University of Kentucky (UK)
Institutional Biosafety Committee (IBC)

Date: 05NOV2025
Time: 12:04 PM – 1:26 PM
Location: Virtual Meeting via Zoom - https://uky.zoom.us/j/89257859407

Minutes

Call to Order

The meeting was called to order by Doug Harrison at 12:04PM.

Attendance

IBC Members Present

Maria Landron (Local, Non-Affiliated Member)
Thomas Chambers (Local, Non-Affiliated Member)
Doug Harrison (Chairperson)
Cheryl Haughton (Animal Containment Expert)
Delena Mazzetti (Biological Safety Officer)
Brandy Nelson (Institutional Member)
Jan Smalle (Plant Containment Expert)
Amelia Pinto (Institutional Member)
Carol Pickett (Local, Non-Affiliated Member)
Arthur Hunt (Plant Containment Expert)
Yadi Wu (Institutional Member)

Regrets

Delphine Malherbe (Laboratory Staff Representative)
Carrie Shaffer (Institutional Member)
Mike Mendenhall (Local, Non-Affiliated Member)

Guests

Elizabeth Brooks (Administrative Support Associate I)
Robert Hayman (Assistant Biological Safety Officer)
Jeff Howell (IBC Administrative Professional II)
Audra Strahl (IBC Administrative Professional II)
Melissa Hollifield (Animal Compliance Manager)
Kathryn Childress (Temporary STEPS Office and Clerical)

Quorum

Per the University of Kentucky Institutional Biosafety Committee By-Laws, at least 6 voting members shall constitute a quorum.

Approval of Previous Month's Meeting Minutes

2025.10.01 IBC Meeting Minutes DRAFT.pdf

Doug Harrison initiated a motion to approve the meeting minutes from the October 1st, 2025, IBC meeting. Tom Chambers seconded the motion. All IBC members present (10) voted in favor of the motion. Jan Smalle arrived late and was not present to vote.

Old Business

None.

New Business

None.

Protocol Review

IBC approval is granted only when biosafety containment and procedures are reviewed and found to be adequate for the research being undertaken and when all biosafety laboratory inspection and training requirements are satisfactorily met. All biosafety laboratory inspection and training requirements are verified by the UK Biological Safety Officer (BSO) or designee prior to final approval. Current UK Biosafety training requirements are available online HERE. Current UK Biosafety Laboratory Inspection Program requirements are available online HERE.

Resubmissions

None.

Amendments

PI: Weikang Cai

IBC Protocol Number: IBC-24-408
Protocol Title: Understanding astrocytes and microglia functions in neurological diseases.
Protocol Type: Amendment
Amendment To: Genetic constructs, Cells or tissues used in research
Applicable Guidelines & Regulations: NIH Guidelines Section IV-B-7, UK Administrative Regulation 6.3, UK Administrative Regulation 6.9, OSHA Act of 1970 Clause 5(a)(1), OSHA 29 CFR 1910.1030, NIH Guidelines Section III-D-1, NIH Guidelines Section III-D-4, NIH Guidelines Section III-E-1
Maximum Containment Level: Biological Safety Level 2 - Enhanced (BSL2+), Animal Biological Safety Level 1 (ABSL1)
Primary Reviewers: C. Haughton, Y. Wu, B. Nelson

Brief Project Overview:

Brain is composed of many cells types, including neurons and glia. Astrocytes are the most abundant glial cells in the brain. They play important roles in the regulation of neuronal activity, metabolic homeostasis in the brain, and many types of behaviors. Astrocytes have hundreds of endfeets, in contact with microvessels and neurons. Thus, astrocytes sense and respond to the environmental changes, including abnormal neuronal activity, cues from circulation, and brain injuries. Upon these changes, quiescent astrocytes change their activities and become reactive, which are featured by elevated expression of astrocyte-specific protein GFAP, also called “astrogliosis”. Astrogliosis is evident in brain injuries (i.e. stroke, brain trauma), neurodegenerative diseases (i.e. Alzheimer’s disease, Parkinson’s disease), as well as metabolic syndrome (i.e. diabetes, obesity). In parallel, microglia are the resident “macrophages” in the brain that play active and critical roles in remodeling synaptic plasticity and immune response. Disease-associated microglia have been shown to play important roles during the pathogenesis of multiple brain diseases. Therefore, understanding the functions of astrocytes and microglia at

normal conditions, and abnormal functions of them at pathophysiological conditions, like diabetes, Alzheimer's disease and major depression, is the major goal of the Cai laboratory studies. We will use multiple plasmids encoding recombinant DNAs, adenovirus and adenovirus-associated viruses both in vivo and in vitro to tackle the molecular mechanisms that regulating normal astrocyte functions. We will also use a collection of transgenic mouse models to study astrocyte and microglia functions in animals under physiological and pathophysiological conditions.

Summary of Biohazard Materials & Manipulations:

Manipulations Planned: Animal work (breeding, surgeries, etc.), Bacterial culture, Cell culture, Creation of viral vectors, DNA/RNA isolation/purification, Histology, Imaging/Microscopy, Immunohistochemistry, PCR/qRT-PCR, Flow cytometry/Cell sorting, Transfection, Transformation, Use of infectious agents, Use of viral vectors, Use of Human Source Material(s)
Transport: Yes
Materials Transported: Biohazardous Materials
Infectious Agent(s)/Natural Host(s): Human Sourced Materials (RG2-cells, tissues, bodily fluids, organs, etc.)/Human
Source & Nature of Inserted Nucleic Acid(s) [Gene Information/Gene Source/Gene Category/Use of Construct/Host(s)/Vector(s)]: MER Proto-Oncogene, Tyrosine Kinase (MerTK)/Mouse/receptor, phagocytosis/Expression/Primary mouse astrocytes, adult mouse brains/Adenovirus for expression in primary astrocytes; AAV9 for expression in specific regions in adult mouse brains./; Apelin (Apln)/Mouse/Secreted peptide/Expression/Primary mouse astrocytes, adult mouse brains/Adenovirus for expression in primary astrocytes. AAV9 for the expression of in astrocytes in the specific brain regions./; Syntaxin 4(Stx4)/Mouse/Exocytosis/Expression/Primary mouse astrocytes, adult mouse brains/Adenovirus for expression in primary astrocytes; AAV9 for expression in specific regions in adult mouse brains./; Syntaxin Binding Protein 3 (Stxbp3, or Munc18c)/Human/Exocytosis/Expression/Primary mouse astrocytes, adult mouse brains/Adenovirus for expression in primary astrocytes; AAV9 for expression in specific regions in adult mouse brains./; Vesicular nucleotide transporter (Vnut)/Mouse/Transporters/trafficking/Expression/Primary mouse astrocytes, adult mouse brains/Adenovirus for expression in primary astrocytes; AAV9 for expression in specific regions in adult mouse brains./; Cre-GFP fusion protein (Cre:GFP)/Engineered/Recombinase and fluorescent reporter/Expression/Primary mouse astrocytes or adult mouse brains./Adenovirus for the expression in primary astrocytes; AAV9 for the expression in astrocytes in the specific brain regions./; GPCR-activation based ATP sensor (GRAB ATP1.0)/Human origin and engineered/Receptor, sensor/Expression/Adult mouse brains/AAV9 for the expression in astrocytes in the specific brain regions./; Green fluorescent protein (GFP)/Jellyfish and engineered/fluorescent reporter/Expression/Primary mouse astrocytes or adult mouse brains./Adenovirus for the expression in primary astrocytes; AAV9 for the expression in astrocytes in the specific brain regions; AAV8 for the expression in mouse tissues./; Luciferase/fireflies/Reporter/Expression/Primary mouse astrocytes/adenovirus for the expression of Vnut-mCherry fusion proteins in primary mouse astrocytes./; Arresin domain-containing protein 3 (Arrdc3)/Human/Intracellular signaling/Expression/Adult mouse brains/AAV9 for the expression in astrocytes in the specific brain regions./; Microtubule Associated Protein 1 Light Chain 3 Alpha (LC3-GFP-mRFP fusion protein)/Mouse LC3 fused with fluorescent reporter GFP and RFP/reporter/Expression/Primary mouse astrocytes/Adenovirus for the expression in primary mouse astrocytes./; insulin receptor/Mouse/receptor/Expression/Primary mouse astrocytes/Adenovirus for the expression in primary mouse astrocytes./; IGF-1 receptor/Mouse/receptor/Expression/Primary mouse astrocytes/Adenovirus for the expression in primary mouse astrocytes./; Vamp7/Mouse/SNARE complex, exocytosis/Expression/Primary mouse astrocytes/Adenovirus for the expression in primary mouse astrocytes./; Rtn4r/Mouse/Cell surface receptor/Expression/Primary mouse astrocytes and adult mice/Adenovirus for the expression in primary mouse

astrocytes. AAV9 for expression in adult mice./; Rtn4r-NanoLuc/Mouse/Reporter for cleavage of Rtn4r/Expression/Primary mouse astrocytes and adult mice/Adenovirus for the expression of the luciferase reporter reflecting the cleavage of Rtn4r. AAV9 for expression of the same protein in adult mice./; Cre/Engineered/Recombinase/Expression/Mouse/AAV8 for the expression in mouse tissues./; GFP/Jellyfish/Tracking gene/Expression/Mouse/AAV8 for the expression in mouse tissues; control/; CreERT2/Engineered/Recombinase, tamoxifen inducible/Expression/Mouse/AAV8 for the expression in mouse tissues

Vector(s) [Vector Category/Vector Technical Name]: Plasmid/3XFlag-CMV-10/14 vector /; Plasmid/pKH3 vector /; Adeno-Associated Virus (AAV)/pAAV[Exp]-CMV>WPRE /; Adenovirus/pAV[Exp]-CMV>EGFP /; Plasmid/pEGFP-C1/N1 vector /; Adeno-Associated Virus (AAV)/pAAV[Exp]-TBG>WPRE (AAV8)

Cell line(s) Used [Cell Line Type/Cell Line Technical Name]: Immortalized brown fat preadipocytes/Animal; HEK-293T/Human; 3T3-L1/Animal; Immortalized mouse astrocytes/Animal; Primary mouse astrocytes/Animal; Primary mouse glial cell mixed cultures/Animal; Hepa1-6/Animal

Animal Use: Yes

Materials introduced into Animals [Animal Host Species/Biohazardous Material/Route of Administration/Restraint/Animal Experimental Procedures/PPE/Animal Housing/Agent Shedding/Special Practices & Procedures]: Mouse/Viral Vector - Adeno-Associated Virus (AAV)/Stereotaxic brain injections/Anesthetized /ABSL1/disposable gloves, lab coat, masks (or face shield), eye protection, and Closed-toed shoes with backs./ABSL1/No/Although AAV is not associated with any human disease, all personnel will wear gloves, lab coats and no open toe shoe or sandals. Avoid manipulate AAV in a biological safety cabinet or vivarium equipment at the same time as Risk Group 2 materials. Decontaminate work areas before and after use. Dispose of waste from animal work as biohazardous, including bedding and lab materials in contact with AAV. Dispose of carcasses as pathological waste./; Mouse/Viral Vector - Adeno-Associated Virus (AAV)/tail vein injections/Anesthetized /ABSL1/disposable gloves, lab coat, masks (or face shield), eye protection, and Closed-toed shoes with backs./ABSL1/No/Although AAV is not associated with any human disease, all personnel will wear gloves, lab coats and no open toe shoe or sandals. Avoid manipulate AAV in a biological safety cabinet or vivarium equipment at the same time as Risk Group 2 materials. Decontaminate work areas before and after use. Dispose of waste from animal work as biohazardous, including bedding and lab materials in contact with AAV. Dispose of carcasses as pathological waste.

Risk Assessment/Discussion:

Dr. Cai has submitted an amendment to their current IBC protocol entitled *Understanding astrocytes and microglia functions in neurological diseases* to add new adeno-associated virus (AAV) constructs expressing Cre, CreERT2 and GFP for work in cell culture and mice. The new vectors are on an AAV8 backbone and will be administered to mice under anesthesia via tail vein injection. While under anesthesia, mice will be placed and restrained on a tail vein injection platform. Animals administered AAV-Cree or AAV-GFP constructs will be monitored for body weight, food intake, and assessed for glucose and insulin tolerance. Additional downstream manipulations include MRI imaging. 2-months after AAV administration, animals will be euthanized and metabolic tissues 9liver, adipose tissues, skeletal tissue, and brain) will be collected for additional downstream biomedical and histological analysis. Animals administered AAV-CreERT2 will receive tamoxifen injections 2 weeks post-AAV delivery. This new project is very similar to previously approved work on Dr. Cai's IBC protocol and does not significantly alter the biohazardous risks associated with this IBC protocol. Work will be conducted using ABSL1 containment and ABSL1 housing. PPE required is the same for similar work and includes disposable gloves, lab coat, face shield or surgical mask, eye protection, and closed-toe shoes. There is an IBC HOLD on the corresponding IACUC protocol 2024-4483.

IBC Discussion & Vote:

The amendment to IBC-24-408 (version 66.0) was approved pending minor modifications as listed below:

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SCIENTIFIC SUMMARY – Please briefly discuss the impact to personnel in the event of accidental exposure to the new AAV serotype and constructs added in this amendment.

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Brandy Nelson initiated the motion. Yadi Wu seconded the motion. All IBC members present (10) voted in favor of the motion. Jan Smalle arrived late and was not present to vote.

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Conflicts of Interest: None

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PI: John Gensel

IBC Protocol Number: IBC-25-46
Protocol Title: Lipid Biomarkers after Spinal Cord Injury
Protocol Type: Amendment
Amendment To: Biological Safety Level (BSL), Administrative Information, Genetic constructs, Laboratory Location(s), Organisms used in research, Manipulations planned, Personnel, Proteins produced
Applicable Guidelines & Regulations: OSHA Act of 1970 Clause 5(a)(1), OSHA 29 CFR 1910.1030, UK Administrative Regulation 6.3, UK Administrative Regulation 6.9, NIH Guidelines Section IV-B-7, NIH Guidelines Section III-D-4, NIH Guidelines Section III-F-1
Maximum Containment Level: Biological Safety Level 2 (BSL2), Animal Biological Safety Level 1 (ABSL1)

Primary Reviewers: C. Haughton, T. Chambers, M. Landron

Brief Project Overview:

The two primary goals of this research are to achieve a better understanding of the timing of inflammatory blood biomarkers after spinal cord injury while also tracking cholesterol levels within that same time frame. A better understanding of inflammatory blood biomarkers allows for real-time assessment of therapeutic efficacy. Possible changes to cholesterol levels could put individuals with spinal cord injury at unique risk for cardio-vascular disease. Additionally, animal models will be used to better understand the mechanism of the unique cardiovascular disease risk. Both goals will allow for better diagnosis and treatment of the unique spinal cord injury patient population.

Summary of Biohazard Materials & Manipulations:

Manipulations Planned: Cell culture, Flow cytometry/Cell sorting, Use of Human Source Material(s), Proteomics, Animal work (breeding, surgeries, etc.), Use of viral vectors
Transport: Yes
Materials Transported: Biohazardous Materials
Infectious Agent(s)/Natural Host(s): Human Sourced Materials (RG2-cells, tissues, bodily fluids, organs, etc.)/Human
Source & Nature of Inserted Nucleic Acid(s) [Gene Information/Gene Source/Gene Category/Use of Construct/Host(s)/Vector(s)]: Proprotein convertase subtilisin/kexin type 9/Mus musculus/Cholesterol regulation/Expression/Mouse/AAV/; Apolipoprotein A1/Human/Cholesterol regulation/Expression/Mouse/AAV/; Apolipoprotein A1 Milano/Human/Cholesterol Regulation/Expression/Mouse/AAV/; GFP/eGFP/Jellyfish/Tracking

Gene/Expression and Fluorescence/Mouse/AAV
Vector(s) [Vector Category/Vector Technical Name]: Adeno-Associated Virus (AAV)/pAAV[Exp]-EF1A>hAPOA1[NM_001318018.2]:IRES:EGFP:WPRE (VB240111-1325zet)/; Adeno-Associated Virus (AAV)/PCSK9-AAV/; Adeno-Associated Virus (AAV)/pAAV[Exp]-EF1A>hAPOA1-Milano:IRES:EGFP:WPRE
Cell line(s) Used [Cell Line Type/Cell Line Technical Name]: Leukocytes/Human
Animal Use: Yes
Materials introduced into Animals [Animal Host Species/Biohazardous Material/Route of Administration/Restraint/Animal Experimental Procedures/PPE/Animal Housing/Agent Shedding/Special Practices & Procedures]: Mouse/Viral Vector - Adeno-Associated Virus (AAV)/I.P./Scruffing under anesthesia /ABSL1/Disposable glove, lab coat, eye protection/ABSL1/Yes

Risk Assessment/Discussion:

Dr. Gensel has submitted an amendment to his current IBC protocol entitled *Lipid Biomarkers after Spinal Cord Injury*. In this amendment, Dr. Gensel seeks to update various administrative details and add a new project utilizing various new AAV constructs in mice. AAVs will be purchased from 3rd party vendors (AAV-PCSK9 from University of Pennsylvania Vector Core and AAV-hApoA1 and AAV-ApoA1Milano from VectorBuilder). No packaging of AAV will be done by the Gensel laboratory, minimizing risk. AAV will be thawed and transported to DLAR for delivery to anesthetized mice via IP injection in a BSC. 2-4 weeks after AAV delivery, mice will receive spinal cord injury. Blood will be collected pre- and post-injury to assess changes in lipoprotein levels. AAV will be administered to mice using ABSL1 containment. Animals administered AAV will be housed at ABSL1 containment. Personnel will wear disposable gloves, lab coats, and eye protection for all work with AAV and mice. There is an IBC HOLD on corresponding IACUC protocol 2020-3496.

IBC Discussion & Vote:

The amendment to IBC-25-46 (version 22.0) was approved.

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Thomas Chambers initiated the motion. Cheryl Haughton seconded the motion. All IBC members present (10) voted in favor of the motion. Jan Smalle arrived late and was not present to vote.

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Conflicts of Interest: None

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PI: Patrick Sullivan

IBC Protocol Number: IBC-25-68
Protocol Title: Platelet Bioenergetics after Traumatic Brain Injury
Protocol Type: Amendment
Amendment To: Cells or tissues used in research, Genetic constructs
Applicable Guidelines & Regulations: NIH Guidelines Section III-F, UK Administrative Regulation 6.9, UK Administrative Regulation 6.3, OSHA 29 CFR 1910.1030, OSHA Act of 1970 Clause 5(a)(1), NIH Guidelines Section IV-B-7
Maximum Containment Level: Biological Safety Level 2 (BSL2), Animal Biological Safety Level 1 (ABSL1)

Primary Reviewers: C. Haughton, A. Pinto, D. Harrison

Brief Project Overview:

Coagulopathy, or bleeding disorder, after traumatic brain injury (TBI) is a well-documented event, especially after severe TBI. Clinically, moderate-to-severe brain injury results in immediate disturbances in bleeding and other coagulation events. These events are accompanied by distinct changes in platelet function and activation status. Currently, it is unknown whether mild TBI or concussion also results in these types of platelet changes. With over eighty percent of TBIs in the mild category, this is a growing area of investigation.

We have a documented approach to measure platelet activity, specifically energy output or bioenergetics, from blood samples. Our preclinical studies show that platelet bioenergetic profiles are different after TBI and change over time. Furthermore, the measurements can differ whether a mild or severe TBI is sustained. We propose using these same tests on clinical samples from TBI patients early after the injury. The tests are performed on a machine that can measure platelet activity.

We isolate platelets from human blood samples for downstream analysis. We expect that these measurements will show differing levels of platelet activity in blood derived from TBI patients compared to control patients. We also expect the platelet activity levels can change over time. This temporal profile may be used as a biomarker that can inform diagnosis and prognosis of TBI. The results can also be related to inflammatory signals which could provide a therapeutic target.

Animal cell lines will be used for mitochondria studies and seeing how different drugs interact with mitochondria. Depending on the results, we may find a drug treatment that can help mitochondria improve functionality. Animal cell lines will also be used in imaging studies using fluorescent microscope, cell pellets for protein, RNA and DNA isolation.

Summary of Biohazard Materials & Manipulations:

Manipulations Planned: Use of Human Source Material(s), Animal work (breeding, surgeries, etc.), Cell culture, Imaging/Microscopy

Transport: Yes

Materials Transported: Biohazardous Materials

Infectious Agent(s)/Natural Host(s): Human Sourced Materials (RG2-cells, tissues, bodily fluids, organs, etc.)

Source & Nature of Inserted Nucleic Acid(s) [Gene Information/Gene Source/Gene Category/Use of Construct/Host(s)/Vector(s)]: Cre recombinase/Bacterophage/Site-specific recombination-LoxP/Knockdown of LDHa/Mouse/pAAV-MCS; LDHA/Human/Glycolytic gene/Over expression/Human and animal cell lines/pLV[Exp]

Vector(s) [Vector Category/Vector Technical Name]: Adeno-Associated Virus (AAV)AAV5 AAV PHP.eB; Lentivirus/pLV[Exp]-CMV

Cell line(s) Used [Cell Line Type/Cell Line Technical Name]: Human/SHSY5Y; Animal/Primary Neuron and Astrocytes; Animal/Rat brain microvascular endothelial cells; Animal/HAPI Rat Microglial Cell Line; Animal/INS-1 832/3

Animal Use: Yes

Materials introduced into Animals [Animal Host Species/Biohazardous Material/Route of Administration/Restraint/Animal Experimental Procedures/PPE/Animal Housing/Agent Shedding/Special Practices & Procedures]: Mouse/Viral Vector - Adeno-Associated Virus (AAV)/Retroorbital or tail vein/anesthesia/ABSL1/Lab coat, disposable gloves, eye protection/ABSL1/No

Risk Assessment/Discussion:

Dr. Sullivan has submitted an amendment to his current IBC protocol entitled *Platelet Bioenergetics after Traumatic Brain Injury*. This amendment seeks to add two new projects – one utilizing AAV in mice and the other using a lentiviral vector in cell culture. AAV-Cre will be obtained from Addgene and not packaged in Dr. Sullivan's laboratory. AAV-Cre will be administered to mice to knockout LDHa. AAV-Cre will be administered via retro-orbital injection or tail vein injection to anesthetized mice within a BSC. Animals will be housed at ABSL1 containment. PPE will include a lab coat, disposable gloves, and safety gloves. Mice will be sacrificed 2-4 weeks after AAV injections for tissue collection. Downstream assays for collected tissue include mitochondrial isolation, qPCR, western blot, immunohistochemistry, and imaging. In the second new project, Dr. Sullivan's laboratory will purchase lentivirus expressing LDHa from VectorBuilder for transduction of pancreative beta cell line from rats (INS-1 832/2) and primary mouse astrocytes. LDHa is not an oncogene, toxin, or otherwise known to be hazardous. The gene encodes the A subunit of lactate dehydrogenase enzyme and is predominantly found in skeletal muscle. Personnel will wear dedicate lab coat, disposable gloves, and safety glasses. All work will take place within a BSC until samples have been fixed or lysed for downstream applications. After lysis, the Sullivan lab will isolate mitochondria, qPCR, and western blot. After fixation, materials will be used for immunohistochemistry and confocal microscopy. All work with lentivirus will utilize BSL2+ containment. There is an IBC HOLD on corresponding IACUC protocol 2021-3849.

IBC Discussion & Vote:

The amendment to IBC-25-68 (version 14.0) was approved pending minor modifications as listed below:

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ANIMAL RESEARCH – Please add IACUC 2021-3849 to this IBC protocol registration.

SCIENTIFIC SUMMARY -

1. In the “Biohazardous Risks and Mitigations,” section of the amendment, it states that PPE will be used while “handling liquids.” Please remove “handling liquids” and replace with a note that appropriate PPE is always required in the lab.
2. Please add more information about how cells transduced with lentivirus are handled. At what point in your experimental steps is material inactivated (via fixation, lysis, etc.) and safe for work on the open lab bench?

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Doug Harrison initiated the motion. Amelia Pinto seconded the motion. All IBC members present (10) voted in favor of the motion. Jan Smalle arrived late and was not present to vote.

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Conflicts of Interest: None

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New Protocols

PI: Xiaoqi Liu

IBC Protocol Number: IBC-25-118

Protocol Title: Plk1 in prostate cancer lineage plasticity

Protocol Type: New Protocol

Amendment To: N/A

Applicable Guidelines & Regulations: NIH Guidelines Section III-D-1, NIH Guidelines Section III-F-8, NIH Guidelines Section IV-B-7, OSHA Act of 1970 Clause 5(a)(1), OSHA 29 CFR 1910.1030, UK Administrative Regulation 6.3, UK Administrative Regulation 6.9, NIH Guidelines Section III-D-4, NIH Guidelines Section III-E-3, NIH Guidelines Section III-D-2, NIH Guidelines Section III-F

Maximum Containment Level: Biological Safety Level 2 - Enhanced (BSL2+), Animal Biological Safety Level 2 (ABSL2)

Primary Reviewers: C. Haughton, D. Harrison, C. Pickett

Brief Project Overview:

Our research focuses on understanding how prostate cancer becomes more aggressive and stops responding to treatment. We study how tumor cells change their identity, a process called lineage plasticity, which can lead to a difficult-to-treat form known as neuroendocrine prostate cancer (NEPC). To study this, we use a special mouse model that allows prostate tissue to grow under the kidney capsule. In our experiments, we use mouse prostate epithelial cells (mPrECs) from a genetically engineered mouse strain called RPM (Rb1^fl/fl; Trp53^fl/fl; Myc^LSL/LSL). These prostate cells are genetically modified in the lab to either remove PLK1 or overexpress wild-type or mutant PLK1. The modified prostate cells are mixed with mouse urogenital sinus mesenchymal (UGSM) cells, which help support tissue growth. The mixture (called a graft) is then implanted under both kidney capsules of immunodeficient host mice such as NSG or SCID. In additional experiments, grafts will include prostate cells that knocking-down or overexpress specific genes we study — Plk1, NEUROD1, HOXB13, NANOG, BOP1, PHF2, BCL11A, WBP11, BRN2, and OCT4 — along with UGSM cells. To study the role of hormones in tumor growth, some mice will undergo surgical castration or receive a testosterone pellet implant.

We will also use HEK293T cells to make lentivirus for gene modification, and human / mouse prostate cancer cell lines (LNCaP, C4-2, C4-2B, C4-2R, 22Rv1, 22Rv1-R, DU145, PC3, VCaP, MR49F, NCI-H660, TRAMP-C2, NHPrE, UGSM, N2P1, mPrEC) to study the molecular mechanisms. The NIH/3T3 mouse fibroblast cell line will be used to test the effectiveness of shRNA.

By combining these approaches, we aim to uncover how prostate cancer adapts and becomes resistant to therapy, and to identify new treatment targets that can improve outcomes for patients with advanced disease.

This IBC protocol is directly associated with IACUC Protocol #2025-4631, which covers all animal procedures described here.

Summary of Biohazard Materials & Manipulations:

Manipulations Planned: Animal work (breeding, surgeries, etc.), Cell culture, Creation of viral vectors, DNA/RNA isolation/purification, Flow cytometry/Cell sorting, Histology, Imaging/Microscopy, Immunohistochemistry, PCR/qRT-PCR, Propagation of infectious agents, Transfection, Transformation, Use of Human Source Material(s), Use of infectious agents, Use of viral vectors, Bacterial culture, Genetics

Transport: Yes

Materials Transported: Animals, Biohazardous Materials

Infectious Agent(s)/Natural Host(s): Human Sourced Materials (RG2-cells, tissues, bodily fluids, organs, etc.)

Source & Nature of Inserted Nucleic Acid(s) [Gene Information/Gene Source/Gene Category/Use of Construct/Host(s)/Vector(s)]: Plk1 /Mouse and Human /Cell Cycle/Division/Expression/Knockdown/knockout/human cells: LNCaP , C4-2, 22Rv1 ,PC3, NHPrE; mouse cells:

mPrEC, UGSM, NIH3T3; E.coli: DH5alpha, BL21/pLKO.1 FuCRW, FuCRW, pLV-EGFP-Cre, LentiCRISPR v2, PGEX-4T-1/; GFP/Jellyfish/Tag/Expression /human cells: LNCaP , C4-2, 22Rv1 ,PC3, NHPrE; mouse cells: mPrEC, UGSM, NIH3T3/FuCGW, pLV-EGFP-Cre/; Luciferase/Firefly/Tag/Expression /human PCa cells: LNCaP, C42, 22Rv1, DU 145, and PC3/pLV-Luc/; Rb1/Mouse and Human/Regulatory Gene/Knockdown /human PCa cells: LNCaP, mouse prostate epithelia cells (RB1/P53-DKO/myc-KI)/pLKO.1, FuCRW/; P53/Mouse and Human/Regulatory Gene/Knockdown /human PCa cells: LNCaP, mouse prostate epithelia cells (RB1/P53-DKO/myc-KI)/pLKO.1, FuCRW/; Neurod1/Mouse and Human/Oncogene /Expression/Knockdown/knockout/human cells: LNCaP , C4-2, 22Rv1 ,PC3, NHPrE; mouse cells: mPrEC, UGSM, NIH3T3; E.coli: DH5alpha, BL21/pLKO.1 FuCRW, FuCRW, pLV-EGFP-Cre, LentiCRISPR v2, PGEX-4T-1/; HOXB13/Mouse and Human/Oncogene/Expression/Knockdown/knockout/human cells: LNCaP , C4-2, 22Rv1 ,PC3, NHPrE; mouse cells: mPrEC, UGSM, NIH3T3; E.coli: DH5alpha, BL21/pLKO.1 FuCRW, FuCRW, pLV-EGFP-Cre, LentiCRISPR v2, PGEX-4T-1/; Nanog/Mouse and Human/Oncogene/Expression/Knockdown/knockout/human cells: LNCaP , C4-2, 22Rv1 ,PC3, NHPrE; mouse cells: mPrEC, UGSM, NIH3T3; E.coli: DH5alpha, BL21/pLKO.1 FuCRW, FuCRW, pLV-EGFP-Cre, LentiCRISPR v2, PGEX-4T-1/; BOP1/mouse and human/Ribosome biogenesis protein/Expression/Knockdown/knockout/human PCa cells: LNCaP, mouse prostate epithelial cells (RPM)/pLV-puro, FU-CRW, pLKO.1, pGEX-4T-1/; PHF2/Mouse and Human/histone demethylase enzyme/Expression/Knockdown/knockout/human cells: LNCaP , C4-2, 22Rv1 ,PC3, NHPrE; mouse cells: mPrEC, UGSM, NIH3T3; E.coli: DH5alpha, BL21/pLKO.1 FuCRW, FuCRW, pLV-EGFP-Cre, LentiCRISPR v2, PGEX-4T-1/; BCL11A/Mouse and Human/transcription factor/Expression/Knockdown/knockout/human cells: LNCaP , C4-2, 22Rv1 ,PC3, NHPrE; mouse cells: mPrEC, UGSM, NIH3T3; E.coli: DH5alpha, BL21/pLKO.1 FuCRW, FuCRW, pLV-EGFP-Cre, LentiCRISPR v2, PGEX-4T-1/; WBP11/Mouse and Human/splicing factor and a regulatory component of the spliceosome/Expression/Knockdown/knockout/human cells: LNCaP , C4-2, 22Rv1 ,PC3, NHPrE; mouse cells: mPrEC, UGSM, NIH3T3; E.coli: DH5alpha, BL21/pLKO.1 FuCRW, FuCRW, pLV-EGFP-Cre, LentiCRISPR v2, PGEX-4T-1/; BRN2/Mouse and Human/Transcription factor that plays a key role in neuronal differentiation/Expression/Knockdown/knockout/human cells: LNCaP , C4-2, 22Rv1 ,PC3, NHPrE; mouse cells: mPrEC, UGSM, NIH3T3; E.coli: DH5alpha, BL21/pLKO.1 FuCRW, FuCRW, pLV-EGFP-Cre, LentiCRISPR v2, PGEX-4T-1/; 45934/Mouse and Human/transcription factor crucial for maintaining stem cell pluripotency in embryonic stem cells/Expression/Knockdown/knockout/human cells: LNCaP , C4-2, 22Rv1 ,PC3, NHPrE; mouse cells: mPrEC, UGSM, NIH3T3; E.coli: DH5alpha, BL21/pLKO.1 FuCRW, FuCRW, pLV-EGFP-Cre, LentiCRISPR v2, PGEX-4T-1/; AR/Mouse and Human/Androgen Receptor/Expression/Knockdown/knockout/human cells: LNCaP , C4-2, 22Rv1 ,PC3, NHPrE; mouse cells: mPrEC, UGSM, NIH3T3/pLKO.1 FuCRW, FuCRW, pLV-EGFP-Cre, LentiCRISPR v2/; Cre/P1 bacteriophage/recombinase/Expression/mouse prostate epithelial cells/pLV-EGFP-Cre/; Cas9/Streptococcus pyogenes/gene editing system/Expression/to knock-out GOI/human cells: LNCaP, C4-2, 22Rv1, PC3, NHPrE/lentiCRISPR v2/

Vector(s) [Vector Category/Vector Technical Name]: Lentivirus/FU-CGW/; Lentivirus/FU-CRW/; Plasmid/pCMV-VSV-G/; Plasmid/pGEX-4T-1/; Lentivirus/pLV-EGFP-Cre/; Lentivirus/lentiCRISPR v2/; Lentivirus/pLV-Luc/; Lentivirus/pLKO.1

Cell line(s) Used [Cell Line Type/Cell Line Technical Name]: Human/LNCaP/; Human/PC3/; Human/22Rv1/; Human/Du145/; Human/VCaP/; Human/C4-2B/; Human/C4-2R/; Human/MR49F/; Human/22Rv1-R/; Animal/TRAMP-C2/; Human/NHPrE/; Animal/UGSM/; Human/NCI-H660 /; Human/N2P1/; Animal/mPrEC/; Animal/NIH/3T3/; Human/HEK293T

Animal Use: Yes

Materials introduced into Animals [Animal Host Species/Biohazardous Material/Route of Administration/Restraint/Animal Experimental Procedures/PPE/Animal Housing/Agent Shedding/Special

Practices & Procedures]: Mouse/Cells - Human, non-modified/SQ/restrainer/gas anesthesia such as isoflurane/ABSL2/double-layered gloves, lab coats and eye protection/face mask/ABSL1/No/castration; Mouse/Cells - Animal, genetically modified/SQ, subrenal capsule/restrainer/gas anesthesia/xylazine&ketamine/ABSL2/double-layered gloves, lab coats and eye protection/face mask/ABSL1/No/castration; sub-renal capsule implantation; Subcutaneous testosterone pellet implantation; Mouse/Tissue - Human (ex. PDX tumor tissue)/SQ tumor implantation/gas anesthesia such as isoflurane/ABSL2/double-layered gloves, lab coats and eye protection/face mask/ABSL1/No/human tumor inoculation; Mouse/Cells - Human, genetically modified/SQ/restrainer/gas anesthesia such as isoflurane/ABSL2/double-layered gloves, lab coats and eye protection/face mask/ABSL1/No/castration

Risk Assessment/Discussion:

Dr. Liu has submitted a new IBC protocol that covers work described on corresponding IACUC protocol 2025-4631. In this IBC protocol, Dr. Liu's laboratory will utilize both plasmid and lentivirus vectors to modify expression of Plk1 and related genes in human cancer cells and mouse prostate epithelial cells. They will clone genes of interest (*Plk1, NEUROD1, HOXB13, NANOG, BOP1, PHF2, BCL11A, WBP11, BRN2,* and *OCT4*) into pGEX-4T-1 plasmid vector for expression in lab strain E. coli (DH5alpha for plasmid propagation, BL21 for protein production). Recombinant proteins will be purified and tested for kinase activity using [y-^{32}P] ATP to label substrates. This work will be done using BSL1 containment wearing lab coat, nitrile gloves, and safety glasses or face shield. Dr. Liu's laboratory will also produce various 3rd generation lentivirus vectors using a 3rd generation packaging plasmid mix. All work with lentivirus, including production, will use BSL2+ containment. Lentivirus vectors will be used to overexpress and/or knockdown a variety of genes, including known oncogenes. Most of these lentivirus-transduced cells will only be utilized for downstream animal work, however lentivirus-transduced prostate epithelial cells expressing GFP or RFP will be sorted in the FCIM facility using BSL2 containment. Mouse prostate epithelial cells (mPrECs) and urogenital sinus mesenchymal (UGSM) cells will be mixed with collagen and implanted under the renal capsule of SCI or NSG mice. mPrECs and UGSM are genetically modified ex vivo via 3rd generation lentivirus vectors described above. mPrECs are modified to deplete PLK1 or overexpress WT or mutant PLK1, and overexpress WT and mutant genes (HOXB13, BCL11A, PHF2, BOP1, WBP11). Cells will be washed a minimum of 3 times prior to administration to animals. Only genetically modified lentivirus transduced animal cells will be administered to mice in these experiments. Lentivirus vectors will not be administered directly to mice. Human prostate cancer cell lines (LNCaP, C4-2, 22Rv1, DU145, PC3, VCaP, MR49F, 22Rv1-R) and PDX tissues will be used for xenograft studies via subcutaneous implantation. Human prostate cancer cells transduced with 3rd generation lentivirus or plasmid vectors will be administered to anesthetized mice. PDX tissues are not genetically modified. All work with lentivirus-transduced cells and PDX tissues will be done using ABSL2 containment. Mice will be anesthetized for renal capsule implantation and subcutaneous injections. These materials will be administered to mice within a BSC. Mice will be housed at ABSL1 containment and undergo in-vivo bioluminescence imaging to monitor tumor burden. Dr. Liu has a number of currently approved IBC protocols that describe very similar work. The biohazardous materials and procedures described here are not new to the Liu laboratory. The corresponding IACUC protocol, 2025-4631, has an IBC HOLD.

Jan Smalle arrived at 12:21pm during discussion of Dr. Liu's IBC protocol

IBC Discussion & Vote:

The protocol IBC-25-118 (version 8.0) was approved pending minor modifications as listed below:

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CELL LINES – Cells in Use Table: Please add LuCAP PDX to the list of cell lines to ensure congruency with the corresponding IACUC.

SCIENTIFIC SUMMARY -

1. Recombinant Plk1 protein is described as used for kinase assays. What assays and/or manipulations are planned for other recombinant proteins produced via E. coli?
2. Please briefly expand the description of lentivirus packaging.
3. Please describe procedures for any downstream assays (for example, proliferation assays, invasion assays, etc.) using cells or biohazardous materials prior to inactivation. Please note at what point in the experimental procedures biohazardous materials are inactivated (ex. via fixation, lysis, etc.).
4. Will tumor or mouse tissues be harvested after xenograft? Please describe handling and assays to the point of inactivation.

*

Doug Harrison initiated the motion. Carol Pickett seconded the motion. All IBC members present (11) voted in favor of the motion.

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Conflicts of Interest: None

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PI: Lyse Norian
IBC Protocol Number: IBC-25-137
Protocol Title: Translational Immuno-oncology studies
Protocol Type: New Protocol
Amendment To: N/A
Applicable Guidelines & Regulations: NIH Guidelines Section III-D-1, NIH Guidelines Section III-F-1, NIH Guidelines Section IV-B-7, OSHA Act of 1970 Clause 5(a)(1), UK Administrative Regulation 6.3, UK Administrative Regulation 6.9, OSHA 29 CFR 1910.1030
Maximum Containment Level: Biological Safety Level 2 (BSL2), Animal Biological Safety Level 1 (ABSL1)

Primary Reviewers: C. Haughton, D. Harrison, Y. Wu

Brief Project Overview:

Immune-based therapies for cancer patients are gaining widespread acceptance in clinical use. Despite this, too many patients still fail to respond. The Norian lab is focused on understanding how diet and obesity influence immune responses to solid cancers, as well as the downstream effects on immunotherapy outcomes.

Obesity is a major health crisis in the United States. It is estimated that today ~40% of all U.S. adults (about 129 million people) have obesity, a percentage predicted to increase to 50% by 2050. Numerous studies have documented associations between obesity and the increased risk of at least 13 different kinds of cancer. Despite the high national prevalence of obesity, researchers have surprisingly little understanding of the mechanistic drivers of obesity-associated alterations in anti-tumor immunity and immunotherapy outcomes. Identifying these pathways should therefore foster the development of new, more efficacious and life-saving therapies for patients with cancer. Diets can be detrimental (such as unhealthy diets that promote obesity) or beneficial (such as those that reduce inflammation), so a major focus of the lab is understanding how diet changes influence cancer progression, immune responses, and cancer therapy outcomes.

Research in the Norian lab uses a variety of human and murine cells lines that permit us to examine the effects of diets, dietary additives, and obesity on cancer cell survival, proliferation, and dissemination in vitro (in cell culture in the lab) and in vivo (in live animals). We also study cancer/immune system interactions in the presence or

absence of cancer therapies. A major goal of our work is to identify strategies that can help cancer patients live longer, healthier lives.

Summary of Biohazard Materials & Manipulations:

Manipulations Planned: Animal work (breeding, surgeries, etc.), Cell culture, Flow cytometry/Cell sorting, Histology, Imaging/Microscopy, Immunohistochemistry, PCR/qRT-PCR, Transfection, Use of viral vectors

Transport: No

Materials Transported: Animals, Biohazardous Materials

Infectious Agent(s)/Natural Host(s): Human Sourced Materials (RG2-cells, tissues, bodily fluids, organs, etc.)

Source & Nature of Inserted Nucleic Acid(s) [Gene Information/Gene Source/Gene Category/Use of Construct/Host(s)/Vector(s)]: hexokinase 2/Mus musculus/sugar kinase family/murine cell line/creation for in vitro and in vivo use/Mus musculus cells/commercial pre-packaged, replication deficient, lentiviral particles; OXCT1/Mus musculus/mitochondrial enzyme/stable cell line creation for in vitro and in vivo use/Mus musculus cells/commercial pre-packaged, replication-deficient (3rd generation) lentiviral particles; Luciferase/Firefly Tag/Expression/Mus musculus cells/LV-CMV-Firefly luciferase

Vector(s) [Vector Category/Vector Technical Name]: Lentivirus/Mouse shRNA HK2 lentiviral particles Origene #TL516814V; Lentivirus/Mouse shRNA Oxct1 lentiviral particles Origene #TL503802V; Lentivirus/LV-CMV-Firefly -luciferase

Cell line(s) Used [Cell Line Type/Cell Line Technical Name]: Animal/Renca; Animal/4T1; Animal/E0771; Animal/CMS5; Human/SKOV3; Human/OVCAR3; Animal/RAW246.7; Animal/B16

Animal Use: Yes

Materials introduced into Animals [Animal Host Species/Biohazardous Material/Route of Administration/Restraint/Animal Experimental Procedures/PPE/Animal Housing/Agent Shedding/Special Practices & Procedures]: Mouse/Cells - Animal, genetically modified/SC or intra-renal challenge of transfected cell lines/anesthesia/ABSL1/gloves, lab coat, face mask, eye protection/ABSL1/No/Previously transfected cells will be grown in sterile culture, harvested, then injected into live mice. PPE as above. No other special procedures needed.

Risk Assessment/Discussion:

Dr. Norian is a new PI here at UK and has submitted an IBC protocol request for her project entitled *Translational Immuno-oncology studies*. In Dr. Norian's laboratory, they will utilize a number of biohazardous materials while they work to examine the effects of diet and obesity on cancer. They will purchase pre-made lentiviral vectors from Origene and Kerafast that will express luciferase or knockdown via shRNA mouse HK2 and mouse Oxct1. Cells will be transduced with lentivirus using BSL2+ containment. PPE will include dedicated laboratory coat or disposable gown, disposable gloves, and eye protection. No open bench work is allowed. Lentivirus-transduced mouse cells will be administered to anesthetized mice via subcutaneous injection or intra-renal injection using ABSL1 containment. Cells will be washed a minimum of 3-times prior to being administered to mice within a BSC. Afterwards, blood will be collected for downstream analysis and mice will undergo live imaging in the UK Light Microscopy Core facility. Ultimately, mice will be euthanized and tissue harvested for flow cytometry, RNA isolation, and western blot. Cells for flow cytometry will be stained and run on a flow cytometer in the UK FCIM core facility. Cells may be unfixed or fixed (Cytofix kit). Dr. Norian is still working to set up her laboratory here at UK and is awaiting delivery of BSC and other lab equipment.

IBC Discussion & Vote:

The protocol IBC-25-137 (version 5.0) was approved pending minor modifications as listed below:

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SCIENTIFIC SUMMARY -

1. Please review the PPE descriptions to ensure the inclusion of eye protection for all manipulations described. Please clarify where face shields are utilized, if applicable.
2. Describe all procedures and manipulations of cells following transduction up to the point of biohazard inactivation.
3. Given the selection step for transduced cells before introduction into mice, please confirm the number of media changes between transduction and mouse injection. Describe how these washes are disinfected and disposed of.
4. Include a description of how mouse work without anesthesia is done safely using only manual restraint.

*

Doug Harrison initiated the motion. Yadi Wu seconded the motion. All IBC members present (11) voted in favor of the motion.

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Conflicts of Interest: None

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PI: Steven Schwarze

IBC Protocol Number: IBC-25-140
Protocol Title: MLS Teaching Labs
Protocol Type: New Protocol
Amendment To: N/A
Applicable Guidelines & Regulations: NIH Guidelines Section IV-B-7, OSHA Act of 1970 Clause 5(a)(1), OSHA 29 CFR 1910.1030, UK Administrative Regulation 6.3, UK Administrative Regulation 6.9
Maximum Containment Level: Biological Safety Level 2 (BSL2)

Primary Reviewers: C. Pickett, B. Nelson, A. Hunt

Brief Project Overview:

Students and faculty in these labs are in the Medical Laboratory Science professional program at UK. They are being trained to work in the clinical laboratory environment. As such they utilize patient/human specimens from venipuncture obtained in a de-identified fashion from UKHC. They also are trained to identify various bacteria that infect humans, sourced from the UKHC clinical laboratory, which they would see in a clinical laboratory.

Summary of Biohazard Materials & Manipulations:

Manipulations Planned: Bacterial culture, Histology, PCR/qRT-PCR, Immunohistochemistry, Propagation of infectious agents, DNA/RNA isolation/purification, Imaging/Microscopy, Use of infectious agents, Use of Human Source Material(s)
Transport: No
Materials Transported: N/A
Infectious Agent(s)/Natural Host(s): Staphylococcus aureus (RG2-bacteria)/Humans/; Acinetobacter baumanii

(RG2-bacteria)/Human/; Bacillus cereus (RG2-bacteria)/humans/; Campylobacter jejuni (RG2-bacteria)/humans/; Candida albicans (RG2-fungus)/humans/; Citrobacter freundii (RG1-bacteria)/humans/; Eikenella corrodens (RG2-bacteria)/humans/; Enterobacter spp. (RG2-bacteria)/humans/; Enterococcus faecalis (RG2-bacteria)/humans/; Escherichia coli (RG2-bacteria)/humans/; Haemophilus influenzae (RG2-bacteria)/humans/; Klebsiella spp. (RG2-bacteria)/humans/; Listeria monocytogenes (RG2-bacteria)/humans/; Micrococcus luteus (RG2-bacteria)/humans/; Morganella morganii (RG2-bacteria) /humans/; Neisseria mucosa (RG2-bacteria)/humans/; Proteus mirabilis (RG2-bacteria)/humans/; Proteus vulgaris (RG2-bacteria)/humans/; Pseudomonas aeruginosa (RG2-bacteria)/humans/; Salmonella enterica (RG2-bacteria)/humans/; Serratia marcescens (RG2-bacteria)/humans/; Shigella flexneri (RG2-bacteria)/humans/; Staphylococcus epidermidis (RG1-bacteria)/humans/; Streptococcus agalactiae (RG2-bacteria)/humans/; Streptococcus pyogenes (RG2-bacteria)/humans/; Streptococcus pneumoniae (RG2-bacteria)/humans/; Streptococcus bovis (RG1-bacteria)/humans/; Lactobacillus acidophilus (RG1-bacteria)/human, environmental/; Human Sourced Materials (RG2-cells, tissues, bodily fluids, organs, etc.)/De-indentified patient blood samples
Source & Nature of Inserted Nucleic Acid(s) [Gene Information/Gene Source/Gene Category/Use of Construct/Host(s)/Vector(s)]: N/A
Vector(s) [Vector Category/Vector Technical Name]: N/A
Cell line(s) Used [Cell Line Type/Cell Line Technical Name]: N/A
Animal Use: No
Materials introduced into Animals [Animal Host Species/Biohazardous Material/Route of Administration/Restraint/Animal Experimental Procedures/PPE/Animal Housing/Agent Shedding/Special Practices & Procedures]: N/A

Risk Assessment/Discussion:

Dr. Schwarze has submitted an IBC protocol for the work with biohazardous materials in the MLS Teaching Lab. This teaching laboratory is part of the UK Medical Laboratory Science Professional Program and seeks to train students to work in a clinical laboratory. The MLS Teaching Lab uses patient blood specimens and microbes derived from patients sourced from the UK Healthcare Clinical Lab. MLS students are instructed in the principles of microbiology, including the testing and identification of pathogenic microorganisms. The MLS teaching lab will only utilize RG2 microorganisms that have been previously cultured and identified by UK Healthcare Clinical Laboratory. Students are instructed to perform various biochemical and staining procedures. Students are required to completed online training prior to the start of the MLS program, in addition to in-person training provided in the course. Students are provided with disposable lab coat, safety glasses, and gloves that must be worn during all work in the lab. Students are trained on the various microbes in use, their signs/symptoms of potential exposure, and what to do in case of spill/incident. All work will be conducted at BSL2 containment. This teaching lab does not involve any recombinant/synthetic nucleic acid materials or work with animals.

IBC Discussion & Vote:

The protocol IBC-25-1140 (version 8.0) was approved pending minor modifications as listed below:

*

GENERAL INFORMATION - Manipulations Planned: DNA/RNA isolation/purification and PCR/qRT-PCR are selected here but not described in the Scientific Summary. Please uncheck these boxes if not applicable or briefly describe these manipulations in the Scientific Summary below.

SCIENTIFIC SUMMARY –

1. Please provide background characteristics of the bacterial strains sourced from the UK clinical lab, including whether they are clinical isolates or were obtained from ATCC. If this information is unavailable, please provide any available details about each strain's antibiotic sensitivity/resistance.
2. Manipulations planned include nucleic acid isolation, immunohistochemistry, and PCR. The summary currently describes biochemical assays and staining procedures but does not detail other manipulations planned. Please include a description of these procedures.

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Carol Pickett initiated the motion. Arthur Hunt seconded the motion. All IBC members present (11) voted in favor of the motion.

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Conflicts of Interest: None

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Renewals

PI: Terrence Barrett

IBC Protocol Number: IBC-25-119
Protocol Title: Regulation of Intestinal Stem Cell Activation in Colitis
Protocol Type: Renewal
Amendment To: N/A
Applicable Guidelines & Regulations: NIH Guidelines Section III-D-1, NIH Guidelines Section III-E-1, NIH Guidelines Section III-F, NIH Guidelines Section III-F-1, NIH Guidelines Section IV-B-7, OSHA Act of 1970 Clause 5(a)(1), OSHA 29 CFR 1910.1030, UK Administrative Regulation 6.3, UK Administrative Regulation 6.9
Maximum Containment Level: Biological Safety Level 2 - Enhanced (BSL2+), Animal Biological Safety Level 2 (ABSL2)
Primary Reviewers: C. Haughton, Y. Wu, T. Chambers

Brief Project Overview:

Patients with inflammatory bowel disease (IBD) have a high risk of developing colorectal cancer. Over 90% of colorectal cancers contain mutations in the DNA of the cancerous cells. These mutations are known and they belong to genes that are part of a specific chain of events (a pathway) that start when the immune system becomes inflamed during colitis and acts on these intestinal cells, in particular adult intestinal stem cells. Our goal is to understand the molecular steps in this pathway. We propose to stimulate the immune system in various mouse models of colitis, to use different types of mice that have specific genes altered or inactivated, and to manipulate cultured cells in order to map and understand the pathway from inflammation to cancer. Understanding this pathway could help develop or improve treatments for patients with inflammatory bowel disease and reduce their risk of colorectal cancer.

Summary of Biohazard Materials & Manipulations:

Manipulations Planned: Animal work (breeding, surgeries, etc.), Bacterial culture, Cell culture, DNA/RNA isolation/purification, Flow cytometry/Cell sorting, Genetics, Histology, Immunohistochemistry, PCR/qRT-PCR, Proteomics, Transfection, Transformation, Use of Human Source Material(s), Use of viral vectors
Transport: Yes
Materials Transported: Animals, Biohazardous Materials
Infectious Agent(s)/Natural Host(s): Citrobacter rodentium (RG1-bacteria)/rodent /; Escherichia coli (RG2-

bacteria)/rodent /; Human Sourced Materials (RG2-cells, tissues, bodily fluids, organs, etc.)/Human/; Campylobacter jejuni (RG2-bacteria)/Poultry, cattle, sheep, rodents
Source & Nature of Inserted Nucleic Acid(s) [Gene Information/Gene Source/Gene Category/Use of Construct/Host(s)/Vector(s)]: beta catenin /Human/Inflammation signaling /knockdown and overexpression of endogenous beta catenin/cultured human cell lines/pLV-EF1a-MCS-IRES-GFP/; p110/Human/Inflammation signaling /knockdown of endogenous p110 /cultured human cell lines/pGIPZ/; NOX1 /Human/redox regulation /knockdown of endogenous NOX1 /cultured human cell lines/CD510B-1/; p85 alpha /Human/inflammation signaling /knockdown of endogenous p85/cultured human cell lines/pGIPZ/; P13K/Human/kinase involved in proliferation, migration /knockdown of endogenous P13K/cultured human cell lines/pGIPZ/; PTEN /Human/metabolism signaling pathway /knockdown of endogenous PTEN/cultured human cell lines/pLV-EF1a-MCS-IRES-GFP/; YAP/Human/metabolism signaling pathway /knockdown and overexpression of endogenous YAP /cultured human cell lines/pLV-EF1a-MCS-IRES-GFP/; p38/Human/metabolism signaling pathway /knockdown of endogenous p38 /cultured human cell lines/pLV-EF1a-MCS-IRES-GFP/; tfam/Human/Mitochondrial biogenesis/silencing of endogeneous tfam/cultured human cell lines/Lentivirus/; Risp/Human/Mitochondrial complex function/Silencing of endogenous Risp/cultured human cell lines/Lentivirus/; QPC/Human/Mitochondrial complex function/Silencing of endogenous QPC/Cultured human cell lines/Lentivirus/; Snail/Human/epithelial-to-mesenchymal transition/Silencing of endogenous Snail/Cultured human cell lines/Lentivirus/; Yap/Human/metabolism signaling pathway/Silencing of endogenous Yap/Cultured human cell lines/Lentivirus
Vector(s) [Vector Category/Vector Technical Name]: Lentivirus/pLV-EF1a-MCS-IRES-GFP-Puro /; Lentivirus/CD510B-1 /; Lentivirus/pGIPZ /; Plasmid/pYX-Asc
Cell line(s) Used [Cell Line Type/Cell Line Technical Name]: Human/Intestinal enteroid/colonoid /; Animal/Intestinal enteroid/colonoid /; Human/NCM /; Human/HT29 /; Human/SW-480 /; Human/HEK293 /; Human/RKO /; Human/Caco-2
Animal Use: Yes
Materials introduced into Animals [Animal Host Species/Biohazardous Material/Route of Administration/Restraint/Animal Experimental Procedures/PPE/Animal Housing/Agent Shedding/Special Practices & Procedures]: Mouse/Citrobacter rodentium (RG1-bacteria)/Oral-Gastric Gavage/Restrained by hand in a vertical position, immobilzing head and neck/ABSL2/Gloves, Disposable Lab Coat, Face Shield/ABSL2/Yes/Citrobacter rodentium is pathogenic to and transmissible among mice, but is not pathogenic to humans. Gavage needles will be loaded with bacteria in a BSC in ABSL2 DLAR procedure room./; Mouse/Escherichia coli (RG2-bacteria)/Intragastrically/Restrained by hand in a vertical position, immobilzing head and neck/ABSL2/Gloves, Disposable Lab Coat, Dust Mask, Shoe Covers, Hair Net/ABSL2/Yes/The work with the strains is handled under BSL-2 conditions, which requires wearing PPE (lab coat, dust mask, gloves, shoe covers and hair net), in the mouse room cages and bedding should be autoclaved and carcasses incinerated. We should use microisolator cages that have dedicated air flow which is hepa filtered, so spread between caged does not occur (E. coli transmission would be fecal oral, not aerosol anyway). However, animal care takers should change gloves between cages when changing bedding./; Mouse/Campylobacter jejuni (RG2-bacteria)/Oral Gavage/Gently restrain mouse and insert 20-22G gavage needle slowly into esophagus, avoiding force/ABSL2/Gloves, Disposable Lab Coat, Face Shield/ABSL2/Yes//; Mouse/Human blood or other bodily fluids/Oral Gavaging of Human fecal matter/Gently restrain mouse and insert 20-22G gavage needle slowly into esophagus, avoiding force/ABSL2/Gloves, Disposable Lab Coat, Face Shield/ABSL2/Yes/The work with human IBD stool is handled under BSL-2 conditions, which requires wearing PPE (lab coat, dust mask, gloves, shoe covers and hair net), in the mouse room cages and bedding should be autoclaved and carcasses incinerated. We should use microisolator cages that have dedicated air flow which is hepa filtered, so spread between caged does not occur (Human fecal trasplantation will occur orally via gavaging needle, so aerosol transmission is not involved). However, animal care takers should change gloves between cages when changing bedding.

Risk Assessment/Discussion:

Dr. Barrett has submitted a renewal of his current IBC protocol entitled *Regulation of Intestinal Stem Cell Activation in Colitis*. Dr. Barrett's current IBC protocol will expire on November 9, 2025. In this renewal, Dr. Barrett describes work with a number of biohazardous materials, including *Citrobacter rodentium* to induce colitis in mice, human colon biopsy samples and other human sourced materials, *E. coli* Nissle 1917 and *E. Coli* Nissle 1917 cydA mutant (nonpathogenic, commensal strains of *E. coli*) in mice, human fecal transplant in mice, propagation and infection of mice with *C. jejuni* (RG2 bacteria), lentivirus transduction of cells, and processing of human blood samples. *C. rodentium* is a RG1 bacteria that is not known to cause disease in humans but is the causal agent of transmissible murine gastrointestinal disease. The strains of *E. coli* in use (1917 Nissle and 1917 Nissle cydA) are probiotic strains of *E. coli* and has been studied for its ability to improve chronic inflammatory bowel diseases. *C. jejuni* is a RG2 bacteria that causes gastroenteritis. Common symptoms in humans include diarrhea, abdominal pain, fever, malaise, nausea, and vomiting. All animal work (*C. Rodentium, E. coli* Nissle 1917 and Nissle 1917 cydA, *C. jejuni*, and human fecal matter for fecal transplant) will take place using ABSL2 containment and housing. All biohazardous materials are administered to mice via oral gavage, which greatly minimizes risk of accidental needlestick in lab personnel. Personnel will wear gloves, disposable lab coats, and face shields for all animal work. 3rd generation lentivirus is packaged in house and used for knocking down expression of the Wnt/B catenin signaling pathway (e.g. PI3K, p110, p85, Beta-catenin, NOX1) and proteins participating in regulation of mitochondria metabolism (Tfam, RISP, QPC) as well as transcriptional factors YAP and Snail. Lentivirus work will be completed using BSL2+ containment, including use of dedicated lab coat, gloves, and eye protection and use of BSC. After transduction, cells are lysed in RIPA buffer for downstream manipulation using BSL1 containment on the open bench.

IBC Discussion & Vote:

The protocol IBC-25-119 (version 8.0) was approved pending minor modifications as listed below:

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ANIMAL RESEARCH – Animals with Biohazards table: The description provided in the Special Practices/Procedures column of the table for the E. coli and fecal matter entries is not consistent with DLAR ABSL2 practices. Please update this table to ensure DLAR ABSL2 practices listed here are accurate.

LOCATIONS – Research Locations table: The descriptions in the Procedures column for entries HSRB 227, 234, 238, and 242 all state that cell culture and lentiviral work will be done. However, BSCs are only listed in HSRB 227 and 238. Please update the Biosafety Level (BSL) and Procedures to accurately reflect the work that is being done for each location entry. Lentiviral manipulations must be performed in a certified BSC at BSL2+.

SCIENTIFIC SUMMARY -

1. In section 5) Cell Culture, it states "Lentiviral packaging vectors are purchased from Biosettia Inc., San Diego, CA and would be used for generation of lentiviral particles using their standard protocol (https://biosettia.com/download/ protocols/biosettia-lentiviral-gen e-expression-vector-manual.pdf). Please briefly and clearly outline the steps your lab uses for production of lentivirus. For example, the provided protocol in the link includes "optional" procedures, such as concentrating by centrifugation, and it is unclear if your lab is following this step. Note that if you are concentrating the virus, this is a biosafety consideration where aerosol mitigation and disinfection of equipment between steps should be described.
2. In section 4) Analyzing Human Tissues, please briefly describe how colonic crypts are manually isolated.
3. In section 8) Oxygen sensing E.coli for microbiome-mediated metabolic studies, please briefly expand on details of microbial profiling.

4. In section 9) Reconstitution of Germ-free (GF) IL-10-/- 129SvEv mice with human fecal transplant, briefly make note of disinfection procedures following manipulations.
5. Please briefly describe how the anaerobic chamber is disinfected after use.
6. Please clarify what "appropriate disinfectant" is utilized. Be specific.

*

Thomas Chambers initiated the motion. Yadi Wu seconded the motion. All IBC members present (11) voted in favor of the motion.

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Conflicts of Interest: None

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PI: Nicole Gauthier

IBC Protocol Number: IBC-25-127
Protocol Title: Fusarium Disease Management on Hemp
Protocol Type: Renewal
Amendment To: N/A
Applicable Guidelines & Regulations: NIH Guidelines Section IV-B-7, OSHA Act of 1970 Clause 5(a)(1), UK Administrative Regulation 6.3, UK Administrative Regulation 6.9
Maximum Containment Level: Biological Safety Level 2 - Plants (BSL2-P)
Primary Reviewers: A. Hunt, J. Smalle, T. Chambers

Brief Project Overview:

Fusarium head blight is an emerging disease on hemp; it is devastating on wheat and corn. Recent studies have found yield losses on hemp flowers and grain. This can be critical for the emerging hemp industry because hemp is under investigation for animal feed and market expansion. Fusarium species are collected from grower fields via plant leaves, flowers, and grain. Fungi are isolated and identified via microscopy and DNA sequencing. These isolates are sometimes used for inoculation of plants for pathogenicity studies and disease management experiments. All plant material is autoclaved after use. Isolates and infected material are contained throughout experimental processes. Fusarium spp. that cause head blight are not human or animal pathogens.

Summary of Biohazard Materials & Manipulations:

Manipulations Planned: Plant work, PCR/qRT-PCR, Propagation of infectious agents, Use of infectious agents, Imaging/Microscopy, DNA/RNA isolation/purification
Transport: Yes
Materials Transported: Plants, Biohazardous Materials
Infectious Agent(s)/Natural Host(s): Fusarium spp. (RG2-fungus)/Hemp plants, grower fields - plant material collected from grower fields and research fields (South Farm, North Farm, Quicksand); Fusarium graminearum (RG1-fungus)/ - plant material collected from grower fields and research fields (South Farm, North Farm, Quicksand)
Source & Nature of Inserted Nucleic Acid(s) [Gene Information/Gene Source/Gene Category/Use of Construct/Host(s)/Vector(s)]: N/A
Vector(s) [Vector Category/Vector Technical Name]: N/A
Cell line(s) Used [Cell Line Type/Cell Line Technical Name]: N/A
Animal Use: No

Materials introduced into Animals [Animal Host Species/Biohazardous Material/Route of Administration/Restraint/Animal Experimental Procedures/PPE/Animal Housing/Agent Shedding/Special Practices & Procedures]: N/A

Risk Assessment/Discussion:

Dr. Gauthier has submitted a renewal of her IBC protocol entitled *Fusarium Disease Management on Hemp*. Dr. Gauthier's current IBC protocol will expire on January 3, 2026. Dr. Gauthier's laboratory seeks to explore Fusarium head blight, an emerging disease of hemp. Field samples will be brought back to Dr. Gauthier's laboratory and fungal isolates are obtained for downstream analysis including microscopy and DNA extraction. Fungal isolates will also be used for inoculation of plants in greenhouse experiments. Greenhouse space is not shared. Inoculated plants are labeled, and plants are rated for disease severity. Samples may be taken for downstream analysis. All plants and soil are autoclaved at the end of experiment. While the fungal pathogens in use are not known to be human pathogens, *Fusarium* spp. have been known to be opportunistic pathogens in immunocompromised hosts. Work will be completed using BSL2-P containment. Lab coat, disposable gloves, and eye protection will be worn for both lab and greenhouse work.

IBC Discussion & Vote:

The protocol IBC-25-127 (version 10.0) was approved pending minor modifications as listed below:

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SCIENTIFIC SUMMARY –

1. Please expand on disinfection procedures of greenhouse spaces.
2. It is noted that these fungal species spread by airborne spores. What steps are taken to mitigate the spread of these spores? Is there additional surveillance or notification practices for nearby plants and greenhouses while the agent(s) is in use?
3. Is 70% ethanol a suitable disinfectant for fungal species in use? Please provide documentation/reference.

*

Arthur Hunt initiated the motion. Jan Smalle seconded the motion. All IBC members present (11) voted in favor of the motion.

*

Conflicts of Interest: None

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PI: Sarah D'Orazio

IBC Protocol Number: IBC-25-133
Protocol Title: Role of cell wall enzymes in the virulence of Streptococcus species
Protocol Type: Renewal
Amendment To: N/A
Applicable Guidelines & Regulations: NIH Guidelines Section IV-B-7, OSHA Act of 1970 Clause 5(a)(1), UK Administrative Regulation 6.3, UK Administrative Regulation 6.9, NIH Guidelines Section III-D-1, NIH Guidelines Section III-D-4
Maximum Containment Level: Biological Safety Level 2 (BSL2), Animal Biological Safety Level 2 (ABSL2)

Primary Reviewers: C. Haughton, C. Pickett, A. Pinto

Brief Project Overview:

This project is being performed in collaboration with Dr. Natalia Korotkova in the Dept. of Molecular and Cellular Biochemistry. She has been studying the cell wall of Streptococcus pyogenes. Streptococcus pyogenes are bacteria that cause a wide spectrum of disease in humans ranging from mild self limiting cases of "strep throat" to more invasive, life threatening infections of the blood. Dr. Korotkova's lab has generated a series of bacterial strains that each lack one of the key components in the enzymatic pathway (Gac proteins) that modify the cell wall surface in Streptococci. We predict that these components are critical for allowing he bacteria to survive and cause disease in humans. She is also interested Streptococcus agalactiae (commonly referred to as "group B Streptococcus" or GBS) which is a common cause of neonatal meningitis and is frequently isolated from diabetic wounds. The goal of this study is to test each of her strains in a mouse model of infection to find out which components are essential for the disease process. Identification of these crucial components would provide new targets for the development of novel antibiotics.

Summary of Biohazard Materials & Manipulations:

Manipulations Planned: Animal work (breeding, surgeries, etc.), Bacterial culture, Cell culture, Use of infectious agents
Transport: Yes
Materials Transported: Biohazardous Materials
Infectious Agent(s)/Natural Host(s): Streptococcus pyogenes (RG2-bacteria)/Human; Streptococcus agalactiae (RG2-bacteria)/Human
Source & Nature of Inserted Nucleic Acid(s) [Gene Information/Gene Source/Gene Category/Use of Construct/Host(s)/Vector(s)]: N/A
Vector(s) [Vector Category/Vector Technical Name]: N/A
Cell line(s) Used [Cell Line Type/Cell Line Technical Name]: Primary Immune Cells/Animal
Animal Use: Yes
Materials introduced into Animals [Animal Host Species/Biohazardous Material/Route of Administration/Restraint/Animal Experimental Procedures/PPE/Animal Housing/Agent Shedding/Special Practices & Procedures]: Mouse/Streptococcus agalactiae (RG2-bacteria)/wound model, i.p./isoflurane anesthesia/ABSL2/lab coat, gloves, eye protection/ABSL2/No/isoflurane anesthesia, hair removal with shaving/Nair, aseptic skin punch biopsy, tegaderm adhesive application/; Mouse/Streptococcus pyogenes (RG2-bacteria)/i.p./Restrained by Hand (See Special Practices/Procedures)/ABSL2/lab coat, gloves, eye protection/ABSL2/No/Since the use of anesthesia is not an option for our S. pyogenes studies, extra care will be taken to ensure that a stable restraining hold is achieved prior to performing i.p. injection of bacterial solutions. The procedure for the one handed restraint that will be used as is follows: 1) Working in a BSC, a tuberculin syringe will be filled with the bacterial solution. Typical injection volumes per mouse are 100-200 µl. 2) The cap of the needle will be placed on a disposable absorbent pad, and the filled syringe will be placed on top of the cap, perpendicular, such that the sterile needle is not touching anything. 3) Off to the side, but within arms reach, the mouse will be removed from the cage by its tail and placed on the wire top. This is typically done with one's non-dominant hand. 4)Using the index finger and thumb of dominant hand, the investigator will grab the mouse by the scruff and then extend the grasp down the mouse back by incorporating the middle finger. This hold is tight enough to immobilize the front paws. The tail will be pulled back and tucked under the 4th and 5th fingers, effectively immobilizing the back legs of the mouse.Adequate control of the head will assessed, making sure that the mouse cannot move it's head, but still can breathe. Only if the mouse is fully restrained will the investigator proceed with picking up the syringe and performing the i.p. injection.All investigators performing this procedure

will be trained by Dr. D'Orazio and will practice the one-handed restraint many times on mice not being used for these studies before performing an experiment. The i.p. injections will be supervised by Dr. D'Orazio until she is confident that each person is performing the procedure correctly, and then they will work independently.

Risk Assessment/Discussion:

Dr. D'Orazio has submitted a renewal for her IBC protocol entitled *Role of cell wall enzymes in the virulence of Streptococcus species*. This is a collaborative project with Dr. Natalia Korotkova in the Department of Molecular and Cellular Biochemistry. Dr. D'Orazio's current IBC protocol will expire on November 9, 2025. Dr. Korotkova's laboratory will provide wildtype and mutant *Streptococcus* strains (IBC-24-376, expires 03/22/2027). Bacteria will be transported from Dr. Korotkova's laboratory to Dr. D'Orazio's laboratory in a leakproof, shatterproof, secondary container marked with a biohazard symbol. *Streptococcus* will be propagated in Dr. D'Orazio's laboratory and used as inoculum for primary immune cells harvested from mice or infection of mice. Procedures that may generate aerosols (ex. Homogenization) will be completed in a BSC or within primary containment (sealed safety caps during centrifugation). Laboratory work with *Streptococcus* species will use BSL2 containment. For animal experiments, bacteria will be transported to DLAR in leakproof, shatterproof secondary container. Syringes will be filled and mice restrained by hand for IP injection within a BSC. Dr. D'Orazio adds additional information regarding the use of anesthesia and potential effects this may have on immune cells, a key part of her studies. Since they will not utilize anesthesia when injecting mice, additional care is taken to ensure all researchers are trained by Dr. D'Orazio specifically on appropriate hand-held restraint. IP injections will be supervised by Dr. D'Orazio until she is confident that each user is performing the procedure correctly. All animal work will be conducted using ABSL2 containment, and infected mice will be housed at ABSL2 housing. After 1-3 days, mice are euthanized and tissues collected for transport back to the PI's primary lab. Tissues will be homogenized within a BSC and serial dilutions made for colony counts. A second similar project will utilize *Streptococcus* in a diabetic wound model. Mice will be anesthetized, and a circular wound will be created in the epidermis. GBS bacteria (or PBS) will be pipetted onto the wound. Wounds will be wrapped and mice returned to cages for up to 1 week. This work will be done within a BSC using ABSL2 containment and housing, as previously described. Tissues will be obtained for CFU counts as previously described. Lab coat, disposable gloves, and eye protection will be utilized for work described in this IBC protocol. The *Streptococcus* utilized in this IBC protocol, *S. pyogenes* and *S. agalactiae*, are both RG2 bacteria. *S. pyogenes* causes the infection most commonly known as strep throat. Symptoms include sore throat, malaise, fever, and headache. *S. agalactiae* (GBS or Group B Strep) is commonly associated with neonatal infections but can cause several other infections in adults (skin and soft tissue, endocarditis, osteomyelitis, and UTIs). Accidental parenteral inoculation, ingestion, inhalation of infectious aerosols and direct contact of mucous membranes/damaged skin are the primary hazards when working with these pathogens in a laboratory setting.

IBC Discussion & Vote:

The protocol IBC-25-133 (version 9.0) was approved pending minor modifications as listed below:

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PERSONNEL – Please include Dr. Natalia Korotkova as personnel due to the collaboration on this project.

LOCATIONS – Research Locations table: Include entries for the Korotokova lab where streptococcal species used for this study are propagated.

SCIENTIFIC SUMMARY -

1. Please review the protocol for grammatical and spelling errors.
2. Please list and describe mutant strains that are used in this study.
3. Provide a description of the transportation of biohazards between the lab spaces.

4. Expand on the handling and disinfection procedures that take place after assays to ensure biohazards are properly inactivated.

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Amelia Pinto initiated the motion. Carol Pickett seconded the motion. All IBC members present (11) voted in favor of the motion.

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Conflicts of Interest: None

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PI: Anne-Frances Miller

IBC Protocol Number: IBC-25-134
Protocol Title: Enzymatic Redox Catalysis
Protocol Type: Renewal
Amendment To: N/A
Applicable Guidelines & Regulations: NIH Guidelines Section III-D-2, NIH Guidelines Section III-F-1, NIH Guidelines Section III-F-3, NIH Guidelines Section III-F-4, UK Administrative Regulation 6.9, UK Administrative Regulation 6.3, NIH Guidelines Section IV-B-7, OSHA Act of 1970 Clause 5(a)(1)
Maximum Containment Level: Biological Safety Level 1 (BSL1)

Primary Reviewers: A. Pinto, M. Landron, J. Smalle

Brief Project Overview:

Research in the Miller lab asks how living cells can execute very demanding chemical reactions in a mild environment, and can be highly energy efficient despite conducting some very energy-costly processes. In brief their success depends on a large repertoire of enzymes that work together, using sophisticated control instead of brute force. Enzymes are catalysts that accelerate reaction rates by factors of up to 1021-fold, yet they are made predominantly of protein, which is non-toxic, fully renewable and even good for us. Most enzymes function in water, and obviate any need for polluting organic solvents or dangerous strong acids or alkali. They also produce little by-product, instead converting essentially 100% of the starting material to the desired product. Crucially, a recently discovered category of enzymes is able to transform energy, producing high density energy from cheap abundant fuel. These enzymes use a version of vitamin B2 (flavin) to execute the underlying chemistry. However, the enzymes manage to use this one cofactor in several different ways. We want to understand how, because we would like to deploy the methods in man-made materials for solar power conversion to stable portable fuel. Thus, the energy captured when the sun is shining (or the wind is blowing) can be stored and shipped for future use, wherever it is needed.
Specifically, we are working to understand how enzymes control and manipulate the reactive forms of flavin that they employ, learn how proteins tune the reactivity of bound metal ions and flavins, learn how proteins direct the flow of electrons among these and any other bound cofactors, with maximum energy conservation. We also seek to develop enzymes to produce valuable compounds for drug manufacturing from inexpensive starting materials, 'upcycling' chemical waste. At a practical level, we are developing enzymes for use in bioremediation and in energy capture from renewable sources, to solve the intermittency problem.

Summary of Biohazard Materials & Manipulations:

Manipulations Planned: Bacterial culture, DNA/RNA isolation/purification, Genetics, Transformation
Transport: No

Materials Transported: N/A
Infectious Agent(s)/Natural Host(s): N/A
Source & Nature of Inserted Nucleic Acid(s) [Gene Information/Gene Source/Gene Category/Use of Construct/Host(s)/Vector(s)]: GFP/Aequorea victoria (Jellyfish)/tracking/Expression/E. coli BL21(DE3)/pET-28a(+)/; nfsB/Enterobacter cloacae/enzymatic protein/Expression/E. coli BL21(DE3)/pET-24d(+)/; nox/Thermus thermophilu/enzymatic protein/Expression/E. coli T7 Express /pET15TEV_N/; groES - groEL/Escherichia coli/molecular chaperone /Expression/E. coli NiCo21(DE3)/pGro7/; iscS, iscU, iscA,hscB, hscA, fdx/Azotobacter vinelandii/Iron-sulfur cluster assembly proteins/Expression/E. coli NiCo21(DE3) /pDB1282/; iscS, iscU, iscA, hscB, hscA, fdx/Azotobacter vinelandii/Iron-sulfur cluster assembly proteins/Expression/E. coli NiCo21(DE3) /pDB1818/; fldA/Rhodopseudomonas palustris (Taylor's)/Electron transfer protein/Expression/E. coli NiCo21(DE3)/pET-28b(+)/; fixA/Rhodopseudomonas palustris/Electron transfer protein/Expression/E. coli NiCo21(DE3) /pMCSG28/; fixB/Rhodopseudomonas palustris/Electron transfer protein/Expression/E. coli NiCo21(DE3) /pMCSG21/; fixX/Rhodopseudomonas palustris/Iron-sulfur protein/expression/E. coli NiCo21(DE3)/pMCSG21/; fixABCX/Rhodopseudomonas palustris/Electron transfer protein complex /expression/E. coli NiCo21(DE3) /pMCSG21/; fixABCX/Roseiflexus castenholzii/Electron transfer protein complex /expression/E. coli NiCo21(DE3)/pMCSG21/; fixAB/Escherichia coli/Electron transfer protein/expression /E. coli NiCo21(DE3)/pETDuet-1::fixAB/; fixAB/Rhodospirillum rubrum/Electron transfer protein/expression/E. coli NiCo21(DE3)/pET101/D-TOPO::fixAB/; FixAB/Engineered consensus sequence/Electron transfer protein/expression/E. coli NiCo21(DE3)/pRSF duet vector/; FixAB/Engineered consensus sequence /Electron transfer protein/expression/E. coli NiCo21(DE3)/pRSF duet vector/; MELS_2126/Megasphaera elsdenii/Electron transfer protein/expression/E. coli NiCo21(DE3)/pASG IBA33/; Mels_2127 /Megasphaera elsdenii/Electron transfer protein/expression/E. coli NiCo21(DE3)/pASG IBA33/; Acfer_0555/Acidaminococcus fermentans/Electron transfer protein/expression/E. coli NiCo21(DE3)/pASG IBA33/;Acfer_0556/Acidaminococcus fermentans/Electron transfer protein/expression/E. coli NiCo21(DE3)/pASG IBA33/; Acfer_1477/Acidaminococcus fermentans/flavodoxin/expression /E. coli NiCo21(DE3)/pASG IBA33/; Bcd/Megasphaera elsdenii/butyryl coA dehydrogen/expression/E. coli NiCo21(DE3)/pASG IBA33/; ETF Mutant 1/Acidaminococcus fermentans/Electron transfer flavoprotein/expression/E. coli NiCo21 (DE3)/pETDuet-1/; ETF Mutant 2/Acidaminococcus fermentans/Electron transfer flavoprotein/expression/E. coli NiCo21 (DE3)/pETDuet-1/; Fld Mutant 1/Acidaminococcus fermentans /flavodoxin/expression/E. coli NiCo21 (DE3)/pET-21b(+)/; Fld Mutant 1/Acidaminococcus fermentans/flavodoxin/expression/E. coli NiCo21 (DE3)/pET-21b(+)/; EtfA -TEV-6xHis_ETF B/Acidaminococcus fermentans/Electron transfer flavoprotein/expression/E. coli NiCo21 (DE3)/pETDuet-1/; FldA/Rhodopseudomonas palustris Harwood/flavodoxin/expression/E. coli NiCo21 (DE3)/pET-28b/; P5 Fix A-B_TEV_6X His tag_/consensus sequence/Electron transfer flavoprotein/expression/E. coli NiCo21 (DE3)/pRSFDuet-1/; P5 Fix A-P6 Fix B_TEV_6X His tag_/Electron transfer flavoprotein/Electron transfer flavoprotein/expression/E. coli NiCo21 (DE3)/pRSFDuet-1/; Afe fusion EtfBA/Acidaminococcus fermentans/Electron transfer flavoprotein/expression/E. coli NiCo21 (DE3)/pET28a+ opt/; AfeEtfB-A_/Acidaminococcus fermentans/Electron transfer flavoprotein/expression/E. coli NiCo21 (DE3)/pET28a+ duet opt
Vector(s) [Vector Category/Vector Technical Name]: Plasmid/pET-24d(+)/; Plasmid/pET-28a(+)/; Plasmid/pET-28b(+)/; Plasmid/pET15TEV_NESG/; Plasmid/pMCSG21/; Plasmid/pMCSG28/; Plasmid/pDB1282/; Plasmid/pDB1818/; Plasmid/pGro7/; Plasmid/pETDuet-1::fixAB/; Plasmid/pET101/D-TOPO::fixAB/; Plasmid/DVK_AE/; Plasmid/pJ02B2Gm_AE/; Plasmid/pJ02B2Gm_EF/; Plasmid/DVK_EF/; Plasmid/DVK_AF/; Plasmid/Rpal EtfA/; Plasmid/Frank EtfA/; Plasmid/USDA 110 EtfA/; Plasmid/Rcast EtfA/; Plasmid/Rpal EtfB/; Plasmid/Frank EtfB/; Plasmid/USDA 110 EtfB/; Plasmid/Rcast EtfB/; Plasmid/pRSF duet vector/; Plasmid/pASG IBA33/; Plasmid/pASG IBA33/; Plasmid/pET-21b(+)/; Plasmid/pETDuet-1/; Plasmid/pCDFDuet-1 AfETF/; Plasmid/pDule tfmF/; Plasmid/pRSF duet vector FluoTrp/; Plasmid/pJeM1 SaETF DSM/; Plasmid/pET-28a(+) SaETF

DSM/; Plasmid/HisTEV-SaETF-DSM/; Plasmid/FixC_FixX_pACYC duet1/; Plasmid/FixC.Del_FixX_pACYC duet1/; Plasmid/pET28a+opt/; Plasmid/pET28a+opt RFP /; Plasmid/pET28a+ duet opt
Cell line(s) Used [Cell Line Type/Cell Line Technical Name]: N/A
Animal Use: No
Materials introduced into Animals [Animal Host Species/Biohazardous Material/Route of Administration/Restraint/Animal Experimental Procedures/PPE/Animal Housing/Agent Shedding/Special Practices & Procedures]: N/A

Risk Assessment/Discussion:

Dr. Miller has submitted a renewal of her IBC protocol entitled *Enzymatic Redox Catalysis*. Dr. Miller's current IBC protocol will expire on November 21, 2025. Dr. Miller's laboratory seeks to understand how enzymes control and manipulate reactivities of bound metal ions and flavins, determine how proteins direct the flow of electrons among these and other bound cofactors and maximize energy conservation. They seek to developed enzyme to remediate toxic waste and upcycle them to produce valuable compounds for drug manufacturing. All work described in this IBC protocol is conducted using BSL1 containment. Personnel will wear eye protection, lab coat, and disposable gloves. Dr. Miller's laboratory will produce various electron transferring flavoproteins (ETFs) in lab strain E. coli. Proteins are purified for downstream manipulations or for shipment to collaborators at Oak Ridge National Lab. Dr. Miller's laboratory does not utilize any infectious agents or animals.

IBC Discussion & Vote:

The protocol IBC-25-134 (version 7.0) was approved.

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Amelia Pinto initiated the motion. Jan Smalle seconded the motion. All IBC members present (11) voted in favor of the motion.

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Conflicts of Interest: None

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PI: Yasir Alsiraj

IBC Protocol Number: IBC-25-135
Protocol Title: Role of the sex chromosome genes in aortopathies
Protocol Type: Renewal
Amendment To: N/A
Applicable Guidelines & Regulations: NIH Guidelines Section III-D-4, NIH Guidelines Section III-F, NIH Guidelines Section IV-B-7, OSHA Act of 1970 Clause 5(a)(1), UK Administrative Regulation 6.3, UK Administrative Regulation 6.9, NIH Guidelines Section III-F-1, NIH Guidelines Section III-F-3, NIH Guidelines Section III-E-1
Maximum Containment Level: Biological Safety Level 1 (BSL1)

Primary Reviewers: C. Haughton, D. Harrison, B. Nelson

Brief Project Overview:

My research is focused on the role of the biological sex determinants (sex chromosomes and sex hormones) in the development of cardiovascular diseases. We focus on sex hormones and sex chromosomes as regulators of sex differences in AngII-induced aortoopathies.

Summary of Biohazard Materials & Manipulations:

Manipulations Planned: Animal work (breeding, surgeries, etc.), Cell culture, DNA/RNA isolation/purification, Histology, Imaging/Microscopy, PCR/qRT-PCR, Proteomics, Transfection, Use of viral vectors
Transport: Yes
Materials Transported: Animals, Biohazardous Materials
Infectious Agent(s)/Natural Host(s): N/A
Source & Nature of Inserted Nucleic Acid(s) [Gene Information/Gene Source/Gene Category/Use of Construct/Host(s)/Vector(s)]: Proprotein convertase subtilisin/kexin type 9 (PCSK9)/Mouse/membrane and secreted protein/expression/Cell culture, mice/AAV/; Kdm5c, Kdm6a/mouse/Demethylase enzyme/Knockdown/Cell culture, mice/siRNA
Vector(s) [Vector Category/Vector Technical Name]: Adeno-Associated Virus (AAV)/AAV PCSK9 (Proprotein convertase subtilisin/kexin type 9)/; Naked nucleic acid/siRNA Oligonucleotides targeted to Kdm5c and Kdm6a/; Adeno-Associated Virus (AAV)/AAV Null. Control AAV with no gene insert/
Cell line(s) Used [Cell Line Type/Cell Line Technical Name]: Mouse vascular smooth muscle cells/ Animal; Mouse macrophage/Animal
Animal Use: Yes
Materials introduced into Animals [Animal Host Species/Biohazardous Material/Route of Administration/Restraint/Animal Experimental Procedures/PPE/Animal Housing/Agent Shedding/Special Practices & Procedures]: Mouse/Viral Vector - Adeno-Associated Virus (AAV)/Intraperitoneal/Neck Scruff/ABSL1/lab coat, gloves, eye protection, surgical mask/ABSL1/Yes/

Risk Assessment/Discussion:

Dr. Alsiraj has submitted a renewal of his IBC protocol entitled Role of the sex chromosome genes in aortopathies. Dr. Alsiraj's current IBC protocol will expire December 12, 2025. Dr. Alsiraj's laboratory utilizes siRNA in animal cell culture targeting Kdm5c and Kdm6a (BSL1) and AAV PCSK9 in mice to induce hypercholesterolemia. AAV PCSK9 was developed at UPenn and purchased by the Daugherty/Lu laboratory here at UK. Mice will be administered AAV PCSK9 via IP injection within a BSC in DLAR at ABSL1 containment. Mice will be housed at ABSL1 housing. Blood, plasma, serum, and tissue samples from mice will be obtained at various timepoints for downstream analysis. Mice will also be monitored via ultrasound for aortic aneurysms. Plasma and serum will be assayed for angiotensin peptides, cholesterol, testosterone, and estradiol. RNA will be extracted from tissues and protein used in RT-PCR and Western blot analysis. Downstream assays/procedures with samples from AAV-PCSK9 treated mice will be completed using BSL1 containment. Personnel will wear lab coat, gloves, and eye protection.

IBC Discussion & Vote:

The protocol IBC-25-135 (version 9.0) was approved pending minor modifications as listed below:

*

SCIENTIFIC SUMMARY -

1. No anesthesia or restraint is described for injection of AAV into mice. Please provide justification for omission of anesthesia and describe all needle-stick risk mitigation procedures that will be used.
2. Provide a description of procedures for any downstream assays that use cells or biohazards prior to inactivation. Indicate at what point biohazards would be inactivated.

*

Doug Harrison initiated the motion. Cheryl Haughton seconded the motion. All IBC members present (11) voted in favor of the motion.

*

Conflicts of Interest: None

*

PI: Samir Patel
IBC Protocol Number: IBC-25-139

Protocol Title: Transplantation of transgenic-labeled mitochondria after spinal cord injury for neuroprotection. Mitochondrial transplantation combined with mitochondrial-targeted pharmaceuticals to treat spinal cord injury; Antioxidant therapy for spinal cord injury. Enhanced Mitochondrial Viability via Engineered Hydrogels for Intrathecal Spinal Cord Delivery.

Protocol Type: Renewal

Amendment To: N/A

Applicable Guidelines & Regulations: NIH Guidelines Section III-D-1, NIH Guidelines Section III-D-2, NIH Guidelines Section III-F, NIH Guidelines Section III-F-1, UK Administrative Regulation 6.9, UK Administrative Regulation 6.3, OSHA 29 CFR 1910.1030, OSHA Act of 1970 Clause 5(a)(1), NIH Guidelines Section IV-B-7, NIH Guidelines Section III-F-2, NIH Guidelines Section III-F-3, NIH Guidelines Section III-E-1

Maximum Containment Level: Biological Safety Level 2 - Enhanced (BSL2+)

Primary Reviewers: C. Haughton, B. Nelson, M. Landron

Brief Project Overview:

After contusion SCI, increased excitotoxicity results in decreased mitochondrial bioenergetics and the production of reactive oxygen species (ROS), which plays a key role in development of devastating secondary pathophysiology cascades observed after SCI. We hypothesize that directly supplementing isolated mitochondria genetically labeled with fluorescent markers into the injured spinal cord will integrate into the injured host tissues and dampen the effects of glutamate induced excitotoxicity and increase mitochondrial bioenergetics, with the overall effect expected to lower ROS production, increase cell survival, and improve functional recovery.
We are pursuing various lines of experiments employing a contusion spinal cord injury (SCI) model in adult Sprague Dawley rats to test pharmacological compounds and/or transplantation strategies to promote functional recovery. We have shown that administering the compounds acetyl-L-carnitine (ALC) or N-acetylcysteine amide (NACA) after SCI maintains near-normal mitochondrial bioenergetics, increases tissue sparing, and results in remarkable recovery of hind limb locomotion. After completing studies to demonstrate the feasibility of intraspinal injections of purified transgenically labeled mitochondria with resulting improvement in bioenergetics, we have now designed experiments to develop a thermal-gelling, erodible polymeric hydrogel system for the localized subdural transplantation of viable mitochondria to test their neuroprotective efficacy alone and in combination with pharmaceutical interventions (ALC and/or NACA) after contusion SCI in rats. We have also proposed separately to test the hypothesis that similar subdural delivery of polymeric hydrogels releasing curcumin nanoparticles (CNP) will reduce oxidative stress and promote mitochondrial integrity to increase neuroprotection and functional recovery after contusion SCI. In order to generate preliminary data for future grant applications, experiments have also been designed to test whether mitochondria delivered via tail vein injections reach the spinal cord and/or injury site, and whether they are taken up by host cells.

Summary of Biohazard Materials & Manipulations:

Manipulations Planned: Animal work (breeding, surgeries, etc.), Cell culture, DNA/RNA isolation/purification, Histology, Imaging/Microscopy, Immunohistochemistry, PCR/qRT-PCR, Transfection, Use of Human Source Material(s), Use of infectious agents

Transport: Yes

Materials Transported: Biohazardous Materials

Infectious Agent(s)/Natural Host(s): Human Sourced Materials (RG2-cells, tissues, bodily fluids, organs, etc.)

Source & Nature of Inserted Nucleic Acid(s) [Gene Information/Gene Source/Gene Category/Use of Construct/Host(s)/Vector(s)]: Green Fluorescent Protein (GFP)/Jellyfish/Tracking gene/Tracking of vector expression in culture or in tissue/HEK cells, cells in the rat CNS, PC-12 cells/Hi-RET, pBOB, ChABC lentivirus; DsRed2/Discosoma Sp/Tracking gene/Tracking of vector expression in culture or in tissue/HEK cells, cells in the rat CNS, PC-12 cells/pDsRed-mito; ChondroitinaseABC/P. vulgaris/enzyme, promotes axon regeneration following CNS injury/Expression in animals/Mice/ChABC lentivirus

Vector(s) [Vector Category/Vector Technical Name]: Plasmid/pDsRed2-Mito; Plasmid/pTurbo-GFP-Mito; Lentivirus/ ChABC lentivirus

Cell line(s) Used [Cell Line Type/Cell Line Technical Name]: Human/HEK 293; Human/HEK 293T; Human/HEK 293 FT; Animal/PC12 (ATCC CRL-1721.1); Human/ SH-SY5Y; Human/SH-SY5Y – CFP; Human/SH-SY5Y – RFP;Animal/Primary neuronal cultures

Animal Use: Yes

Materials introduced into Animals [Animal Host Species/Biohazardous Material/Route of Administration/Restraint/Animal Experimental Procedures/PPE/Animal Housing/Agent Shedding/Special Practices & Procedures]: Mouse/Viral Vector – Lentivirus/stereotaxic injection/anesthesia, stereotactic device restraint/ABSL2/lab coat, disposable gloves, eye protection, surgical mask, head cover, surgical gown/ABSL2/No

Risk Assessment/Discussion:

Dr. Patel has submitted a renewal of his IBC protocol entitled *Transplantation of transgenic-labeled mitochondria after spinal cord injury for neuroprotection. Mitochondrial transplantation combined with mitochondrial-targeted pharmaceuticals to treat spinal cord injury; Antioxidant therapy for spinal cord injury. Enhanced Mitochondrial Viability via Engineered Hydrogels for Intrathecal Spinal Cord Delivery*. Dr. Patel's current IBC protocol will expire on November 10, 2025. Using BSL2 containment, Dr. Patel's laboratory will transfect mitochondria isolated from PC-12 (rat) or SH-SY5Y (human) cells with GFP or CFP/RFP, respectively, for visualization in both in vitro and in vivo manipulations. Labeled mitochondria will be injected into rat spinal cord. 24-hours post injection, total spinal cord mitochondria will be isolated for downstream analysis. Rats will also undergo long-term behavioral analysis as measures of functional recovery. This work will be conducted using ABSL1 containment. A second project will utilize ChABC lentivirus obtained from collaborators for administration to rats that have undergone spinal cord injury (SCI). It is a 2nd generation lentivirus, and Dr. Patel's laboratory will conduct replication competent virus (RCV) testing on each lot received from collaborators prior to work in animals. Rats are anesthetized for injections and restrained within a stereotaxic device outside of the BSC. Personnel will wear lab coat, gloves, and protective eyewear and surgical mask OR face shield to minimize exposure during injections. Rats will be allowed to recover and at 8-weeks post administration of LV-ChABC, be anesthetized again for implantation of femoral artery catheters to monitor hemodynamics telemetrically OR be injected with tract tracers to assess regeneration. Ultimately, rats will be euthanized and tissues fixed via perfusion fixation. Rats administered LV-ChABC will be housed at ABSL2 housing.

IBC Discussion & Vote:

The protocol IBC-25-139 (version 8.0) was approved pending minor modifications as listed below:

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ANIMAL RESEARCH - IACUC 2021-3980 is expired and should be removed.

SCIENTIFIC SUMMARY:

1. Please provide more detail on the preparation of lentiviral particles in the lab. It is unclear if plasmids are being obtained from the collaborator for viral preparation in the lab, or if prepared viral stocks are being received. If construction is being done in the lab, details on the procedures should be clearly described.
2. Include the risks to personnel from exposure to the expressed transgene in the event of an exposure/accidental inoculation event.
3. Will rats directly injected with lentivirus have cages tagged with SASP card in addition to surgery card?

*

Brandy Nelson initiated the motion. Cheryl Haughton seconded the motion. All IBC members present (11) voted in favor of the motion.

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Conflicts of Interest: None

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Incident Review

Nothing to report.

Protocol Issued Registration Numbers

Protocols issued registration numbers, including minor amendments. These protocols are exempt from IBC review and are registered with the UK Biological Safety Officer (BSO).

Morford, Lorri/University of Kentucky (UK) Center for the Biologic Basis of Oral/Systemic Diseases (CBBO/SD): Hereditary Genetics/Genomics Core 1. Prospective Investigation of External Apical Root Resorption (EARR) and Genetic Markers (IRB 09-0181-F6G/E-IRB 45268) 2. Combined Genetic and Cephalometric Analysis to Study Class III Malocclusion in Families From Brazil and Colombia (IRB 09-0398-F1V/E-IRB 45272) 3. Analysis of Genetic Variations Associated With Both Hypodontia (Naturally Missing Teeth) and Other Medical Conditions (IRB 10-0499-F6A/E-IRB 44209) 4. Genetics of Class III Malocclusion in US Caucasians (IRB 14-0446-F6A//E-IRB 45270) 5. Biosignatures of periodontitis: Effects of Diabetes and Methotrexate Anti-inflammatory Therapy (IRB 17-0439-F6A/E-IRB 44558)/Amendment/BSO/45966/IBC-24-78 (v.23.0)/;

Whiteheart, Sidney/Adventures in Platelet Membrane Trafficking/Amendment/BSO/45964/IBC-24-371 (v.30.0)/;

Berry, Scott/Development of Advanced Molecular Diagnostics/Renewal/BSO/45964/IBC-25-132 (v.8.0)/;

Van Eldik, Linda/Microglia responses to CNS injury: targeting p38 MAPK signaling/Amendment/BSO/45964/IBC-25-83 (v.19.0)/;

Monje, Paula/Isolation, culture and analysis of human peripheral nerve cells/Renewal/BSO/45954/IBC-25-122 (v.10.0)/;

Gordon, Scott/Lipoprotein Physiology in Metabolism and Atherosclerosis/Amendment/BSO/45953/IBC-24-453 (v. 25.0)/;

Weisleder, Noah/Modifying gene expression in vitro and in vivo/Amendment/BSO/45952/IBC-24-499 (v.58.0)/;

Despa, Florin/Cardiovascular consequences of diabetes; electrical remodeling in heart/Amendment/BSO/45951/IBC-25-72 (v.24.0)/;

Sompol, Pradoldej/Oxidative Stress and Related Neurovascular Dysfunction in Alzheimer's Disease and Related Dementias/Amendment/BSO/45946/IBC-25-42 (v.25.0)/;

Unrine, Jason/B22-4109: Analysis of toxicants and toxicant responses in human blood and tissues/Renewal/BSO/45946/IBC-25-131 (v.8.0)/;

Wood, Jeremy/Anticoagulant Properties of Protein S/Amendment/BSO/45944/IBC-24-161 (v.29.0)/;

Sturgill, Jamie/Acute lung injury and lung epithelial cells/Amendment/BSO/45939/IBC-24-344 (v.29.0)/;

Sturgill, Jamie/Inflammation across the spectrum of lung disease/Amendment/BSO/45939/IBC-24-418 (v.27.0)/;

Kent-Dennis, Coral/Investigation of novel bioactive compounds in cultured mammalian cells/New/BSO/45939/IBC-25-110 (v.8.0)/;

Cai, Weikang/Understanding astrocytes and microglia functions in neurological diseases./Amendment/BSO/45939/IBC-24-408 (v.57.0)/;

Pasternak, J. Alex/Investigating the short and long-term physiological consequences of fetal Perturbations in swine/New/BSO/45939/IBC-25-120 (v.8.0)/;

Kampourakis, Thomas/Molecular characterization and modulation of cardiac myofilament regulatory proteins/Amendment/BSO/45938/IBC-24-406 (v.25.0)/;

Bardo, Michael/Environmental enrichment protects against drug abuse: cellular mechanisms/Amendment/BSO/45937/IBC_24-473 (v.24.0)/;

Shaddox, Luciana/1. Analysis of Host-Biofilm Interactions: A Novel Polymicrobial model 2: Evaluation of different risk factors on periodontal disease and caries 3: COVID-19 testing using Saliva and Nasal swabs 4. Analyze and characterize the oral microbiome in the presence COVID-19 in the Saliva and Dental plaque samples 5. Understanding the association between buprenorphine and oral health outcomes 6. Advancing Salivary Biomarker Development and Utility in Periodontitis 7. Targeting Health Disparities: Engineering Antimicrobial and Remineralizing Dental Resins for Therapeutic and Preventive Care in Underserved Communities/Amendment/BSO/45933/IBC-24-349 (v.47.0)/;

Nelson, Peter/Alzheimer's Disease Research Center Neuropathology and Biomarker research to advance the diagnosis and treatment of Alzheimer's and related dementia's./Amendment/BSO/45931/IBC-25-27 (v.23.0)/;

Protocols Meeting Registration Requirements

Protocols that have been approved by the IBC pending minor modifications that have met approval requirements.

Ortinski, Pavel/Neurobiology of Cocaine Seeking/Amendment/IBC/45965/IBC-25-29 (v.29.0)/;

Lucero, Diego/New Modulators of Lipoprotein Metabolism: From the liver to the vascular wall./New/IBC/45964/IBC-25-97 (v.14)/;

Fong, Ka Wing/Understanding the mechanisms underlying advanced prostate cancer and finding novel therapies/Amendment/IBC/45964/IBC-24-385 (v.57.0)/;

Galperin, Emilia/Regulation of MAPK activity by EGF receptor endocytosis/Renewal/IBC/45958/IBC-25-123 (v.12.0)/;

Garneau-Tsodikova, Sylvie/Chemoenzymatic studies of aminoglycoside-resistance enzymes towards new drugs and Investigation and Redesign of Nonribosomal Peptide Synthetases/Renewal/IBC/45957/IBC-25-111 (v.13.0)/;

Thorson, Jon/B22-4016-M: Thorson Laboratory Biosafety Protocol/Renewal/IBC/45951/IBC-25-112 (v.8.0)/;

Yuan, Ling/B22-4037: Plant Metabolic Engineering/Renewal/IBC/45946/IBC-25-116 (v.13.0)/;

Norris, Christopher/B22-4043-M: Neurovascular pathology in Alzheimer's disease and vascular cognitive impairment/Renewal/IBC/45946/IBC-25-124 (v.9.0)/;

Adams, Amanda/B22-4048: Study of Immunology of Equids/Renewal/IBC/45945/IBC-25-121 (v.13.0)/;

Bradley, Luke/Alternate molecular scaffolds for biotherapeutic research & development/Renewal/IBC/45944/IBC-25-108 (v.12.0)/;

Fields, Ken/Molecular Pathogenesis of Chlamydia spp./Renewal/IBC/45940/IBC-25-129 (v.12.0)/;

Grillet, Nicholas/Adeno-Associated Virus (AAV) injection into the inner ear/New/IBC/45939/IBC-25-107 (v.16.0)/;

Logeman, Brandon/Sex and physiological State dependent molecular characterization of circuits gov/Amendment/IBC/45938/IBC-25-99 (v.36.0)/;

IBC Training

None. All current IBC members have completed training online via SciShield.

Adjournment

Douglas Harrison initiated a motion to adjourn the meeting at 1:26pm. Thomas Chambers seconded the motion. All IBC members present (11) voted in favor of the motion.