



The National Institute on Aging &  
The National Institute on Drug Abuse  
Intramural Research Programs

Present

# *Summer Student Poster Day 2011*

Tuesday, August 2, 2011

Poster Presentations

12:30 p.m. - 3:00 p.m.

Biomedical Research Center  
Baltimore, MD

*Light Refreshments Will be Served*

## NIA

### **Brain Physiology & Metabolism Section**

(1) Samuel E. Klein (Junior)  
University of Michigan - Ann Arbor, MI  
Altered Epigenetic Modifications in Postmortem Brain from Alzheimer's Patients  
Mentor: Jagadeesh Rao, Ph.D.

### **Clinical Research Branch**

(2) Maxwell I. Moholy (Graduate Student – 3<sup>rd</sup> Year)  
Idaho State University - Pocatello, ID  
Would You Eat It? Value and Saliency of Food Stimuli  
Mentor: Dimitrios Kapogiannis, M.D.

### **Laboratory of Behavioral Neuroscience**

(3) Alexander V. Tereshchenko (Junior)  
University of Michigan - Ann Arbor, MI  
Age Differences During Risky Decision Making  
Mentor: Joshua Goh, Ph.D. and Lori Beason-Held, Ph.D.

(4) Geneva T. Dodson (Graduate Student – 2<sup>nd</sup> Year)  
University of Virginia - Charlottesville, VA  
An Investigation of Construct Validity in the HANDLS Cognitive Battery  
Mentor: Alan Zonderman, Ph.D.

### **Laboratory of Cardiovascular Science**

(5) Jo Eun Song (High School – Junior)  
Roland Park Country School - Timonium, MD  
Effects of Chronic Treatment with a Broad Spectrum MMP Inhibitor, Doxycycline, on Aortas in the Mouse Model of Vascular Ehler-Danlos syndrome  
Mentor: Mark Talan, M.D., Ph.D.

(6) Rebecca L. McPherson (Graduate Student – 2<sup>nd</sup> Year)  
University of Delaware - Newark, DE  
Cardiotonic Steroids and Cardiovascular Remodeling in Salt-Sensitive Hypertension  
Mentor: Olga Fedorova, Ph.D. and Alexei Bagrov, M.D., Ph.D.

(7) Patrick M. Chen (Junior)  
Dartmouth College - Hanover, NH  
Understanding Atherosclerosis: Age and LDL Dependent Alterations in Monkey Endothelial Cells  
Mentor: Mingyi Wang, M.D., Ph.D.

### **Laboratory of Clinical Investigation**

(8) Kenneth M. Rosenberg (Junior)  
University of Maryland - College Park, MD  
Simulation of Degraded Cartilage Diagnosis Using Multiple MRI Parametric Analysis  
Mentor: Richard Spencer, M.D., Ph.D. and Ping-Chang Lin, Ph.D.

(9) Patrick E. Chirdon (Senior)  
Case Western Reserve University - Cleveland, OH  
Effects of Calorie Restriction on Taste Buds in Circumvallate Papillae  
Mentor: Bronwen Martin, Ph.D. and Huan Cai, Ph.D.

(10) Megan A. Sichler (Senior)  
Cornell University - Ithaca, NY  
Serine Racemase Expression and Importance in Ketamine Function  
Mentor: Rajib Paul, Ph.D.

### **Laboratory of Epidemiology, Demography and Biometry**

(11) Jennifer A. Boyko (Graduate Student – 2<sup>nd</sup> Year)  
University of Connecticut - Storrs, CT  
Modeling the Trajectory of Cognitive Decline with Non-Ignorable Missing Data  
Mentor: Binbing Yu, Ph.D.

### **Laboratory of Experimental Gerontology**

(12) Shakeela J. Faulkner (Junior)  
Brown University - Providence, RI  
Are Extra-Mitochondrial Redox Enzymes Involved in the Development of Muscle Atrophy?  
Mentor: Evi Mercken, Ph.D. and Rafael deCabo, Ph.D.

(13) Tomohiro Ko (High School – Junior)  
Dulaney High School - Timonium, MD  
Quantitative Image Analysis of the Aged Monkey Hippocampus  
Mentor: Bonnie Fletcher, Ph.D., Ilya Goldberg, Ph.D., and Jeff Long, Ph.D.

## **Laboratory of Genetics**

(14) Jennifer Larmore (Senior)

Florida Institute of Technology - Melbourne, FL

Tissue Specific Transcriptional Regulation of Placental Gene PLAC1

Mentor: Ramaiah Nagaraja, Ph.D. and Yaohui Chen, Ph.D.

(15) Michelle L. Gillespie (Sophomore)

College of William and Mary - Williamsburg, VA

Identifying the FANCM Elements Required for Stabilizing the MHF Tetramer and Promoting Branch DNA Binding

Mentor: David Fox III, Ph.D. and Weidong Wang, Ph.D.

(16) Kassimier I. Haynes (2011 Graduate)

Norfolk State University - Norfolk, VA

How Does a Lack of Lhx8 Lead to Oocyte Loss in the Ovary?

Mentor: Emanuele Pelosi, Ph.D.

## **Laboratory of Molecular Biology and Immunology**

(17) Brittany R. Moore (Junior)

Spelman College - Atlanta, GA

Characterizing the Interaction Between the DNA Repair Proteins NEIL1 and PARP-1

Mentor: Nicole Hooten, Ph.D. and Michele Evans, M.D.

(18) Naakaii H. Tsosie (Sophomore)

Brigham Young University - Provo, UT

Analysis of AID-dependent Mutagenesis in the Chicken C-MYC Locus

Mentor: Sebastian Fugmann, Ph.D.

(19) Courtney R. Streater (Junior)

University of Maryland Eastern Shore - Princess Anne, MD

Post-transcriptional Regulation of Telomerase Reverse Transcriptase in Human T cells

Mentor: Nan-Ping Weng, M.D., Ph.D. and Jie An, Ph.D.

(20) De'Angelo T. Criss (Sophomore)

Hampton University - Hampton, VA

The Effect of Camptothecin on Mutation Frequency in DT40 B Cells

Mentor: Patricia Gearhart, Ph.D. and Zheng Cao, Ph.D.

(21) Daniel L. Meyers (High School – Senior)

The Abraham Joshua Heschel School - New York, NY

ECM Gene Expression Changes in an Ovarian Cancer Mouse Model

Mentor: Pat Morin, Ph.D. and Cheryl Sherman-Baust

(22) Jessica M. Johnson (Junior)  
University Maryland Eastern Shore - Princess Anne, MD  
Regulation of microRNA Expression by AUF1 through Dicer  
Mentor: Myriam Gorospe, Ph.D. and Kotb Abdelmohsen, Ph.D.

(23) Katherine W. Turlington (Freshman)  
University of Maryland - College Park, MD  
The Effect of Age on DNA Repair Capacity in B cells  
Mentor: Patricia Gearhart, Ph.D. and Robert Maul, Ph.D.

(24) Melissa J. Shultz (Senior)  
Stevenson University - Stevenson, MD  
Clostridium Perfringens Enterotoxin as a Potential Therapeutic Agent for Ovarian Cancer  
Mentor: Patrice Morin, Ph.D. and Madhu Lal-Nag, Ph.D.

### **Laboratory of Molecular Gerontology**

(25) Irfan S. Khan (Junior)  
Howard Community College - Columbia, MD  
Identification and Characterization of Novel FANCD1 Protein Interactions  
Mentor: Robert Brosh, Ph.D. and Suhasini Avvaru, Ph.D.

(26) Twila A. Hinds (Sophomore)  
University of Connecticut - Storrs, CT  
Biochemical Analysis of Human DNA Repair Helicases that Partner to Disrupt Protein-DNA Complexes  
Mentor: Robert Brosh, Ph.D. and Joshua Sommers, Ph.D.

(27) Chorong Song (Junior)  
Johns Hopkins University - Baltimore, MD  
Examining Expression and Binding of Telomere-associated Protein to Telomeres During Different Stages of Cell Cycle  
Mentor: Liu Yie, Ph.D.

### **Laboratory of Neuroscience**

(28) Shamit A. Patel (Graduate Student – 2<sup>nd</sup> Year)  
University of Maryland, Baltimore County - Baltimore, MD  
Omnimorph: A Multidimensional Discovery Tool for Molecular Biology and Clinical Data  
Mentor: Stuart Maudsley, Ph.D. and Bronwen Martin, Ph.D.

(29) Sarah C. Collica (Junior)  
Yale University - New Haven, CT  
Cognitive Effects of Endurance Related Compound AICAR: From Muscle to Brain  
Mentor: Henriette van Praag, Ph.D. and Tali Kobilo-Moav, Ph.D.

(30) Mario A. Pita (Junior)

University of Central Florida - Orlando, FL

A Role for TLR4 in Hippocampal Dependent Cognitive Learning

Mentor: Eitan Okun, Ph.D. and Mark Mattson, Ph.D.

### **Research Resources Branch**

(31) Stephanie A. Carter (Senior)

Lake Erie College of Osteopathic Medicine - Erie, PA

Gene Expression Analysis of Effects of an Aging Microenvironment on Melanoma Cells

Mentor: Kevin Becker, Ph.D.

# NIDA

## **Behavioral Neuroscience Research Branch**

- (32) Bill S. Yu (Freshman)  
Johns Hopkins University - Baltimore, MD  
VTA Glutamate and Dopamine Levels Associated with a Second-Order Schedule of Cocaine Reinforcement in Rats  
Mentors: Stephan Steidl, Ph.D. and Katherine Cardiff, B.S.
- (33) Obioma J. Ekeledo (Sophomore)  
University of Georgia - Athens, GA  
Effect of the Toll-like Receptor 4 Antagonist (+)-Naloxone and the Mu Opioid Receptor Antagonist (-)-Naloxone on Heroin Reward in Rats  
Mentor: Yavin Shaham, Ph.D.
- (34) Tolu N. Omokehinde (High School – Junior)  
Montgomery Blair High School - Silver Spring, MD  
The Role of PTX3 in Chronic Pain  
Mentor: Toni Shippenberg, Ph.D.
- (35) Daniel R. Lindberg (Senior)  
University of Virginia - Charlottesville, VA  
Central Modulation of Nociception: The Role of the mPFC in a Spared Nerve Injury Model of Neuropathic Pain  
Mentor: Toni Shippenberg, Ph.D.
- (36) Shannon Y. Adams (High School – Senior)  
Phillips Academy at Andover - Andover, MA  
Mechanisms of Daunomycin-Induced Neuronal Inactivation: Fos Immunohistochemistry  
Mentor: Bruce Hope, Ph.D.
- (37) Paul Sohn (High School – Freshman)  
Rancho High School - Las Vegas, NV  
Effect of Oleoylethanolamide on Memory in Mice  
Mentor: Charles Schindler, Ph.D.
- (38) Vani P. Selvam (High School – Senior)  
Marriotts Ridge High School - Marriottsville, MD  
Mechanism of Daunomycin-Induced Neuronal Inactivation: Caspase-3  
Mentor: Bruce Hope, Ph.D.

(39) Niharika Yerrapragada (High School – Senior)

Legacy High School - Ocoee, FL

Effects of Nicotine on Locomotor Activity and Visual Sensation-Seeking in Rats.

Mentor: Satoshi Ikemoto, Ph.D.

(40) Xingyu Hou (High School – Senior)

Dulaney High School - Timonium, MD

Expression of Mu Opioid Receptor (MOR) and its Isoforms in Rat Dorsal and Ventral Striatum after Heroin Withdrawal

Mentor: Qing-Rong Liu, Ph.D.

(41) Adrian N. Chernyk (Senior)

Lafayette College - Easton, PA

Effects of Caffeine on Lever pressing for an External Stimulus in a Rat Model

Mentor: Satoshi Ikemoto, Ph.D.

(42) Thao Khuc (Senior)

University of Maryland - College Park, MD

Effects of Phencyclidine on Locomotor and Visual Sensation-seeking Activity in Rats

Mentor: Satoshi Ikemoto, Ph.D.

### **Cellular Neurobiology Research Branch**

(43) Nathaniel Fry (Senior)

Liberty University - Lynchburg, VA

Regulating Cellular Redox and Lipogenesis: Roles of the Sigma-1 receptor-Insig Complex

Mentor: Teruo Hayashi, M.D., Ph.D.

(44) Elizabeth E. Inyang (High School – Junior)

Oxon Hill High School - Oxon Hill, MD

Pavlovian Training in Mice

Mentor: Billy Chen, Ph.D. and Ikue Kusumoto, Ph.D.

(45) Safiya N. Correia (High School – Senior)

Wheaton High School - Silver Spring, MD

Dopaminergic, GABAergic, and Glutamatergic Neurons in the Ventral Tegmental Area and Adjacent Midline Nuclei

Mentor: Marisela Morales, Ph.D.

(46) Kun Leng (High School – Senior)

Dulaney High School - Timonium, MD

MALDI MSI of Phospholipids in Rat Brain

Mentor: Jeremy Post, B.S.

(47) Sumayyah K. Abiff (High School – Senior)  
Charlotte Amalie High School - Baltimore, MD  
Observing the Effects of PTEN on Dopamine Neuronal Transplants  
Mentor: Cristina Backman, Ph.D.

### **Chemical Biology Research Branch**

(48) Stephanie S. Shim (Graduate School – 1<sup>st</sup> Year)  
Temple University School of Medicine - Philadelphia, PA  
Identification of Novel Allosteric Dopamine Transporter Modulators  
Mentors: Richard Rothman, M.D., Ph.D. and John Partilla, B.S.

(49) Antonia N. Nwankwo (Senior)  
Hampton University - Hampton, VA  
Addictive Drug Action on Impulsive Behavior in a Reward-Delay Discounting Task in Laboratory Rats  
Mentors: Eliot Gardner, Ph.D. and Zheng-Xiong Xi, M.D., Ph.D.

(50) Siyuan Sheng (Senior)  
University of North Carolina- Chapel Hill - Chapel Hill, NC  
Effects of CTDP32476, a Long-acting DAT Inhibitor, on Cocaine-taking and Cocaine-seeking Behavior in Rats  
Mentors: Zheng-Xiong Xi, M.D., Ph.D. and Eliot Gardner, Ph.D.

(51) Muta Abiff (High School – Junior)  
Charlotte Amalie High School - Charlotte Amalie, Virgin Islands  
Identification of Brain Cannabinoid (CB2) Receptors with a New Mouse CB2 Receptor Antibody  
Mentors: Zheng-Xiong Xi, Ph.D. and Haiying Zhang, Ph.D.

### **Clinical Pharmacology and Therapeutics Research Branch**

(52) Nadji Lambert (High School – Sophomore)  
Northwood High School - Silver Spring, MD  
Hair Drug Concentrations Compared With Self-Reported Drug Use and Urine Tests in Applicants for an MDMA (Ecstasy) Clinical Study  
Mentors: Marilyn Huestis, Ph.D. and David Darwin, B.S.

## **Medications Discovery Research Branch**

(53) Belinda D. Weinberg (Senior)

University of Rochester - Rochester, NY

Behavioral Economics of Food Reinforcement and the Effects of Extinction in Dopamine D2 and Dopamine D3 Receptor Mutant Mice

Mentors: Jonathan Katz, Ph.D. and Paul Soto, Ph.D.

(54) Ashley P. Brock (High School – Junior)

Concord Academy - Concord, MA

Effects of Food Deprivation on the Response to Dopamine D3 Agonists

Mentors: Jonathan Katz, Ph.D. and Dawn French-Evans

(55) Shu Hayashi (High School – Senior)

Dulaney High School - Timonium, MD

Can the Stereotypy-inducing Effects of Atypical Dopamine Uptake Inhibitors Account for Their Blockade of Cocaine Self-Administration?

Mentors: Jonathan Katz, Ph.D. and Takato Hiranita, Ph.D.

(56) Gabriel Yepes (Junior)

Montgomery College - Rockville, MD

Effect of Adenosine A2A Receptor Blockade on Electrical Cortical Stimulation-induced Electromyographic Jaw Response

Mentor: Cesar Quiroz-Molina, Ph.D.

(57) Marne A. Garretson (Sophomore)

Bard College - Great Barrington, MA

Effects of Rimcazole on Cocaine-induced Dopamine Release

Mentor: Gianluigi Tanda, Ph.D.

## **Molecular Neurobiology Research Branch**

(58) Connor P. Reeves (Freshman)

University of Maryland - College Park, MD

Dopaminergic and Glutamatergic Mesoaccumbal Neurons in Mice

Mentor: Marisela Morales, Ph.D.

(59) Ameya A. Deshmukh (High School – Senior)

Upper Arlington High School - Columbus, OH

The Effect of Cadherin-13 (CDH-13) Gene Knockout on Oral Consumption in Mice

Mentor: Frank Hall, Ph.D.

(60) Afolayan K. Oladeji (High School – Junior)  
Lincoln Park High School - Chicago, IL  
Is Dominance Status a Potential Confound in Studies of Transgenic Mice?  
Mentor: F. Scott Hall, Ph.D.

(61) Christian M. Fisher (2009 Graduate)  
College of Notre Dame of Maryland - Baltimore, MD  
The Effects of Gene Knockout of the Cell Adhesion Molecule NrCAM in Standard Tests of Learning and Memory  
Mentors: George Uhl, M.D., Ph.D. and F. Scott Hall, Ph.D.

(62) Brandon L. Warren (Graduate School - 3rd Year)  
Florida State University - Tallahassee, FL  
The Effects of Cocaine Place Preference on Hippocampal Spinogenesis in Mice  
Mentor: F. Scott Hall, Ph.D.

(63) Katherine M. Serafine (Graduate School – 5<sup>th</sup> Year)  
American University, Washington DC  
The Role of Monoamines in Cocaine-induced Conditioned Taste Aversions  
Mentor: F. Scott Hall, Ph.D. and George Uhl, M.D., Ph.D.

### **Molecular Neuropsychiatry Research Branch**

(64) Ojel N. Nduanya (High School – Junior)  
Bowie High School - Bowie, MD  
AMPA Receptor Expression in the Nucleus Accumbens after Chronic Methamphetamine Exposure  
Mentor: Subramaniam Jayanthi, Ph.D.

(65) Pereviva E. Besong (High School – Senior)  
Friendship Academy of Science and Technology - Baltimore, MD  
The Effects of Self administered Cocaine and Heroin on the Expression of NMDA Receptors in a Rat Nucleus Accumbens  
Mentors: Jean Lud Cadet, M.D. and Michael McCoy

(66) Ntiense Inyang (High School – Junior)  
Dallastown Area High School - Dallastown, PA  
Toxic Doses of Methamphetamine Cause Activation of the TGF- $\beta$ /SMAD Signal Transduction Pathway  
Mentor: Genevieve Beauvais, M.S.

(67) Rodden J. Reyes (High School – Sophomore)  
Patterson High School - Baltimore, MD  
Examining the Relationship between ER Stress and the Neurotrophic Factor MANF  
Mentors: Brandon Harvey, Ph.D. and Mark Henderson, Ph.D.

(68) Connie S. Chen (High School – Junior)

River Hill High School - Clarksville, MD

Modulation of Subventricular Zone Cell Migration *in vitro*

Mentors: Yun Wang, M.D., Ph.D. and Seong Jin Yu, Ph.D.

(69) Joelle M. Meriwether (High School – Senior)

The Bullis School - Potomac, MD

The Neuroprotective Effects of Retinoic Acid on Methamphetamine Toxicity

Mentors: Yun Wang, M.D., Ph.D. and David Reiner, B.S.

(70) Joshua D. Newman (Sophomore)

University of Virginia - Charlottesville, VA

The Effects of METH and PG01037 on the Expression of Jun Family Members in the Rat Nucleus Accumbens

Mentor: Bruce Ladenheim, B.S.

(71) April P. Zhu (Freshman)

Wellesley College - Wellesley, MD

Phenotypic Characterization of Mesencephalic Astrocyte-Derived Neurotrophic Factor in *C. elegans*

Mentors: Christopher Richie, Ph.D. and Brandon Harvey, Ph.D.

(72) Kia A. Watson (High School – Senior)

Richmond Community High School - Richmond, VA

The Effects of Self-administered Cocaine and Heroin on the Expression of AMPA Receptors in the Rat Nucleus Accumbens

Mentor: Jean Lud Cadet, M.D.

(73) Devon Hitt (High School – Senior)

Roland Park Country School - Baltimore, MD

The Effects of Methamphetamine Self-Administration on the Expression of BDNF and Glutamate AMPA Receptors in the Rat Dorsal Striatum

Mentor: Irina Krasnova, Ph.D.

(74) Keenan T. Hope (High School – Junior)

Long Reach High School - Ellicott City, MD

Developing Infrared Fluorescent Protein for *in vitro* and *in vivo* Imaging of Neurons

Mentor: Brandon Harvey, Ph.D.

(75) Franchesca Ali (Graduate School – 1<sup>st</sup> Year)

Johns Hopkins University - Baltimore, MD

Methamphetamine Self-Administration is Associated with Changes in the Expression of NMDA Glutamate Receptors in the Rat Dorsal Striatum

Mentor: Irina Krasnova, Ph.D.

(76) Shibani R. Chettri (High School – Senior)  
Paint Branch High School - Burtonsville, MD  
METH and PG 01037 Effects on the Fos Family Gene Expression in the Rat Nucleus  
Accumbens  
Mentors: Bruce Ladenheim, B.S. and Jean Lud Cadet, M.D.

### **Neuroimaging Research Branch**

(77) Weiyue (Cecilia) Lu (High School – Junior)  
Centennial High School - Ellicott City, MD  
The Effect of COMT Val158Met Genotype and Childhood Abuse on Brain Structure in Healthy  
Volunteers  
Mentors: Yihong Yang, Ph.D. and Betty Jo Salmeron, M.D.

(78) Julie Najar (Senior)  
California State University, Chico - Chico, CA  
Assessment of Cocaine-induced Behavioral Effects in Marmoset Monkeys  
Mentor: Annabelle Belcher, Ph.D.

(79) Sheila A. Dougherty (Graduate – 2<sup>nd</sup> Year)  
California State University - Chico, CA  
The Effects of BDNF Val66Met and Childhood Trauma on Resting-State Functional  
Connectivity in Healthy Volunteers  
Mentors: Yihong Yang, Ph.D. and Betty Jo Salmeron, M.D.

(80) Kathryn Edwards (Graduate – 3<sup>rd</sup> Year)  
American University - Washington, DC  
The Neurobiological Mechanisms of Time Perception in Smokers  
Mentors: Elliot Stein, Ph.D. and Thomas Ross, Ph.D.