### 2019 Summer Undergraduate Poster Session Abstracts

### Use of fluorescent immunohistochemistry to visualize T cells and B cells in the dura mater of mice infected with *Borrelia burgdorferi*

<u>Daneyshalee Vargas<sup>1</sup></u>, Timothy Casselli<sup>2</sup>, Ali Divan<sup>2</sup>, Catherine Brissette<sup>2</sup> <sup>1</sup>Ana G. Méndez University (Cupey Campus), <sup>2</sup>Department of Biomedical Sciences, University of North Dakota School of Medicine and Health Sciences

### Characterization of Lung Changes in a Mouse Model of Alzheimer's disease

<u>Wendie Hasler<sup>1</sup></u>, Mona Sohrabi<sup>1</sup>, Taylor Schmit<sup>1</sup>, Nadeem Khan<sup>1</sup>, Sathish Venkatachalem<sup>2</sup>, Colin Combs<sup>1</sup> <sup>1</sup>Department of Biomedical Sciences, University of North Dakota School of Medicine & Health Sciences, <sup>2</sup>North Dakota State University

### Correlation between Life History Traits and Proportional Reproductive Biomass of Soil Nematodes

<u>Christina Francis<sup>1,2</sup></u>, Brian Darby<sup>1</sup>, and Mark Williamson<sup>1</sup> <sup>1</sup>University of North Dakota, Department of Biology, Grand Forks, North Dakota <sup>2</sup>Johns Hopkins University, Krieger School of Arts and Sciences, Baltimore, Maryland

#### Comparing biological, physical, and chemical indices of soil health

<u>Maya Quinn<sup>1</sup></u> and Brian Darby<sup>2</sup> <sup>1</sup>Samford University, <sup>2</sup>Department of Biology, University of North Dakota

### The role of CCCTC Binding Factor (CTCF) in Epithelial to Mesenchymal Transition (EMT)

<u>Amanda Amacher<sup>1</sup></u>, Atrayee Bhattacharya<sup>2</sup>, Junguk Hur<sup>2</sup>, and Archana Dhasarathy<sup>2</sup> Lake Region State College, Devils Lake, ND <sup>2</sup>Department of Biomedical Sciences, School of Medicine and Health Sciences, University of North Dakota, Grand Forks, ND

### Cirazoline's Effect on Mice Behavior, Spatial Learning, and Memory: Is Neurogenesis the Cause?

Lauren A. Fleming<sup>1</sup>, Jason A. Power<sup>2</sup>, Rosa M. Grijalva<sup>3</sup>, Guadalupe C. Guadarrama<sup>4</sup>, Van A. Doze<sup>2</sup> <sup>1</sup>Department of Life Sciences, Wayne State College, Wayne, NE 68787 <sup>2</sup>Department of Biomedical Sciences, University of North Dakota School of Medicine & Health Sciences, Grand Forks, ND <sup>3</sup>Department of Neuroscience Wellesley College, Wellesley, MA

<sup>4</sup>Neuroscience Program at University of Washington Seattle WA

<sup>4</sup>Neuroscience Program at University of Washington, Seattle, WA

### Investigating the Effects of an $\alpha$ -1A Agonist on Neurogenesis

<u>Rosa Grijalva<sup>1</sup></u>, Jason Power<sup>2</sup>, Guadalupe Guadarrama<sup>3</sup>, Lauren Fleming<sup>4</sup>, Van Doze<sup>2</sup> Department of Neuroscience, Wellesley College<sup>1</sup>, Department of Biomedical Sciences, University of North Dakota, School of Medicine & Health Sciences<sup>2</sup>, Neuroscience Program, University of Washington<sup>3</sup>, Department of Life Sciences, Wayne State College<sup>4</sup>

#### The Function of an $\alpha_{1A}AR$ Agonist in the Formation of New Neurons

<u>Guadalupe Guadarrama</u><sup>1</sup>, Jason A. Power<sup>2</sup>, Rosa Grijalva<sup>3</sup>, Lauren Fleming<sup>4</sup>, Van A. Doze<sup>2</sup> <sup>1</sup>Neuroscience Program, University of Washington, <sup>2</sup>Department of Biomedical Sciences, University of North Dakota School of Medicine and Health Science, <sup>3</sup>Department of Neuroscience, Wellesley College, <sup>4</sup>Department of Life Sciences, Wayne State College

### Sodium Hydrogen Exchanger Isoform 1 (NHE1) Palmitoylation by Palmitoyl Acyl Transferase Isoform 5 (DHHC5)

<u>J'Kayla Edwards<sup>1</sup></u>, Moriah J. Hovde<sup>2</sup> and James D. Foster<sup>2</sup> <sup>1</sup>Spring Hill College, Mobile, AL <sup>2</sup>Department of Biomedical Sciences, University of North Dakota, School of Medicine and Health Sciences, Grand Forks, ND

### Regulation of Dopamine Transporter Palmitoylation by Acyl Protein Thioesterase 1 in vitro

<u>Cheyenne N. Perez-Bailey</u><sup>1</sup>, Alexandra M. Ward<sup>2</sup>, Moriah J. Hovde<sup>2</sup> and James D. Foster<sup>2</sup> <sup>1</sup>Department of Natural Sciences and Mathematics, Dallas Baptist University, Dallas, TX <sup>2</sup>Department of Biomedical Sciences, University of North Dakota, School of Medicine and Health Sciences, Grand Forks, ND

### Lysosomal Gene Expression in Hyperglycemic Proximal Tubule Cells

<u>Spencer W. Breen</u>, Rachel E. Guyer, Swojani Shrestha, Scott H. Garrett Department of Pathology, University of North Dakota School of Medicine and Health Sciences, Grand Forks, ND

#### Expression of LIPA, VPS41, TPP1 and TXNIP in hyperglycemic in-vitro HPT cells

<u>Stephen Dwumfour</u>, Rachel Guyer, Prakash Pathak, Swojani Shrestha, Scott Garret Department of Pathology, University of North Dakota School of Medicine & Health Sciences, Grand Forks, ND

### Expression of RRAGC, PSAP, and FNBP1 in Human Proximal Tubule Cells Exposed to High Levels of Glucose

<u>Julia L. Kochanowski</u>, Rachel E. Guyer, Swojani Shrestha, Scott M. Garrett Department of Pathology, University of North Dakota School of Medicine & Health Sciences, Grand Forks, ND

### EGFR, LDLR, mTOR, and AKR1B10 Expression in HPT cells when Exposed to High Glucose Levels

<u>Nathan Moe</u>, Rachel Guyer, Prakash Pathak, Swojani Shrestha, Scott Garrett Department of Pathology, University of North Dakota School of Medicine and Health Sciences, Grand Forks, ND

### Expression of CLCN7, FYCO1, and LGMN in Renal Proximal Tubule

<u>Nobuki Hida</u>, Rachel Guyer, Swojani Shrestha, Scott Garrett Department of Pathology, University of North Dakota School of Medicine and Health Sciences, Grand Forks, ND

NPC, NEU1, CTNS expression and localization in glucose exposed Human Proximal Tubule (HPT) Cell line <u>Michael D. Ridgley</u>, Rachel Guyer, Swojani Shrestha and Scott H. Garrett Department of Pathology, University of North Dakota School of Medicine & Health Sciences, Grand Forks, ND

### Expression of HEXB, RRAGD, and SQSTM in glucose exposed human proximal tubule cells.

<u>Alexis Volkert</u>, Rachel Guyer, Matthew Kalonick, Śwojani Shrestha, Scott Garrett Department of Pathology, University of North Dakota School of Medicine & Health Sciences, Grand Forks, ND

## Neonate mouse exposure to selective serotonin reuptake inhibitors alters behavior in a sex-dependent manner *Jessie Nagle<sup>1</sup>*, *Meghan Rodriquez<sup>2</sup>*, and L. Keith Henry<sup>2</sup>

<sup>1</sup>Department of Biology, Shippensburg University, Shippensburg, PA <sup>2</sup>Dept of Biomedical Sciences, Univ of North Dakota School of Medicine and Health Sciences, Grand Forks, ND

# Characterization of Expression Changes for a Subset of Target Genes Hypothesized to be Involved in Methamphetamine Response

<u>Zoë Sweeney<sup>1</sup></u>, Habibeh Khoshbouie<sup>2</sup>, and L. Keith Henry<sup>3</sup> <sup>1</sup>College of the Sequoias, Visalia, CA, <sup>2</sup>Dept of Neuroscience, University of Florida, Gainesville, FL, <sup>3</sup>Dept of Biomedical Sciences, University of North Dakota, Grand Forks, ND

# Impact of N-terminal Phosphomimetic Mutants on Substrate-Induced Enhancement of Uptake by the Dopamine Transporter

<u>Evan Walter</u>, Michael Allen, Madhur Shetty and L. Keith Henry Dept of Biomedical Sciences, University of North Dakota School of Medicine and Health Sciences, Grand Forks, ND

### Role of C/EBPa in Macrophage-Neutrophil Cell Differentiation

<u>Raba Tefera<sup>1</sup></u>, Maddison Naylor<sup>2</sup>, Tapas Bhattacharyya<sup>2</sup>, and Manu<sup>2</sup> <sup>1</sup>Carleton College, <sup>2</sup>Biology Department, University of North Dakota

# Decreased Neural Activity in the Auditory Cortex Associated with Behavioral Abnormality in a Mouse Model of Cow's Milk Allergy

<u>William P. Berning<sup>1</sup></u>, Nicholas A. Smith<sup>2</sup>, Danielle L. Germundson<sup>2</sup>, Kumi Nagamoto-Combs<sup>2</sup> Concordia College Moorhead<sup>1</sup>, Moorhead, MN and Department of Pathology<sup>2</sup>, University of North Dakota School of Medicine and Health Sciences, Grand Forks, ND

### The Correlation of Chromatin Modifications H3K4me3 and H3K4me1 to Gene Expression

<u>Dawson Hollingsworth<sup>1,2</sup></u>, Danielle Perley<sup>1</sup>, Sayantani Ghosh Dastidar<sup>1</sup>, Sergei Nechaev<sup>1</sup> <sup>1</sup>University of North Dakota School of Medicine and Health Sciences, <sup>2</sup>Oregon State University

### A Novel Method for Effectively Analyzing Open Field Behavior and its Application to the Common Snapping Turtle (Chelydra serpentina)

<u>Soleille Miller<sup>1</sup></u>, Turk Rhen<sup>1</sup> <sup>1</sup>University of North Dakota Department of Biology

**Cause for Shell-ebration: Proteins Involved in siRNA Knockdown are Functional in Chelydra serpentina** <u>Sydney Winterton<sup>1</sup></u>, Jacob Bierstedt<sup>2</sup>, Alyssa Erickson<sup>2</sup>, Turk Rhen<sup>2</sup> <sup>1</sup>Southern Virginia University, <sup>2</sup>University of North Dakota Department of Biology

Identification of the sex-determining gene, *doublesex*, in tussock moths (Lepidoptera: Erebidae: Lymantriinae) <u>Dimitri Bazile<sup>1</sup></u>, Darian Montplaisir<sup>2</sup>, and Rebecca B. Simmons<sup>2</sup> <sup>1</sup>Department of Chemistry, Stony Brook University, <sup>2</sup>Department of Biology, University of North Dakota

### Arsenic-induced Luminal to Basal Cancer Subtype Transformation

<u>Nicholas Bergum</u>, Matthew Kalonick, Swojani Shrestha, and Seema Somji Department of Pathology, University of North Dakota School of Medical Health and Sciences, Grand Forks, ND

## Effect of Arsenite on Expression of FOXA1, SNAI1, and CDH-2 and the Luminal to Basal Transition in the NMIBC HTB-2 Cell Line

<u>Katrina G. Blommel</u>, Matthew J. Kalonick, Swojani Shrestha, Seema Somji Department of Pathology, University of North Dakota School of Medicine and Health Sciences, Grand Forks, ND

### Gene expression of GATA3, VIM & SLUG in short and long term As<sup>3+</sup> exposure to the HTB-2 cell line

<u>Carley Knudsen</u>, Matthew Kalonick, Prakash Pathak, Swojani Shrestha, Seema Somji Department of Pathology, University of North Dakota School of Medicine & Health Sciences, Grand Forks, ND

#### FABP4, KRT6A, 6B, 6C and EGFR Expression in Arsenic Exposed HTB-2 Cells

<u>Peter Knutson</u>, Matthew Kalonick, Prakash Pathak, Swojani Shrestha and Seema Somji Department of Pathology, University of North Dakota School of Medicine and Health Sciences, Grand Forks, ND

### Effect of Arsenic Exposure on Expression Levels of FGFR3, Alpha Smooth Muscle Actin, and TWIST in HTB-2

<u>Eunpyung Suk</u>, Matthew J. Kalonick, Prakash Pathak, Swojani Shrestha, Seema Somji Department of Pathology, University of North Dakota School of Medicine and Health Sciences, Grand Forks, ND

## Metallothionein expression for TERT1 cells in conditioned and unconditioned media and HTB-2 cells exposed to cadmium

<u>Kyle Wegner</u>, Prakash Pathak, Seema Somji, Swojani Shrestha, Department of Pathology, University of North Dakota School of Medicine & Health Sciences, Grand Forks, ND

### Digenean larvae in Minnesota and North Dakota mollusks: How common are swimmer's itch agents?

<u>Nicholas J. Jorenby<sup>1</sup></u>, <u>Davis J. Ekman<sup>2</sup></u>, Tyler J. Achatz<sup>3</sup>, Vasyl V. Tkach<sup>3</sup> <sup>1</sup>University of Wisconsin–Stevens Point, <sup>2</sup>University of Minnesota–Crookston, <sup>3</sup>University of North Dakota

### What's in Our Fish?

<u>Jakson R. Martens</u>, Tyler J. Achatz, Vasyl V. Tkach Department of Biology, University of North Dakota

#### **Expression of Schlafen 12 is Down Regulated in UROtsa Cells Following Transformation by Arsenite.** *Dayton Green<sup>1</sup>*, *Brent Voels<sup>1</sup>*

<sup>1</sup>Cankdeska Cikana Community College, Ft. Totten, ND

### Schlafen 12 Expression is Down Regulated in UROtsa Cells Exposed to Cadmium

<u>Sydney Jacobs<sup>1</sup></u>, Brent Voels<sup>1</sup> <sup>1</sup>Cankdeska Cikana Community College, Ft. Totten, ND

### Schlafen 12 Expression is Significantly Lower in Aresnite and Cadmium Transformed UROtsa Cells

<u>Alexis Lohnes<sup>1</sup></u>, Dayton Green<sup>1</sup>, Sydney Jacobs<sup>1</sup>, Brent Voels<sup>1</sup> <sup>1</sup>Cankdeska Cikana Community College, Ft. Totten, ND