



Concord University
The 14th CU Research Festival

April 13-14, 2023

Jean and Jerry L. Beasley Student Center
State Room and Ballroom

The 14th CU Research Festival

Schedule of Events

Thursday, April 13

12 PM Welcoming and Opening Remarks
(coffee and refreshments available in ABC Conference Room)

12:30 PM - 2 PM Student Paper Session

2 PM Introduction of the Keynote speaker: Dr. Rodney Klein

Keynote Address:
"From McNair to Metabolism: Understanding the Role of Bile Acids in Type 2 Diabetes"
Dr. Holly Cyphert
Associate Professor of Health Sciences • Marshall University

3 PM Closing Remarks



Dr. Holly Cyphert

*Assistant Professor of Health Sciences
Marshall University*

Dr. Holly Cyphert is an Oak Hill, West Virginia native that received her B.S. in Biology from Concord University. During her time at Concord, Holly was a track athlete, an SSS tutor, and a McNair Scholar. For her McNair research project, she worked with Dr. Darla Wise of Concord and Dr. Eric Blough of Marshall University. Following her tenure at Concord, Holly started her graduate career at WVU School of Medicine in the Biochemistry Department. Under her advisor, Dr. Brad Hilgartner, Holly worked on understanding the regulation of a novel anti-diabetic factor under different dietary conditions. During her time at WVU, she received an American Heart Pre-Doctoral Fellowship. Using the metabolism/type-2 diabetes background, Holly moved to Nashville, TN to begin a post-doctoral fellowship at Vanderbilt University. At Vanderbilt, Holly began to focus more on the pancreas and transcription factors involved in type 2 diabetes and received an HIH F32 fellowship of this work. Following her post-doctoral fellowship, Holly joined the Biological Sciences Department at Marshall University where she now teaches in the department and continues to research type 2 diabetes along with other projects. In her spare time, Holly enjoys being outdoors with her two kids, running, coaching for the YMCA and playing basketball with her colleagues.

Paper Session • State Room • 12:30 PM - 2 PM

12 PM

Dendroecological Potential of Riverscour Woodland Tree Species Haidyn DePinho and Dr. Tom Saladyga

Abstract Appalachian riverscour woodlands are frequently flooded areas characterized by exposed bedrock and poorly developed sandy soils, high plant diversity, and scattered and stunted trees. These sites are negatively impacted by dam construction and alterations to river hydrology, trampling associated with riverside recreation activities, and non-native species. In West Virginia, little is known about the development of riverscour woodlands or the growth and climate sensitivity of associated tree species. In this study, we evaluated the dendroecological potential of riverscour woodland trees by sampling multiple species at one 0.3-hectare riverscour woodland site within New River Gorge National Park & Preserve. Our initial findings deserve further investigation and suggest that a dendroecological analysis of riverscour woodland trees can provide new insights for the management of these dynamic riparian plant communities.

12:15 PM

Counterfactual Possibility: The Protagonist is to Blame Taylor Brown and Dr. Rodney Klein

When pondering on regrets, people tend to dwell on the antecedent events that led to the outcome and wondering, "what if?" in an attempt to alter their reality. Counterfactual thinking refers to these alternatives we create for reality. In the first study, the participants read a short story focusing on one of two characters getting into an automobile accident. In the second study, the participants read a short story again focusing on one of two characters that were in the same automobile accident, but the characters were someone else or themselves. In both studies the participants were asked, "what would you change to prevent the accident from occurring?" These results, consistent with our hypotheses, suggest that we tend to attribute causation to the events most immediately preceding a negative outcome, make different causal inferences depending on the main character of a story, and tend to demonstrate the fundamental attribution error.

12:30 - 1 PM • Break

1 PM

The Use, Misuse, And Abuse Of Classical Latin In Pop Culture: Harry Potter Grace King and Dr. Thomas McKenna

The Harry Potter series by J.K. Rowling immerses audiences in a world that appears to have a historical influence of Latin. Rowling was influenced by her educational background to generate these words and phrases. Classical Latin was a scholarly language until modern day. Classical Latin was also a scholarly language of Renaissance Magic. Rowling's education and knowledge of her audience may have led her to use Latin to create these terms. However, the terms are not all proper Latin. A close study of the terms translated into Classical Latin was conducted.

1:15 PM

Examination of p53 Oligomerization of Selective Gene Expression Riley Costello and Dr. Kim Chambers

TP53, a tumor suppressor gene, is the most mutated gene in human cancer. This gene codes for a stress-responsive transcription factor responsible for gene expression activation involved in cell cycle arrest, repairing DNA damage, and inducing apoptosis. P53 has been proposed to bind to specific regulatory DNA sequences as a tetramer to induce gene expression. Recent evidence suggests that different oligomer forms can activate cellular responses. Yeast strains were generated to produce p53 protein that form either a monomer or dimer via deletion or

Paper Session • State Room • 12:30 PM - 2 PM

duplication of the oligomerization domain. Then, comparison between the ability of these different oligomer forms to transactivate reporter genes with a p21 (cell cycle arrest) or Bax (apoptosis) regulatory sequence can be established. The unaltered tetrameric p53 activates genes with either regulatory sequence. From this research, we gain a better understanding of the oligomerization domain and how mutations within it impact proper functioning of p53.

1:30 PM

American Heroes in Hoop Skirts: Examining the Legacies of Two Female Civil War Spies Brandi Blake and Dr. Jonathan Berkey

During the American Civil War, Confederate Rose O'Neal Greenhow and Unionist Elizabeth Van Lew risked their lives to shape the conflict in unthinkable ways for nineteenth century ladies. They operated spy rings and used their societal influence to access to confidential information. Greenhow's intelligence affected the First Battle of Bull Run; Van Lew helped Union soldiers escape horrific prison conditions. Though their espionage careers were incredibly similar, their Reconstruction-era reputations could not be more different. Greenhow drowned in 1864 but was lauded internationally. Van Lew was ostracized in post-war Richmond and died in poverty. Greenhow was brazen, while Van Lew was relatively withdrawn. This project examines the careers and legacies of Greenhow and Van Lew through sources such as their autobiographies, correspondence, documents from the Library of Congress, and secondary sources such as books detailing in the Civil War to provide insight into the lives of the two women.

1:45 PM

Using Microwaves to Accelerate the Preparation of Emissive Rare Earth Materials for Security Inks Ciersten Rose and Dr. Rodney Tigaa

Rare earths such as the lanthanide ions, Ln(III), continue to receive much attention due to their unique properties for modern technological applications. This has resulted in lanthanides being classified as critical materials which have geopolitical and economic implications. Thus, there remains a need to investigate the chemistry of these elements. The goal of the proposed work was to synthesize and characterize polybenzimidazole derivatives to selectively coordinate Ln(III) ions and tune their optical properties for security inks. Through this work, we successfully developed a new microwave method for preparing tris-(2-benzimidazolylmethyl)amine (BimH3) and tri-ethyl 2,2',2''(2,2',2''nitrilotris(methylene)tris(1Hbenzimidazole-2,1-diyl)) triethanoate (BimOEt3). Analysis of the obtained samples by a combination of structural and optical methods indicated successful synthesis of the BimH3 (30% yield) and BimOEt3 (86% yield) ligands. Following that, BimOEt3 complexes Eu, Tb, and Ce were synthesized.

The 14th CU Research Festival

Schedule of Events

Notes and Autographs

Friday, April 14

- 10 AM - 1:30 PM Graduate & Professional School Fair in Ballroom
(beverages and refreshments available in Ballroom)
- 10 AM Welcome and Opening Remarks from Concord Univesrity
Provost & Vice President for Academic Affairs,
Dr. Edward W. Huffstetler
- 10 - 11:30 AM Poster Session 1
- 11:30 AM - 12 PM Poster Transition from Session I to Session II
(light snacks available in Ballroom)
- 12 - 1:30 PM Poster Session 2
- 1:30 PM Academic Tik Tok Party



Poster Session 1 • 10 - 11:30 AM

1	How does Physical Activity Prevent the Development of Childhood Obesity	Stephanie Amick, Kelli Mann, and Dr. Jill Nolan
2	Comparing dietary intake of free-feeding to feeding in restrained imaging chamber environments using seven days post fertilization larvae	Chandler Russell and Dr. James Walters
3	Environmental Justice for Superfund Sites in Hillsborough County, Florida	Alexander Chernauskas and Dr. Tom Saladyga
4	Starvation adaptation of Pseudomonas aeruginosa isolates in water decreases pathogenicity in mice	Ashlei Kelly and Dr. Tesfaye Belay
5	Comparing Physical Training Methods for Glaucoma Prevention	Benjamin Lim and Dr. Jill Nolan
6	Determining The Structure Of The Milky Way Galaxy Using a Horn Radio Telescope	SangMin Ho and Dr. John Makous
7	The role of beta2-adrenergic receptor during Chlamydia muridarum genital infection in stressed mice	Danielle Baker and Dr. Tesfaye Belay
8	Dendroecological Potential of Riverscour Woodland Tree Species	Haidyn DePinho and Dr. Tom Saladyga
9	Vulnerability of Gas Pipelines in West Virginia	Haidyn DePinho and Dr. Tom Saladyga
10	How Does Insurance Effect Physical Therapy Rehabilitation Outcomes	Delando Morris and Dr. Jill Nolan
11	Natural Hazard Vulnerability in West Virginia	Andrew Trump and Dr. Tom Saladyga
12	Differential infectivity pattern of Pseudomonas aeruginosa isolates shown in mice strains	Caleb Fritz and Dr. Tesfaye Belay
13	Study of Steric Hindrance of Ketone Ester Reduction Chemistry	Sana Mazhar and Dr. Kim Young
14	What are County Level Outcomes Related to Flea and Tick Medications?	Ciersten Rose and Dr. Jill Nolan
15	Using Microwaves to Accelerate the Preparation of Emissive Rare Earth Materials for Security Inks	Ciersten Rose and Dr. Rodney Tigaa
16	Modulation of immune response of stressed male mice during Chlamydia muridarum lung infection	Natasha Woart and Dr. Tesfaye Belay

Poster Session 1 • 10 - 11:30 AM

17	Measuring the Quality of Life Comparing Myoelectric Prosthesis Versus Body-Powered Prosthesis	Lillian Miller and Dr. Jill Nolan
18	Socioeconomic Relations to Grocery Stores in Appalachia	Madison Cook and Dr. Tom Saladyga
19	Differences Between UCL Reconstruction and UCL Repair	Jack Colagiovanni and Dr. Jill Nolan
20	How Exercise Improves Mental Health	Jaedon Diggs, Kelli Mann, and Dr. Jill Nolan
21	Impacts of COVID-19 on Unemployment Rate in the State of New York	Ricardo China-Pegler and Dr. Tom Saladyga
22	Kinesiotaping in Alleviating Shoulder Pain	Delaney Fulk and Dr. Jill Nolan
23	Common Recovery Techniques Among Collegiate Athletes	Stephen Hayslette and Dr. Jill Nolan
24	Concord University Daycare Tracker	Dalton Walker, Emily Craddock, Traivius Chappell, and Dr. Mark Dietrich
25	Alcohol Effects on Overall Health	Logan Williams and Dr. Jill Nolan
26	Yard Work	Oscar Cabrera and Mark Dietrich
27	Ingred-Able	Briana Riley, Matthew Mullins, Dawson Tolbert, Isaiah Allen, and Mark Dietrich
28	Frequency of ACL Injuries Real and Artificial Grass	Ian Mitchell, Kelli Mann, and Dr. Jill Nolan
29	Influences on Performance Anxiety in Athletes	Alexandria Sydnor, Kelli Mann, and Dr. Jill Nolan
30	Quality of Life in Surgical and Non-Surgical Repairs of ACL	Derek Farley, Kelli Mann, and Dr. Jill Nolan
31	Relationship Between Mental Health and Overtraining	Kyndra Pilant and Dr. Jill Nolan

Poster Session 2 • 12 - 1:30 PM

1	Differentiating delinquency and the relationship with adult arrest	Amanda Booth and Dr. Raymond Smith
2	The Effects of a Specific Drug on Cytoskeletal Microtubules Using a Recombinant Plasmid	Keiley Duddling, Malerie Hendrick, Jacob Lester, and Dr. Kim Chambers
3	Analyzing Microplastics in Various Lakes; Bluestone Lake, Claytor Lake, Long Branch Lake, & Lake Moomaw	Keiley Duddling and Dr. Douglas Creer
4	The Effects of Microtubule Destabilizing Drugs on Mammalian Cells	Kyleigh Wyatt, Ciersten Rose, Allison Dunbar, and Dr. Kim Chambers
5		Sandra Mills and Dr. Douglas Creer
6	The Effect of a Microtubule-Targeted Drug on Microtubule Structure	Sydney Tucker, Hanna Cooper, and Dr. Kim Chambers
7	Bacteria Growth on Plastics in Local Freshwater Ecosystems	Jonathan Sweeney, Zoey Snider, and Dr. Thomas Ford
8	Effects of Benzalkonium Chloride on Antibiotic Resistance Profiles of Staphylococcus aureus and Pseudomonas aeruginosa	Kennedy Pugh and Dr. Douglas Creer
9	Classical Conditioning through Auditory and Visual Stimuli	Jacquilyn Harvey and Dr. Rodney Klein
10	Adobe Through the Years	Miranda Lucas and Dr. Karen Griffiee
11	Observation of a microtubule targeted drug and its effect on mi-crotubule localization and structure within JEG-3 mammalian cells	Lia Jennings, Michael Kwakye, and Dr. Kim Chambers
12	The Effects of Cacao Concentration in Chocolate on Test Taking	Alexandria Mizia and Dr. Douglas Creer
13	Memory in two parents homes VS split homes	Amber Hall, Kaylee Spees, and Dr. Rodney Klein
14	New Mexicans and Their Differing Identities Based on Location	Leah Flanigan and Dr. Karen Griffiee
15	The Effects of BPA On the Germination of Radish Seeds	Sarah Pendleton and Dr. Douglas Creer
16	The Effects of Microtubule-Targeted Drugs through Observation of Transfected Mammalian Cells Expressing Green-Fluorescent Protein (GFP) and Alpha-Tubulin Fusion	Kayla McCraw, Lucas Doss, and Dr. Kim Chambers
17	How Microtubule-Targeted Drugs Effect Microtubule Localization and Structure	Faith Ketron, Kaitlyn Copley, and Dr. Kim Chambers
18	How Language Impacts Memory	Kristin Lawson and Dr. Rodney Klein
19	Effects of Music on Memory	Courtney Smith and Dr. Rodney Klein
20	The Effects of Stress on the Short-Term Memory of Athletes	Courtney Smith and Dr. Rodney Klein
21	Effects of microtubule-targeted drugs using GFP labeled microtubules in mammalian cells	Kelly Hanson, Chris Satcher and Dr. Kim Chambers
22	The Impact of Sleep and Anxiety on The Academic Performance of College Students	Lauren deLong and Dr. Douglas Creer
23	How Nutrition Affects Mental Health Within College Students	Natalie James and Dr. Douglas Creer

Poster Session 2 • 12 - 1:30 PM

24	Observed Social Behaviors in College Students	Kaley Allen and Dr. Rodney Klein
25	Are Emotions Connected to Colors	Sophia Conger, Kady Livesay, and Dr. Rodney Klein
26	The Prevalence of Inherited Genetic Disorders in Closely-bred Dogs	Ciah Russell and Dr. Douglas Creer
27	Effect of altering p53 cooperativity on selective gene expression	Sarah Taylor and Dr. Kim Chambers
28	Examination of p53 Oligomerization of Selective Gene Expression	Riley Costello and Dr. Kim Chambers
29	Southern West Virginia Angler Report	Chandler Cooper and Dr. Douglas Creer
30	Can Students with Special Needs Attend College?	Brittany Rose and Dr. Anita Deck
31	Voice to Name Recognition	Matthew Lester and Dr. Rodney Klein
32	The Comparison of Men and Women in College Athletics with Respect to Mental Health and Stress Levels	Robert Stiles and Dr. Douglas Creer
33	Transfecting Mammalian Cells to Express the GFP-Human ???-Tubulin Fusion Protein to View Microtubules and Effects of Microtubule-Targeted Drugs	Robert Stiles, Brady Whitehead, and Dr. Kim Chambers
34		A Student with Dr. Crick



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