While methods previously described can stay in this section, we are requesting that CSU allow BTV research to take place at the BSL-2 level with the caveat that if the researchers identify a BTV-8 sample, they notify Biosafety and IBC immediately and stop work with that isolate until we can move it to a BSL-3 laboratory. As an alternative strategy, we could like to retain formal description that.nucleic acid can be extracted at the primary institution (Kansas State University) and will perform an assay to ensure this nucleic acid is inactivated and then material will be shipped to CSU (with the exception of serotype 8 as mentioned above). The typical host range of the virus includes domestic and wild ruminants and this is non-infectious to humans. The virus causes a vasculitis that results in pulmonary edema, swollen muzzle, erosions along the gums and coronitis.

CDC or USDA permit required: Please amend to change to yes under the guidance of the USDA permit group.

The committee unanimously approved of the above agent as submitted.

PARF: Forecasting viral pathogenesis and a means to manage insect vector populations (22-091B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA: NA

Amendment request to add: Overview of project section: Due to recent reclassification of BTV serotypes according to APHIS, we have sought guidance from CSU biosecurity. In addition to the information already listed, we would like to add the following sentences: CSU allow BTV research to take place at the BSL-2 level with the caveat that if the researchers identify a BTV-8 sample, they notify Biosafety and IBC immediately and stop work with that isolate until we can move it to a BSL-3 laboratory. We would also like to acknowledge this virus could have the potential to reassort; therefore, when working with these viral isolates obtained from our collaborator, we will work in a BSC and decontaminate the hood before introducing the next virus into the hood.

The committee unanimously approved of the above project as submitted.

IV. New Business

IBC membership

Dr. Bowen informed the IBC Coordinator that he will be stepping down from the IBC, effective January 1, 2024. There was discussion regarding a potential new member with similar expertise. The committee was asked to think about who a good member may be and to bring suggestions to the next meeting.

V. Unfinished business

1. **Eye Protection Policy documents (see attached)**
   - **a. Eye Protection Policy**
   - **b. Eye Protection Policy Stakeholder Feedback Response**

   The final draft of the updated eye protection policy along with the Stakeholder Feedback responses were sent to the committee two weeks prior to the meeting for review. The policy was discussed, and a couple members had several questions. In the interest of time, it was decided vote via email following the meeting.

2. **Purposed changes to the NIH Guidelines and request for public comment**

   NIH is seeking public input on a proposal to revise the *NIH Guidelines* to strengthen biosafety practices research involving gene drive modified organisms (GDMOs) in contained research settings. (https://www.federalregister.gov/public-inspection/2023-17178/guidelines-for-research-involving-recombinant-or-synthetic-nucleic-acid-molecules)

   The IBC were asked to consider whether the CSU IBC should submit a comment regarding the purposed change.

VI. Reports

1. **Coordinator's report.**
   - **a. Next IBC meeting: Wednesday, October 11, 2023**
   - **b. October National Biosafety Month**
     1. **Poster contest – deadline: September 18, 2023**
     2. **Biosafety and Biosecurity Fair – October 6, 2023, 11a-2p**

2. **Biosafety Officer's report.**
   - **a. Inspection Update**
   - **b. Incident reports**
   - **c. Lab audits/Biosafety Outreach Visit reports**

VII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. **Vilander, Allison**

   Agent: Recombinant Lactobacillus acidophilus – Strain: Any; BSL2

2. **Braunstein, Miriam**

   Agent: Mycobacterium tuberculosis – Strain: H37Rv, Erdman, CDC1551 all M. tuberculosis strains; BSL3

   Agent: Mycobacterium abscesssus – Strain: ATCC 19977, GD82, GD20, GD01; BSL2

   Agent: Mycobacterium avium – Strain: MAC 104; BSL2

   Agent: Mycobacterium smegmatis – Strain: mc2155; BSL2

Agent: Mycobacterium bovis BCG – Strain: BCG vaccine strain; BSL2
Agent: Attenuated Mycobacterium tuberculosis double auxotroph strains – Strain: mc26020, 6030, 7000, 6230, 6236; BSL1
Agent: Mycobacterium fortuitum – Strain: any; BSL2
Agent: Mycobacterium marinum – Strain: any; BSL2

3. **Ehrhart, Nicole**
   Project: Delivery of senolytics to improve functional outcomes in fracture healing in an elderly model (23-042B); BSL2 in vivo in mice, rDNA. NIH Guidelines category non-exempt rDNA: III-D-4
4. **Woerman, Amanda**
   Project: Investigating prion strain biology (23-039B); BSL2 in vitro and BSL2 in vivo in mice; NIH Guidelines category non-exempt rDNA: III-D-2

VIII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Withdrawn from review to be read into the minutes.

IX. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

X. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

Meeting adjourned a 1:19pm
Minutes recorded by CJohnson and MRamey

Approved Minutes
Institutional Biosafety Committee
Microsoft Teams – REMOTE
October 11, 2023

Check if Attending (Members):	Check if Attending (Alternate Members):
☒ Jessica Ayers, Animal expert	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large
☒ Donald Bade, Unaffiliated	☐ Lon Kendall, Director LAR
☒ Heather Blair, Associate Biosafety Officer	☒ Joanie Ryan, Assistant Biosafety Officer *
☐ Richard Bowen, Associate Chair	
☐ Chaoping Chen, Chair	
☐ Jason Cummings, lab rep	*non-voting at this meeting
☒ Dan Frazen, Unaffiliated	
☒ Jean Peccoud, Synthetic Biology	
☐ Brendan Podell, Mycobacteria specialist	
☒ Ann Powers, Virology	
☐ Robyn Roberts, Plant expert	
☒ Tony Schountz, Virology	
Non-Voting Members:	
☒ James Graham, EHS Director	
☐ Joni Van Sickle, Occupational Health Coord. (12:52PM)	
Regular Guests (non-voting):	ORCC Staff (non-voting):
☒ Rebecca Moritz, Biosafety Office Director	☒ Michelle Ramey, Assistant Compliance Coord.
☒ Nicole Marlenee, Assistant Biosafety Officer	
☒ Scott Van Scotter, Biosafety Trainer	
Other:	

The meeting was convened at 12:04PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted items. Ms. Johnson acted as the chair of the meeting.

I. Review of IBC meeting minutes from September 13, 2023

Minutes not available for review; will be reviewed at the November IBC meeting.

II. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco/)

1. Moreno, Julie

Agent: E. coli- strain: uropathogenic; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests that the agent name be spelled out, Escherichia coli instead of E. coli.
2. Please provide the concentration of bleach used for inactivation prior to disposal.

Project: Acute peripheral infection and associated greater long-term risk of neurodegenerative pathologies: A pilot study of urinary tract infection in a natural model of age-related neurodegeneration (23-053B); BSL2 in vivo in guinea pigs. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project with the following modifications:

1. Please describe specifically how the agent, E. coli, will be used.
2. The IBC requests more details regarding what assays will be performed.
3. In vitro use of the agent was marked NO. Please confirm whether this is correct.
4. Please consult with LAR and BSO to identify a suitable location for the guinea pig work.
5. Please specify whether cage changes be conducted in the biosafety cabinet.
6. The IBC requests that cages and bedding be autoclaved.

2. **Kading, Rebekah**

Agent: Kaeng Khoi- strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests that virus be added to the agent name.
2. Please provide the concentration (percentage) of Microchem Plus used for inactivation prior to disposal.
3. All individuals listed need to add a statement of experience within the Online IBC Database.

Project: Potential for mosquito-borne transmission of Kaeng Khoi virus (23-051B); BSL3 in vitro and BSL 3 in vivo in mosquitoes; NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project with the following modifications:

All individuals listed need to add a statement of experience within the Online IBC Database.

3. **Daniels, Joshua**

Agent: Microsporum canis- strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. Please include the room number and building for storage of the agent.
2. Which of the disinfectants listed is fungicidal and kills Microsporum canis spores.
3. All individuals listed need to add a statement of experience within the Online IBC Database

Project: Antifungal resistance (AFR) is emerging in M. canis strains in the US (23-060B); BSL2 in vitro, NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project with the following modifications:

1. The IBC requests the last statement of the Project Overview, indicating no safety concerns, be removed.
2. Please confirm if the PPE listed is used at times or if there are any variations.
3. All individuals listed need to register with the Online IBC Database, fill out a statement of experience, and complete the IBC at CSU online training.
4. All individuals listed need to complete the online BSL1/2 training and the Occupational Health Risk Assessment

5. The lab is due for a Biosafety Outreach Visit.

4. Braunstein, Miriam

Project: Expression of mycobacterial genes in Mycobacterium smegmatis (23-059B); BSL2 in vitro, NIH Guidelines category non-exempt rDNA: III-D-2

The committee unanimously approved of the above project as submitted.

There was a discussion regarding how M. smegmatis is in the process of being re-classified and will soon be down graded to a BSL1 organism. And that it is standard to use this agent outside a biosafety cabinet.

Project: Constructing Mycobacterium smegmatis, M. abscessus, and M. avium mutants (23-050B); BSL2 in vitro, NIH Guidelines category non-exempt rDNA: III-D-1

The committee unanimously approved of the above project with the following modifications:

1. Please specify the in vitro location building and room numbers.
2. The IBC requests that the last statement of the project overview, there are not safety concerns, be removed.
3. Individuals working in a biosafety cabinet are required to complete Biosafety Cabinet training.

5. Jackson, Mary

Project: Mechanism of action of Dapsone in Mycobacterium leprae (23-057B); BSL3 in vitro, NIH Guidelines category non-exempt rDNA: III-D-1

The committee unanimously approved of the above project with the following modifications:

1. Please confirm if live Mycobacterium leprae is used or just genes from this agent.
2. There was some confusion regarding the use of M. tuberculosis. Is Mtb used for expressing M. leprae genes or something else?
3. Please provide the room number for all work locations.
4. Please state which location is used for BSL2 work and which is used for BSL3 work.

6. Zabel, Mark

Project: Mouse models of Prion Protein Biology and Prion Disease Pathogenesis, Diagnostics and Therapeutics (23-058B); BSL2 in vitro and BSL2 in vivo in mice; NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project with the following modifications:

1. In regard to the new, commercially unavailable mouse lines that will be generated, please confirm neither parental rodent contains the following genetic modifications: (i) incorporation of more than one-half of the genome of an exogenous eukaryotic virus from a single family of viruses; or (ii) incorporation of a transgene that is under the control of a gammaretroviral long terminal repeat (LTR); and (3) the rodent that results from the breeding is not expected to contain more than one-half of an exogenous viral genome from a single family of viruses.
2. The Project Overview indicates that you will also be developing new therapeutics including gene editing, silencing and repressing. Please provide more details regarding what and how gene editing, silencing and repressing will be performed.

3. The IBC requests that infected animal disposition be changed to: Prion carcasses are bagged in biohazard bags and spray deconned out of rooms, and frozen until taken to incineration.
4. Under Mechanisms in place for containment and disposition of infected animals, the IBC requests the following be added: all tissues, cages and bedding will be autoclaved at 132 for 90 minutes.
5. No other investigators/lab personnel were listed. Please be sure to include all individuals working on the project.

7. Bobadilla, Ana Clara

Project: Neuronal ensembles of reward seeking (23-044B); BSL2 in vivo in mice; NIH Guidelines category non-exempt rDNA: NA

The IBC has TABLED their determination pending receipt of additional information:

1. Under in vitro uses, please provide the building and room numbers used.
2. The IBC requests that the PPE used for in vitro work be specified.
3. The project overview states that you will teach the animals to self-administer a drug of abuse. Please specify the drug of abuse and comment on the containment and security measures in place for the drug.
4. Under Mechanisms in place for containment and disposition of infected animals, the following procedure and text should be added: Any unused AAV will be inactivated via autoclave. Following infection in the mice, AAV are reported to no longer be excreted 72 hours after inoculation, nor are they active in the bedding waste. Cages are labeled with a biohazard sticker for the first 72 hours and no cages are open during that time unless absolutely necessary. In which case they are opened in a BSC.
5. What is the purpose of the 4-Hydroxy-Tamoxifen (4-OHT) intraperitoneal injections?
6. In the rDNA section, under Vector(s) to be used for delivery is listed as Bacterial. Please specify what the Bacterial vectors are.
7. Due to the use of toxin in mice, the PI must coordinate with LAR, EHS and Biosafety.
8. This lab is due for a Biosafety Outreach Visit.
9. The IBC requests confirmation whether a biosafety cabinet will be used. All individuals working in a biosafety cabinet are required to complete Biosafety Cabinet training.

8. Bowen, Richard

Agent: Francisella tularensis subspecies holarctica – Strain: deltaCap-LVS; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests the risk group be changed from 1 to 2.
2. Please provide the room number for storage of the agent.

This is a highly attenuated vaccine strain.

Project: Development and Testing of Vaccines for Nairobi Sheep Disease (23-055B); BSL3 in vitro and BSL2 in vivo in sheep; NIH Guidelines category non-exempt rDNA: III-D-2

The committee unanimously approved of the above project with the following modifications:

1. Please specify what work will be done in each location.

2. The IBC requests that safety glasses be added to BSL2 mice handling.
3. Please specify how mouse carcasses will be disposed.
4. Are there any special cage handling requirements for BSL2 mice? For example, should cages be changed in a BSC and how should caging be decontaminated?

9. Regan, Daniel

Project: Screening and evaluation of antimetastatic therapies for osteosarcoma (23-054B); BSL2 in vitro and BSL2 in vivo in mice; NIH Guidelines category non-exempt rDNA: III-E-1

The committee unanimously approved of the above project with the following modifications:

1. The IBC requests that safety glasses be added to the in vivo PPE list.
2. Are there any concerns of tumor cell lines shedding after injection into mice?
3. If the lab has not had a Biosafety Outreach Visit within 3 years, please schedule one at your earliest convenience at the following link: https://go.oncehub.com/BSOvisit.

III. Amendments to be reviewed by full committee

None

IV. New Business

None

V. Unfinished business

Eye Protection Policy – the policy was approved by the IBC; the votes were as follows: 10=approve, 1=no, 1=abstain. An open forum was held on September 20th to address researchers' questions/concerns, and to provide resources. The biosafety office and occupational health office are available to help researchers identify appropriate eye protection.

VI. Reports

1. Coordinator's report.

a. Next IBC meeting: Wednesday, November 8, 2023

b. October National Biosafety Month

1. The Biosafety and Biosecurity Fair was on Friday, Oct. 6th and was a huge success. We had over 125 people attend from multiple departments and units arounds campus. We received a lot of positive feedback.
2. The RAM Safe Pledge is open, make sure to submit your pledge by Oct 31st.

2. Biosafety Officer's report.

a. Inspection Update

b. Incident reports – Q3 Report: a water leak from a humidifying system. No exposure or release concern. No external reporting required.

c. Lab audits/Biosafety Outreach Visit reports

VII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. **Bowen, Richard**
   Project: Vaccine efficacy testing for MERS Coronavirus (23-046B); BSL3 invitro and BSL3 in vivo in mice and alpaca. NIH Guidelines category non-exempt rDNA: NA
2. **Bobadilla, Ana Clara**
   Agent: Adeno-associated viral (AAV) vector – Strain: multiple; BSL2
3. **Bosco-Lauth, Angela**
   Agent: Heartland virus– Strain: Any; BSL3
4. **Rosenberg, Corey**
   Agent: RVFV—Strain: MP-12; BSL2
   Project: Mosquito cis-regulatory elements associated with arbovirus infection (23-043B); BSL2 in vitro and BSL3 in vivo in Aedes aegypti or Culex tarsalis. NIH Guidelines category non-exempt rDNA: NA
5. **LaRocca, Tom**
   Agent: Adeno-associated viral (AAV) vector—Strain: Any, BSL2
   Project: Adeno-associated virus (AAV) targeting of aging genes (23-045B); BSL2 in vitro and BSL2 in vivo in mice; NIH Guidelines category non-exempt rDNA: III-D-4
6. **Braunstein, Miriam**
   Project: Plasmid Construction in E. coli (23-048B); BSL2 in vitro; NIH Guidelines category non-exempt rDNA: III-D-2
   Project: Mycobacteriophage propagation in Mycobacterium smegmatis (23-049B); BSL2 in vitro; NIH Guidelines category non-exempt rDNA: NA

VIII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Withdrawn from review to be read into the minutes.

IX. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

X. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

Meeting adjourned a 1:13pm
Minutes recorded by CJohnson and MRamey

Colorado State University- Quarterly Biological Safety Incident Report

There is no such thing as zero risk when conducting life science research. However, good biosafety and biosecurity practices help minimize the risks. There are over 175 principal investigators running laboratories that work with biological materials and/or recombinant or synthetic nucleic acids at Colorado State University (CSU). These laboratories range from Biosafety Level 1 (BSL-1) to BSL-3 with enhancement, as well as Animal Biosafety Level 1-3 (ABSL-1, ABSL-2, ABSL-3), Arthropod Containment Level 1-3 (ACL-1, ACL-2, ACL-3), and plant containment (BSL-1P and BSL-2P). Each laboratory has multiple researchers working, frequently over 40 hours a week, with many of these hours spent directly handling biological materials, recombinant or synthetic nucleic acids, and/or plants or animals containing the previous materials. The total number of researcher hours handling these materials annually is unknown. However, it can be assumed that the denominator is substantial.

This quarterly report describes incidents that have happened at CSU laboratories. Appropriate characterization of the actual risks of an incident to the researchers themselves, CSU, the environment, and the surrounding community based on a thorough incident review is presented. For this report, an incident is defined as:

- An event that may have caused a potential exposure of an individual to potentially infectious biological materials and/or recombinant or synthetic nucleic acids; and/or
- A facility issue or other issue that could result in a potential release or loss of containment of biological materials and/or recombinant or synthetic nucleic acids; and/or
- An occurrence with biological materials and/or recombinant synthetic nucleic acids that required reporting to a regulatory or oversight agency

Between July 1st, 2023, and September 30th, 2023, there was one incident in CSU laboratories that met the above definition.

Description of Incident	Biosafety Level	Reporting Obligation
Water leak	BSL-3	No

Incident #1

Containment Level: BSL-3

Description: A filter housing broke on one of the new Evoqua water units (humidifying pump system) in the attic of Phase III during the evening of September 25th. It is unclear how long the water was running but the manager of the space received an alarm when the humidity in the insectary chamber below this attic space alarmed. It was, however, a large quantity of water that penetrated into the lab space below.

Risk Assessment: No water was seen in any of the select agent labs or animal rooms. One of the insectary chambers malfunctioned and was turned off.

Corrective Action: The lab manager has reached out to Evoqua for repair and fully expects them to do this under warranty for the units. The insectary chamber that malfunctioned and was turned off was left

that way for the room to dry out for several days. But the control panel is not working and the manufacturer has been contacted for assistance and repair.

Reporting Requirements: None

Approved Minutes
Institutional Biosafety Committee
Microsoft Teams – REMOTE
November 8, 2023

Check if Attending (Members):	Check if Attending (Alternate Members):
☒ Jessica Ayers, Animal expert	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large
☐ Donald Bade, Unaffiliated	☐ Lon Kendall, Director LAR
☒ Heather Blair, Associate Biosafety Officer	☒ Joanie Ryan, Assistant Biosafety Officer *
☐ Richard Bowen, Associate Chair	
☒ Chaoping Chen, Chair	
☒ Jason Cummings, lab rep	*non-voting at this meeting
☐ Dan Frazen, Unaffiliated	
☒ Jean Peccoud, Synthetic Biology	
☒ Brendan Podell, Mycobacteria specialist	
☒ Ann Powers, Virology	
☒ Robyn Roberts, Plant expert	
☐ Tony Schountz, Virology	
Non-Voting Members:	
☒ James Graham, EHS Director	
☐ Joni Van Sickle, Occupational Health Coord.	
Regular Guests (non-voting):	ORCC Staff (non-voting):
☒ Rebecca Moritz, Biosafety Office Director	☒ Michelle Ramey, Assistant Compliance Coord.
☒ Nicole Marlenee, Assistant Biosafety Officer	
☒ Scott Van Scotter, Biosafety Trainer	
Other:	

The meeting was convened at 12:04PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted items.

I. Review of IBC meeting minutes from September 13, 2023 and October 11, 2023
Both sets of minutes were approved as written.

II. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco/)

1. Jackson, Mary

Agent: Mycobacterium kansasii – Strain: ATCC12478 and clinical isolates; BSL2

The committee unanimously approved of the above agent as submitted.

Agent: Mycobacterium xenopi – Stain: clinical isolates; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. For Pathogenic to animals, please change from N to Y.
2. Please provide the room number for storage location.

3. The IBC requests the PI specify which Vesphene (IIse or IIIse) is used and at what percentage.

Agent: Mycobacterium simiae – Strain: ATCC25275; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. For Pathogenic to animals, please change from N to Y.
2. Please provide the room number for storage location.
3. The IBC requests the PI specify which Vesphene (IIse or IIIse) is used and at what percentage.

Agent: Mycobacterium talmoniae – Strain: ATCC-BAA2683; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. For Pathogenic to animals, please change from N to Y.
2. Please provide the room number for storage location.
3. The IBC requests the PI specify which Vesphene (IIse or IIIse) is used and at what percentage.

Agent: Mycobacterium intracellulare – Strain: ATCC13950 and clinical isolates; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. For Pathogenic to animals, please change from N to Y.
2. Please provide the room number for storage location.
3. The IBC requests the PI specify which Vesphene (IIse or IIIse) is used and at what percentage.

Agent: Nocardia farcinica – Strain: clinical isolates; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. For Pathogenic to animals, please change from N to Y.
2. Please provide the room number for storage location.
3. The IBC requests the PI specify which Vesphene (IIse or IIIse) is used and at what percentage.

III. Amendments to be reviewed by full committee

1. Schountz, Tony

Agent: Bat influenza viruses – Strain: any; BSL2

Amendment request: We want to test a chimeric influenza virus that has the HA (H1) and NA (N1) of the vaccine influenza A virus PR8. The remaining segments of the virus are wild type from the H18N11 bat influenza A virus. This virus will use sialic acid for entry instead of the MHC class II that H18 uses. The HA and NA segments are recombinant, with the termini for each from wild type H18 and N11 but with the coding regions of PR8 H1 and N1. We will use this chimeric virus to challenge Jamaican fruit bats to determine if the tropism of the virus changes from the intestine (wild type H18N11) to the lungs (PR8 H1N1). We will also attempt to cultivate the virus in Jamaican fruit bat cell lines that we have generated in the lab.

The committee unanimously approved of the above agent amendment as submitted.

Project: Experimental infection of Jamaican fruit bats with H18N11 influenza virus (16-033B); BSL1 and 2 in vitro, and BSL2 in vivo in bats; NIH Guidelines category non-exempt rDNA: III-D-4

Amendment request: We will use a modified bat influenza A virus that has the H18 replaced with PR8 H1, and the N11 replaced with PR8 N1. The PR8 H1N1 influenza A vaccine virus is described here: https://www.nature.com/articles/ncomms9148. Although this is likely a BSL-2 agent, we will perform in vivo and in vitro studies in the BSL-3. (see attached rDNA questionnaire)

The committee unanimously approved of the above project with the following modifications:

1. The committee requests the work locations be updated.
2. Please update what PPE will be used.

2. Stenglein, Mark

Project: Analysis of bunyavirus reassortment (19-085B); BSL2 in vitro; NIH Guidelines category non-exempt rDNA: III-D-3

Amendment request: Please add the following agents to PARF 19-085B: Bunyamwera virus and La Crosse virus

The committee unanimously approved of the above project as submitted.

IV. New Business

Biosafety Program Changes

Changes to the Biosafety Trainings and Laboratory Visits were presented and discussed. See attached for details regarding the changes.

V. Unfinished business

1. Bobadilla, Ana Clara (TABLED from October meeting) – no new information yet

Project: Neuronal ensembles of reward seeking (23-044B); BSL2 in vivo in mice; NIH Guidelines category non-exempt rDNA: NA

VI. Reports

1. Coordinator's report.

a. CORA requests – the IBC has received two CORA requests recently (several other institutions have received the same requests) and is preparing these items to send

1. Dan Patrone - Copies of the minutes from the two most recent IBC meetings, and the committee roster and bio sketches
2. White Coat Waste Project - The five most recent IBC meeting minutes

b. Next IBC meeting: Wednesday, December 13, 2023

c. October National Biosafety Month

We had a very successful Biosafety Month, with our best turnout ever for the Biosafety and Biosecurity Fair and great participation in the RAM Safe Pledge. RAM Safe Pledge winners will be announced soon.

2. Biosafety Officer's report.

a. Inspection Update

b. Incident reports

c. Lab audits/Biosafety Outreach Visit reports

VII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. **Moreno, Julie**

   Agent: E. coli- strain: uropathogenic; BSL2

   Project: Acute peripheral infection and associated greater long-term risk of neurodegenerative pathologies: A pilot study of urinary tract infection in a natural model of age-related neurodegeneration (23-053B); BSL2 in vivo in guinea pigs. NIH Guidelines category non-exempt rDNA: NA

2. **Kading, Rebekah**

   Agent: Kaeng Khoi- strain: any; BSL2

   Project: Potential for mosquito-borne transmission of Kaeng Khoi virus (23-051B); BSL3 in vitro and BSL 3 in vivo in mosquitoes; NIH Guidelines category non-exempt rDNA: NA

3. **Daniels, Joshua**

   Agent: Microsporum canis- strain: any; BSL2

4. **Braunstein, Miriam**

   Project: Constructing Mycobacterium smegmatis, M. abscessus, and M. avium mutants (23-050B); BSL2 in vitro, NIH Guidelines category non-exempt rDNA: III-D-1

5. **Jackson, Mary**

   Project: Mechanism of action of Dapsone in Mycobacterium leprae (23-057B); BSL3 in vitro, NIH Guidelines category non-exempt rDNA: III-D-1

6. **Bowen, Richard**

   Agent: Francisella tularensis subspecies holarctica – Strain: deltaCap-LVS; BSL2

   Project: Development and Testing of Vaccines for Nairobi Sheep Disease (23-055B); BSL3 in vitro and BSL3 in vivo in sheep; NIH Guidelines category non-exempt rDNA: III-D-2

VIII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Withdrawn from review to be read into the minutes.

IX. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

X. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

Meeting adjourned a 12:38pm
Minutes recorded by CJohnson and MRamey

Approved Minutes
Institutional Biosafety Committee
Microsoft Teams – REMOTE
December 13, 2023

Check if Attending (Members):	Check if Attending (Alternate Members):
☒ Jessica Ayers, Animal expert	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large
☒ Donald Bade, Unaffiliated	☐ Lon Kendall, Director LAR
☒ Heather Blair, Associate Biosafety Officer	☒ Joanie Ryan, Assistant Biosafety Officer *
☐ Richard Bowen, Associate Chair	
☒ Chaoping Chen, Chair	
☒ Jason Cummings, lab rep	*non-voting at this meeting
☒ Dan Frazen, Unaffiliated	
☐ Jean Peccoud, Synthetic Biology	
☒ Brendan Podell, Mycobacteria specialist	
☐ Ann Powers, Virology	
☒ Robyn Roberts, Plant expert	
☐ Tony Schountz, Virology	
Non-Voting Members:	
☒ James Graham, EHS Director	
☒ Joni Van Sickle, Occupational Health Coord.	
Regular Guests (non-voting):	ORCC Staff (non-voting):
☒ Rebecca Moritz, Biosafety Office Director	☒ Michelle Ramey, Assistant Compliance Coord.
☒ Nicole Marlenee, Assistant Biosafety Officer	
☒ Scott Van Scotter, Biosafety Trainer	
Other:	

The meeting was convened at 12:04PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted items.

I. Review of IBC meeting minutes from November 8, 2023

Minutes were approved as written.

II. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco/)

1. Zhang, Peipei

Agent: Carnobacterium—Strain: any; BSL1

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests that the Agent name be changed to Carnobacterium spp.
2. Please confirm that there are no BSL2 strains of this agent.
3. The answer to Pathogenic to animals should be changed from NO to YES.
4. Under Methods of inactivation prior to disposal, the concentration of bleach should be 10%, instead of 5-10%.

Agent: Escherichia coli—Stain: Generic E. coli and Shiga toxin-producing E. coli; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. IBC recommends changing the strain to ANY (see agent description for details).
2. Under Methods of inactivation prior to disposal, the concentration of bleach should be 10%, instead of 5-10%.

Agent: Pseudomonas—Strain: Strains from meat cutting plants and meat products; BSL1

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests that AARF be submitted for Pseudomonas fluorescens and P. putida.
2. The answer to Pathogenic to animals should be changed from NO to YES.
3. What procedures are in place should a BSL2 strain (such as Pseudomonas aeruginosa) be identified.
4. Under Methods of inactivation prior to disposal, the concentration of bleach should be 10%, instead of 5-10%.

Project: Pseudomonas prevalent in meat plants in Colorado, USA (23-066B); BSL2 in vitro; NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project with the following modifications:

1. The IBC requests the Agents used for this project be added to the PARF after the AARF corrections are made.

2. Bowen, Richard

Agent: Rickettsia amblyommatis—Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests that Pathogenic to animals be changed to YES.

Agent: Rickettsia rickettsia—Strain: any; BSL3

The committee unanimously approved of the above agent with the following modifications:

1. The IBC requests that Pathogenic to animals be changed to YES.
2. Please specify storage location/room number.
3. Will other disinfectants be used? If so, please specify.

Project: Vaccine Efficacy for Rocky Mountain Spotted Fever in Dogs (23-068B); BSL2 & BSL3 in vitro and BSL2 & BSL3 in vivo in dogs; NIH Guidelines category non-exempt rDNA: NA

The committee requested additional information and agreed to vote via email once the following clarifications are made:

1. Please specify what PPE will be used for the BSL2 portions of the work, for both in vitro and in vivo.
2. Where will the BSL2 and ABSL2 portions of the work be located?
3. The IBC recommends adding tyveks when working with ticks for easier detection, as well as, adding tyveks to in vivo PPE.
4. Briefly describe the containment procedures for the ticks.
5. How long are the capsules on the dogs, and what are the proceeds if one comes loose or falls off.
6. Describe how will ticks be killed, inactivated, and disposed of.

3. **Kading, Rebekah**

Project: Cell culture generation from bat wing punch tissue (23-070B); BSL3 in vitro; NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project with the following modifications:

1. Under locations of work, the IBC requests that 'respiratory wing' be changed to C122.
2. Please confirm whether an import permit required for these tissues.
3. It is requested that the PI consult with biosafety regarding transport.

III. Amendments to be reviewed by full committee

IV. New Business

1. **Biosafety Manual update**

The CSU Biosafety Manual has been updated to reflect the changes made to inspections and training (discussed previously). These changes are largely driven by the new capabilities within SciShield. The manual was sent to the committee for review and the committee was given an opportunity to comment/ask questions. No comments were made.

2. **SciShield Biologicals Module roll out**

An overview of the Biologicals Module (Bio Mod) was presented by the IBC Coordinator. ORCC staff will be migrating the data for PIs from the legacy system (Online IBC Database) to the new system (SciShield Bio Mod). The migration is predicated to take about one year.

V. Unfinished business

1. **Bobadilla, Ana Clara (TABLED from October meeting) – more information added**

Project: Neuronal ensembles of reward seeking (23-044B); BSL2 in vivo in mice; NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project with the updated information provided.

2. **Zabel, Mark (initially reviewed during the October meeting; more information added)**

Project: Mouse models of Prion Protein Biology and Prion Disease Pathogenesis, Diagnostics and Therapeutics (23-058B); BSL2 in vitro and BSL2 in vivo in mice; NIH Guidelines category non-exempt rDNA: NA

The committee unanimously approved of the above project with the updated information provided; final approval is pending all personnel registering with the IBC Database.

VI. Reports

1. **Coordinator's report.**
   a. **Next IBC meeting: Wednesday, January 17, 2023**

2. **Biosafety Officer's report.**
   a. **Inspection Update**
   b. **Incident reports**
   c. **Lab audits/Biosafety Outreach Visit reports**

VII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. **Jackson, Mary**
   Agent: Mycobacterium xenopi – Stain: clinical isolates; BSL2
   Agent: Mycobacterium simiae – Strain: ATCC25275; BSL2
   Agent: Mycobacterium talmoniae – Strain: ATCC-BAA2683; BSL2
   Agent: Mycobacterium intracellulare – Strain: ATCC13950 and clinical isolates; BSL2
   Agent: Nocardia farcinica – Strain: clinical isolates; BSL2

VIII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Withdrawn from review to be read into the minutes.

IX. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

X. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

Meeting adjourned a 1:30pm
Minutes recorded by CJohnson and MRamey

APPROVED MINUTES
Institutional Biosafety Committee
Microsoft Teams – REMOTE
January 17, 2024

Check if Attending (Members):	Check if Attending (Alternate Members):
☒ Jessica Ayers, Animal expert	☒ Christine Johnson, Senior IBC Coordinator, Alternate-at-Large
☐ Donald Bade, Unaffiliated	☐ Lon Kendall, Director LAR
☒ Heather Blair, Associate Biosafety Officer	☒ Rebecca Moritz, Biosafety Office Director
☐ Angela Bosco-Lauth, Veterinary Virology	
☒ Chaoping Chen, Chair	
☒ Jason Cummings, lab rep	*non-voting at this meeting
☐ Dan Frazen, Unaffiliated	
☒ Jean Peccoud, Synthetic Biology	
☒ Brendan Podell, Mycobacteria specialist	
☒ Ann Powers, Virology	
☒ Robyn Roberts, Plant expert	
☒ Tony Schountz, Virology	
Non-Voting Members:	
☒ James Graham, EHS Director	
☒ Joni Van Sickle, Occupational Health Coord.	
Regular Guests (non-voting):	ORCC Staff (non-voting):
☒ Nicole Marlenee, Assistant Biosafety Officer	☒ Michelle Ramey, Assistant Compliance Coord.
☒ Scott Van Scotter, Biosafety Trainer	
Other:	

The meeting was convened at 12:02PM. Quorum was maintained throughout. Any member with a conflict of interest disconnected during discussion and/or committee determination on the conflicted items.

I. Update to IBC Membership

Effective January 1st, Dr. Bowen has stepped down from the IBC; Dr. Angela Bosco-Lauth has similar animal/infectious disease expertise and has been appointed to the committee. Dr. Joanie Ryan has left CSU and thus, Rebecca Moritz has been appointed as the alternate Biosafety Officer on the committee.

II. Review of IBC meeting minutes from December 13, 2023

Minutes approved as written.

III. Review of Agent and Project Request Forms (https://protocols.research.colostate.edu/rco/)

1. Dean, Gregg

Agent: Recombinant Lactobacillus acidophilus – Strain: see description; BSL2

The committee unanimously approved of the above agent as submitted.

2. **Wagner, Kaitlyn**

Agent: Haemonchus contortus – Strain: any; BSL2

The committee unanimously approved of the above agent with the following modifications:

1. Please specify what chemical disinfectant will be used for inactivation.
2. Please specify what is meant by standard autoclave cycle.

Project: Exploratory parasiticide work (24-003B); BSL2 in vitro. NIH Guidelines category non-exempt rDNA: NA

The committee unanimously TABLED their determination of the above project pending more information. Specifically, the IBC requested the PI address the following:

1. Please specify how the testing is done. What cell lines? What quantity of parasites? What do is meant by mammalian users?
2. How will the parasite be stored/handled?
3. The IBC requested a list of the parasiticides that will be tested.
4. Please remove the last statement from the Project Overview: We have no safety concerns related to the project.
5. In the statement: Work will be done in a BSC as needed. Please remove - as needed.
6. Please comment on the disinfection/inactivation methods, including the worm, as well as surfaces and lab consumables.

3. **Bowen, Richard**

Project: Immunogenicity and protective immunity of ChimeriVax-JE in swine (24-001B); BSL3 in vitro and BSL3 in vivo in pigs. NIH Guidelines category non-exempt rDNA: III-D-1

The committee unanimously approved of the above project with the following modifications:

1. Facility socks and shoes/clogs/rubber boots should be marked YES for in vivo PPE.
2. The IBC requested more information regarding the size of the pigs.
3. Are there concerns regarding noise hazard while working with pigs?
4. The IBC requested the original source of cultured cells be specified, if known.
5. Please confirm that the lab is receiving the purified recombinant vaccine and not producing it.

4. **Borlee, Grace**

Project: CRISPR to edit DH82 cells (24-002B); BSL1 in vitro. NIH Guidelines category non-exempt rDNA: III-E-1

The committee unanimously approved of the above project with the following modifications:

1. Please specify the building name for locations of work.
2. It should be mentioned in the Project Overview that this is for a class, as well as what training will be provided to the students.
3. What PPE will be used?
4. What are the genes to be targeted?
5. Under the NIH Guidelines section, please comment on the methods of containment, including what disposal/ disinfectant methods will be used.
6. Also, under NIH Guidelines, please answer the following:
    a. Source of molecules to be expressed?
    b. Vector(s) to be used for delivery?

c. Host(s) for expression of recombinant or synthetic nucleic acids? If not applicable, put N/A.

IV. Amendments to be reviewed by full committee

1. Schountz, Tony

PARF: Experimental infection of Jamaican fruit bats with H18N11 influenza virus (16-033B); BSL2 and BSL3 in vitro and in vivo in bats. NIH Guidelines category non-exempt rDNA: III-D-4

Amendment request: to move the chimeric bat virus PR8-H18N11 (16-033B) from BSL-3 to BSL-2 in bats and cell culture. This virus is a reverse genetically engineered reassortant. It contains the surface glycoproteins of the human-adapted A/PR8 H1N1 virus and the six internal segments of A/H18N11. The H1 HA of this virus has a monobasic cleavage site. People vaccinated with the seasonal influenza vaccine will therefore have antibodies against the surface glycoproteins of this chimera. In addition, this virus is unable to reassort with other circulating influenza viruses due to an incompatibility at the RNA level (DOI: 10.1038/ncomms5448; DOI: 10.1371/journal.ppat.1004420). The nucleoprotein of H18N11 (encoded by this chimeric virus) is strongly inhibited by the human restriction factor MxA (DOI: 10.1080/22221751.2019.1599301).

The committee unanimously approved of the above project with the following modifications:

1. There are contamination concerns with moving an agent from BSL3 to BSL2. The IBC requested clarification on how the virus to be used at BSL2 will be obtained. For example, will the lab be conducting the reverse genetics at BSL2? If moving the virus from BSL3 to BSL2, the IBC requests that deep sequencing be done to confirm no contamination.
2. The IBC recommends that anyone working with the virus be offered the seasonal flu vaccine. Joni Van Sickle/Occupational Health can help coordinate this.

PARF: Expression of hACE2 in bats challenged with SARS-CoV-2 (21-088B); BSL2 and BSL3 in vitro and in vivo in bats. NIH Guidelines category non-exempt rDNA: III-D-4

Amendment request: We will test Pfizer's mRNA vaccines (monovalent and bivalent) to determine how they alter the infection and immune response of Jamaican fruit bats and deer mice. IACUC amendment request has been submitted.

The committee unanimously approved of the above project with the following modifications:

1. Please specify the location of in vivo work with the deer mice.
2. Please specify the PPE used for working with the deer mice

V. New Business

1. Request to work with attenuated SARS-CoV-2 strain at BSL2

BioMARC has a client that is seeking approval to work with an attenuated SARS-CoV-2 strain at BSL2. This request will need to be submitted to NIH/OSP for approval, however it is being brought up now to discuss initial concerns and to get input from the IBC. The IBC discussed this and had the following questions for the PI:

a. Please provide the full sequence data for the attenuated agent, as well as for the original virus used. (This will likely be asked by NIH)

b. Will the current SARS-CoV-2 vaccines be effective against the attenuated strain?

VI. Unfinished business

1. **SciShield Biologicals Module roll out update.**
   Migration is going slowly. We will have a pdf version of the new forms for the IBC to review during the next meeting.

VII. Reports

1. **Coordinator's report.**
   a. **Next IBC meeting: Wednesday, February 14, 2024**
2. **Biosafety Officer's report.**
   a. **Inspection Update**
   b. **Incident reports –** Q4 Report will be given next meeting.
   c. **Lab audits/Biosafety Outreach Visit reports**

VIII. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Approved After Modification to be read into the minutes.

1. **Zhang, Peipei**
   Agent: Carnobacterium—Strain: any; BSL1
   Agent: Escherichia coli—Stain: Generic E. coli and Shiga toxin-producing E. coli; BSL2
   Agent: Pseudomonas—Strain: Strains from meat cutting plants and meat products; BSL1
   Project: Pseudomonas prevalent in meat plants in Colorado, USA (23-066B); BSL2 in vitro; NIH Guidelines category non-exempt rDNA: NA
2. **Bowen, Richard**
   Agent: Rickettsia amblyommatis—Strain: any; BSL2
   Agent: Rickettsia rickettsia—Strain: any; BSL3
   Project: Vaccine Efficacy for Rocky Mountain Spotted Fever in Dogs (23-068B); BSL2 & BSL3 in vitro and BSL2 & BSL3 in vivo in dogs; NIH Guidelines category non-exempt rDNA: NA
3. **Kading, Rebekah**
   Project: Cell culture generation from bat wing punch tissue (23-070B); BSL3 in vitro; NIH Guidelines category non-exempt rDNA: NA

IX. Agent and Project Approval Request Forms Reviewed at Previous IBC Meeting and Withdrawn from review to be read into the minutes.

X. New or Amended Agent Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

XI. New or Amended Project Approval Request Forms Reviewed and Approved by the Biosafety Officer or Chair to be read into the minutes.

Meeting adjourned a 1:06pm
Minutes recorded by CJohnson and MRamey