

Biological Sciences UROP Projects

Proposal Title	Fac Dept Name	College
Epigenetic Profiling of Selected and Non-selected Bovine Populations	Animal Science	Biological Sciences
Refining Antibiotic Natural Product Discovery Using Metabolomics-Based Strain Prioritization and Bioassay-Guided Fractionation.	Biochemistry & Molecular Biology-D	Biological Sciences
Regulation of APOBEC3B by Post-Translational Modification	Biochemistry-Med School	Biological Sciences
Design and Validation of a Recombinant HIV-1 Vector to Enable Specific Purification of Vif Associated Protein Complexes From Infected T Cells	Biochemistry-Med School	Biological Sciences
Impact of Enzyme-catalyzed Mutation in Mouse Mammary Tissues	Biochemistry-Med School	Biological Sciences
Crystallographic Analysis of Substrate-Bound Catalytic Structure of PQQ	Biochemistry-Med School	Biological Sciences
Effects of CPTV-Associated Calmodulin Mutants on RyR Ca ²⁺ Channel Regulation from Skeletal and Cardiac Muscle	Biochemistry, Molecular Biology & Biophysics - MED	Biological Sciences
Investigating the Effects of Major Fluoroquinolone Resistance Mutations on Bacterial Physiology	Biochemistry, Molecular Biology & Biophysics-CBS	Biological Sciences
Identification of Signal Sequences in Ethanolamine Utilization Bacterial Microcompartments	Biochemistry, Molecular Biology & Biophysics-CBS	Biological Sciences
Structural and Functional Analysis of LQTS Calmodulin Mutants and How They Contribute to Arrhythmia Pathogenesis	Biochemistry, Molecular Biology & Biophysics-CBS	Biological Sciences
Identifying the Role of Non-Trichothecene Sesquiterpenes in Fusarium graminearum Pathogenesis	Biochemistry, Molecular Biology & Biophysics-CBS	Biological Sciences
Mapping of the CtIP Interaction Domain on the Fanconi Anemia Protein FANCD2	Biochemistry, Molecular Biology & Biophysics-CBS	Biological Sciences
Structure-function Analysis of Lamina-Associated Polypeptide 1 and its Role in the Activation of the AAA+ ATPase, TorsinA	Biological Sciences	Biological Sciences
Assessing the Role of SUN2 Site-Specific Mutations on Nuclear Positioning	Biological Sciences	Biological Sciences
Exploring Attitudes Toward Vaccination	Biological Sciences	Biological Sciences
Investigating the Relationship Between Translation Levels and Gene Order in Eukaryotic 2A Polycistronic Systems	Biomedical Engineering	Biological Sciences
Using 3-D Aligned Collagen Gels for the Study of Breast Cancer Cellular Migration	Biomedical Engineering	Biological Sciences
Engaging CSA Members in Critical Conversations: How Do We Justify Either Using or Refusing GMOs?	Biomedical Engineering	Biological Sciences
Affinity Binding Capabilities of Cellulose Binding Domain Fused Proteins	Bioproducts and Biosystems Engineering	Biological Sciences
Primate Fecal Microbiota Transplantation into C57/BL6 Mice	Biotechnology Institute	Biological Sciences
Characterization of synthetic proteins capable of rescuing essential biological reactions in E. coli.	Biotechnology Institute	Biological Sciences
Enzymatic Origins: Using Synthetic Libraries to Rescue Essential Biological Functions in E. coli	Biotechnology Institute	Biological Sciences
Directed Evolution of the Synthetic Protein metC4	Biotechnology Institute	Biological Sciences
An Analysis of Medulloblastoma Subgroups and Their Respective PVT1 Expressions	Cancer Center	Biological Sciences
Ovarian Preclinical Project	Cancer Center	Biological Sciences
Modeling Combination Targeted Therapy for Colorectal Cancer Using a Preclinical Model	Cancer Center	Biological Sciences
Identification of Colorectal Cancer Driver Gene Combinations in Mice	Cancer Center	Biological Sciences
Role of Novel p53 Isoforms in Aging	Cancer Center	Biological Sciences
Role of a Novel p53 Isoform in Cellular Senescence and Aging	Cancer Center	Biological Sciences
SB Screen for Ovarian Cancer Genes	Cancer Center	Biological Sciences
Identification of Ovarian Cancer Driver Genes in Mice	Cancer Center	Biological Sciences
Creating an Ovarian Cancer Mouse Model	Cancer Center	Biological Sciences
Quantifying Executive Function Skills through Resting State Electroencephalography	Child Development	Biological Sciences
Investigation of Ribonucleoside Induced Lethal Mutagenesis in HIV-1	Diagnostic and Biological Sciences	Biological Sciences
Analysis of HTLV-1 Capsid Mutants	Diagnostic and Biological Sciences	Biological Sciences

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Characterizing Microbial Communities Responsible for Mercury Methylation in Lakes Manganika and McQuade through hgcA Gene Expression	Earth Sciences	Biological Sciences
Rhizobia: Adaption and Tradeoff to High and Low Temperatures	Ecology, Evolution & Behavior	Biological Sciences
A Fitness Tradeoff Between Motility & Resistance to Predation	Ecology, Evolution & Behavior	Biological Sciences
The Role of History in Transitions Between Single-Cell and Multicellular Life in <i>Saccharomyces Cerevisiae</i>	Ecology, Evolution & Behavior	Biological Sciences
Consequences of Biodiversity for Leaf Litter Decomposition	Ecology, Evolution & Behavior	Biological Sciences
Trade-offs in social learning in <i>Pieris rapae</i>	Ecology, Evolution & Behavior	Biological Sciences
Effect of Lead Pollution on Learning in a Butterfly, <i>Pieris Rapae</i>	Ecology, Evolution & Behavior	Biological Sciences
Effects of Coqui Frog Call on <i>Telegryllus Oceanicus</i>	Ecology, Evolution & Behavior	Biological Sciences
Studying the Effects of Captive-Rearing on the Common House Cricket, <i>Acheta Domesticus</i> , and Comparing Its Behavioral and Physiological Characteristics to Its Wild Counterparts	Ecology, Evolution & Behavior	Biological Sciences
A Broad-Scale Comparison of Avian Community Composition at the Last Glacial Maximum and the Present Time	Ecology, Evolution & Behavior	Biological Sciences
Identifying the Location of Combination Sensitive Neurons in <i>Hyla Cinerea</i>	Ecology, Evolution & Behavior	Biological Sciences
Variability of Delayed Implantation, Size, and Biogeographic Seasonality in Carnivora	Ecology, Evolution & Behavior	Biological Sciences
Integration of Sensory Information Following Nerve Cord Transection	Entomology	Biological Sciences
Modeling Hepatitis B Disease Burden in the Minnesotan Laotian Community	Epidemiology and Community Health	Biological Sciences
The Effect of High-Added Sugar Liquid Versus Savory Solid Discretionary Food Sources on Dietary Energy Compensation and Weight Gain in Adults"	Epidemiology and Community Health	Biological Sciences
Untitled	Experimental and Clinical Pharmacology	Biological Sciences
Utilizing Acid Whey As A Coagulant for Tofu	Food Science & Nutrition	Biological Sciences
Structure-Based Design of Temperature-Sensitive Mutations Using Genome Editing	Genetics, Cell Biology and Development-CBS	Biological Sciences
Delayed DNA Replication is a Major Cause of Chromosomal Instability in <i>Brca2</i> Mutant Cells	Genetics, Cell Biology and Development-CBS	Biological Sciences
Characterization of Expression of Genes That Control Gene Oscillation During Somitogenesis in Wild Type and <i>Sall4</i> Mutant Mouse Embryos	Genetics, Cell Biology and Development-CBS	Biological Sciences
Investigating MBO2 Microtubular Protein in <i>Chlamydomonas Reinhardtii</i>	Genetics, Cell Biology and Development-CBS	Biological Sciences
Regulation of Body Axis Extension by Combinational Activities of <i>Sall</i> Genes in Mouse Embryos	Genetics, Cell Biology and Development-CBS	Biological Sciences
Determining the role of the methyltransferase SETD2 in chick neural crest development	Genetics, Cell Biology and Development-CBS	Biological Sciences
Expression of BMP Antagonists, <i>Noggin</i> and <i>Gremlin1</i> , in the Adult Mouse Skeletal System	Genetics, Cell Biology and Development-CBS	Biological Sciences
Evaluating the Effect of <i>SOX9</i> Expression in the Mouse Ovary	Genetics, Cell Biology and Development-CBS	Biological Sciences
Mathematically Modeling the Relationship between Microbial Abundance and Immune Response at Human SNP Sites	Genetics, Cell Biology and Development-CBS	Biological Sciences
Identifying and characterizing protein interactors for the cytoplasmic domain of <i>C. elegans</i> L1 cell adhesion Molecule Homologue, <i>Sax-7</i> , via Yeast-Two-Hybrid Screen: Advancing the Doctrine of Molecular Adhesion in Neuronal and Somatic Cells	Genetics, Cell Biology and Development-CBS	Biological Sciences
<i>Chaos3</i> and <i>Brca2</i> Double Homozygosity in <i>C57BL/6J</i> Mice	Genetics, Cell Biology and Development-CBS	Biological Sciences
Effect of Microtubule Structure on EB1 Binding	Genetics, Cell Biology and Development-Med	Biological Sciences
Testing Candidate Glioblastoma-Promoting Oncogenes	Genetics, Cell Biology and Development-Med	Biological Sciences
The Role of the Canonical β -catenin Signaling Pathway and its Effect in NF1 Schwann Cell Tumorigenesis	Genetics, Cell Biology and Development-Med	Biological Sciences
Use of DNA Nanotubes for siRNA Delivery into Tumor Cells	Genetics, Cell Biology and Development-Med	Biological Sciences

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Role of Mechanical Forces in Mitosis	Genetics, Cell Biology and Development-Med	Biological Sciences
Studying the Effects of Knocking Out and Overexpressing SLIT-ROBO Rho GTPase Activating Protein 2C on Murine Osteosarcoma Cell Lines	Genetics, Cell Biology and Development-Med	Biological Sciences
Investigations into the Effect of the Kinesin-5 motor Cin8 on In Vitro Microtubule Dynamics	Genetics, Cell Biology and Development-Med	Biological Sciences
ARGHAP36 Expression as Novel Driver of Medulloblastoma	Genetics, Cell Biology and Development-Med	Biological Sciences
Effect of Hypoxia on Microtubules in Mitosis	Genetics, Cell Biology and Development-Med	Biological Sciences
Testing Drivers of Liver Cancer in Fatty Liver	Genetics, Cell Biology and Development-Med	Biological Sciences
Formation of Salt Adducts in Mass Spectrometry and Its Implications	Horticultural Science	Biological Sciences
Mechanisms of a Novel Epigenetic Multiple Myeloma Therapy: Dual Inhibition of EZH2 and Histone Deacetylases. Mechanisms of a Novel Epigenetic Multiple Myeloma Therapy: Dual Inhibition of EZH2 and Histone Deacetylases	Human Genetics	Biological Sciences
Differences in Postural Precursors to Motion Sickness	Kinesiology	Biological Sciences
Studies on the Function of Phosphatase-Dead Tumor Suppressor Phosphatase, PHLPP2	Laboratory Medicine & Pathology	Biological Sciences
Investigating the Functions of the Extracellular and Intracellular Domains of Nectin-4 in Ovarian Cancer	Laboratory Medicine & Pathology	Biological Sciences
Identification of Specific Binding Interaction Between a Survival Protein and a Metabolic Enzyme in Cancers.	Laboratory Medicine & Pathology	Biological Sciences
Studies on the Regulation of Tumor Suppressor Phosphatase, PHLPP2 Under Metabolic Stress	Laboratory Medicine & Pathology	Biological Sciences
Characterizing the Effect of Dihydromethysticin (DHM) on Aryl Hydrocarbon Receptors (AHR) Activation in Vivo	Medicinal Chemistry	Biological Sciences
Synthesizing and Evaluating Biological Effectiveness of Novel Anticancer Agents	Medicinal Chemistry	Biological Sciences
Examination of TLR-8 activity in Mice through Synthesis and Characterization of Novel Imidazoquinolines	Medicinal Chemistry	Biological Sciences
Resorufin-Based Fluorescent Assay Development for BioA	Medicinal Chemistry	Biological Sciences
Synthesis of a Fluorescent Nucleoside Phosphoramidate	Medicinal Chemistry	Biological Sciences
Co-Crystallization & Structural Studies of Mycobacterium Tuberculosis BirA	Medicinal Chemistry	Biological Sciences
Direct Conversion of Fibroblasts to Neural Cells to Combat Neurodegenerative Diseases	Medicine	Biological Sciences
Investigating PELP1 as a Biomarker for Breast Cancer Initiation	Medicine	Biological Sciences
Preservation of Complete Distal Gut Microbiota Viability in Lyophilization	Medicine	Biological Sciences
Passage Dependent Resistance to Reactive Oxygen Species-Induced Cellular Damage in Lung Fibroblasts with Idiopathic Pulmonary Fibrosis	Medicine	Biological Sciences
Intracellular Localization of CELF1 Protein during Cell Cycle arrest, in Normal and Malignant T Cells.	Medicine	Biological Sciences
Characterizing Autoreactive Immune Cells in the Germinal Centers of Adenosine Receptor 2A Agonist Treated Arthritic Mice.	Medicine	Biological Sciences
Hsp90 as a Putative Repressor of Titan Cell Morphogenesis in Cryptococcus Neoformans	Microbiology	Biological Sciences
Investigating the Mechanism(s) of Resistance to para-Aminosalicylic Acid in Mycobacterium tuberculosis	Microbiology	Biological Sciences
Determining Regulatory or Related Elements of the chiC Gene and Product in Pseudomonas aeruginosa Strain UCBPP-PA14	Microbiology	Biological Sciences
Identification of Genetic Determinants for Antibiotic Resistance in Cystic Fibrosis Pathogen Achromobacter Xylooxidans	Microbiology	Biological Sciences
Exploring Metal Chelation as a Method of Enhancing Pyrazinoic Acid Activity in Mycobacterium Tuberculosis	Microbiology	Biological Sciences
Oposonization and Phagocytosis of the Fungal Pathogen Cryptococcus Neoformans	Microbiology	Biological Sciences
Characterizing Fatty Acyl-CoA Ligase-Mediated Pyrazinimide Resistance in Mycobacterium Tuberculosis	Microbiology	Biological Sciences

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Identification of Tripartite Motif Proteins (TRIMs) That Inhibit Human Cytomegalovirus Replication	Microbiology	Biological Sciences
Are Non-Human Mammals Colonized by a <i>Candida albicans</i> -like Yeast?	Microbiology	Biological Sciences
The Role of Quorum Sensing on Phenotypic Switching in <i>Candida Albicans</i>	Microbiology	Biological Sciences
Endogenous Dystrophin Gene Activation Using dCAS9/Guide RNA System	Neurology	Biological Sciences
Coordinated Reset DBS of the Subthalamic Nucleus in the Parkinsonian Primate	Neurology	Biological Sciences
DBS of the Pedunculopontine Nucleus in the Parkinsonian Primate	Neurology	Biological Sciences
Identifying Cortical Regions Significant in the Ability to Discriminate Between Particular Faces	Neuroscience	Biological Sciences
Determining the Pattern of Nuclear Development in the Thalamus	Neuroscience	Biological Sciences
Neural Mechanisms Underlying the Effects of Estrogen on Addiction in Females	Neuroscience	Biological Sciences
Does Dopamine Regulate the Development of Perineuronal Nets and Parvalbumin Containing Interneurons in the Mouse Striatum?	Neuroscience	Biological Sciences
The Role of Light-Induced Corticosterone Rhythms in Modulating Depressive-Like Behavior in Mice	Neuroscience	Biological Sciences
Determining the Phosphorylation Sites Sufficient to Induce Tau Mislocalization in Cultured Neurons	Neuroscience	Biological Sciences
Characterizing and Complementation of Human Retinal and Lens Cells in Chimeric Porcine Embryos	Neurosurgery	Biological Sciences
Protein Analysis of Retinal Pigment Epithelial Cells Affected by Age Related Macular Degeneration	Ophthalmology	Biological Sciences
Investigating the Effects of Infrasound on the Inner Ear	Otolaryngology	Biological Sciences
Homologous Recombination at Human and Mouse Dihydrofolate Reductase Loci for Induction of Resistance to Methotrexate	Pediatrics	Biological Sciences
Investigating the Role of MicroRNA-29 in Wound Healing in Patients with Recessive Dystrophic Epidermolysis Bullosa	Pediatrics	Biological Sciences
Validation of Candidate Osteosarcoma Development and Metastasis Genes	Pediatrics	Biological Sciences
FSHD Correction with CRISPRs	Pediatrics	Biological Sciences
Characterizing the Hematopoietic Stem Cell Niche in the Pex1-G844D Mouse Model for Human Zellweger Spectrum Disorders	Pediatrics	Biological Sciences
Validation of Candidate MPNST Genes Using the CRISPR Nuclease System	Pediatrics	Biological Sciences
Neural Iron Deficiency During Development from a Thrombopoietin Agonist	Pediatrics	Biological Sciences
MicroRNAs as Potential Biomarkers for Pediatric Epilepsies	Pharmaceutical Care & Health Systems	Biological Sciences
Exploring the Effects of a High-Fat Diet and Gut Microbiomes on RIP140 Knockdown Mice Resistant to Diet Induced Type II Diabetes	Pharmaceutical Care & Health Systems	Biological Sciences
Sensitizing Breast Cancer Cells to Conventional Chemotherapy with Retinoic Acid	Pharmaceutics	Biological Sciences
Targeting Prostate Cancer Lesions Using Substrate-Derived Peptide as Active Site Inhibitors of Aminopeptidase N	Pharmacology	Biological Sciences
Characterizing Alcohol and Nicotine Co-Consumption in Mice	Pharmacology	Biological Sciences
Characterization of Novel N-1 Fluoroquinolones	Pharmacology	Biological Sciences
Characterization of Novel Fluoroquinolone Derivatives with Anticancer Activity	Pharmacology	Biological Sciences
Effect of Estradiol on Expression of HSP27 in Skeletal Muscle Tissue	Physical Medicine & Rehabilitation	Biological Sciences
Characterization of Skeletal Muscle's Inflammatory Response to Freeze Injury	Physical Medicine & Rehabilitation	Biological Sciences
Epistasis of Calmodulin Genes and Regulators of Immunity in <i>Arabidopsis Thaliana</i>	Plant Biology	Biological Sciences
Morphological Adaptations of Oak Roots Along a Strong Climate Gradient	Plant Biology	Biological Sciences
Investigating the Relationship Between Plant Defense and Growth	Plant Biology	Biological Sciences
Identifying and Characterizing Dwarf Mutant <i>Pennycress</i> For Use As a Bio-Fuel	Plant Biology	Biological Sciences
Investigate potential alkaloid gene cluster in the fungus <i>Tolypocladium inflatum</i>	Plant Biology	Biological Sciences
How Does an Urban Environment Affect <i>Medicago Lupulina</i> and <i>Trifolia Repens</i> and Their Respective Symbiotic Rhizobia?	Plant Biology	Biological Sciences

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Reducing Impulsive Choice (Delay Discounting) for Cocaine in Male rats with Atomoxetine and Progesterone	Psychiatry	Biological Sciences
An Optogenetic Investigation of Mouse ACC-BLA Circuitry in Social Fear Behavior	Psychology	Biological Sciences
Effects of Flooding Frequency and Carbon Content on Denitrification Potential in Controlled Flood Basins	Saint Anthony Falls Laboratory	Biological Sciences
Magnetite: A Link Between Terra Preta de Indio Soils and Biochar	Soil, Water, & Climate	Biological Sciences
Combination Cancer Treatment: Interferon-Expressing Adenovirus and 5FU Chemotherapy	Surgery	Biological Sciences
Impact of Chemotherapy Treatment on Replication of Interferon-Expressing Adenovirus	Surgery	Biological Sciences
Analyzing the Significance of the Fundamentals of Laparoscopic Surgery Test	Surgery	Biological Sciences
NIS-E1/21/15xpressing Adenoviral Radioactive Iodine Uptake	Surgery	Biological Sciences
Analysis of Common Sites of Skeletal Metastases Related to Mortality, and the Determination of a Common Timeline of Tumor Growth and Spread.	Therapeutic Radiology-Radiation Oncology	Biological Sciences
The Mycobacterium Avium Subsp. Paratuberculosis Fur Element's Interactions with an In Vivo Environment	Veterinary & Biomedical Sciences	Biological Sciences
The Endocannabinoid System and Prion Disease Pathogenesis	Veterinary Clinical Sciences	Biological Sciences