32nd annual meeting of the Ohio Physiological Society
Northeastern Ohio Medical University (NEOMED)
Rootstown, OH
NEW Center
October 27, 2017
Friday, October 27, 2017:

8:00 - 9:00 a.m.  REGISTRATION and Continental Breakfast

9:00 a.m. Welcome and Opening Remarks – Dr. Joseph Zarconi, NEOMED

9:15 - 9:30 a.m. Oral Presentation 1:  Kevin McElhanon, Graduate Student, Ohio State University
“Auto-antibodies targeting a critical component of sarcolemma resealing contributes to idiopathic immune myopathy pathophysiology”

9:30 - 9:45 a.m. Oral Presentation 2:  Isha Mhatre, Graduate Student, NEOMED
“Mitochondrial dysfunction in C57BL/6J primary astrocytes following exposure to DDT”

9:45 - 10:00 a.m. Oral Presentation 3: Loren Geiss, Graduate Student, University of Dayton
“Freeze tolerance and cryoprotection of dryophytes chrysoscelis erythrocytes”

10:00 - 10:15 a.m. Oral Presentation 4: Taejeong Song, Postdoctoral Fellow, University of Cincinnati
“Skeletal muscle myopathy in dilated cardiomyopathy induced heart failure mouse”

10:15 - 10:30 a.m. Coffee Break – Sponsored by the NEOMED REDIZone

10:30 - 11:30 a.m. Keynote Address – Dr. Kenneth Walsh
Sponsored by Summa Health - Research and Sponsored Programs & Innovation

11:30 a.m. Lunch – Cook Alumni Hall

12:05 – 1:15 p.m. Student “Blitz” presentations – (13) Graduate, (9) Undergrad Students

1:15 – 2:30 p.m. Poster Session A

2:30 – 2:45 p.m. Oral Presentation 5: Alex Ruwe, Graduate Student, University of Cincinnati
“Calcium activates ferroportin-mediated cellular iron efflux”

2:45 – 3:00 p.m. Oral Presentation 6: Tori Czech, Graduate Student, NEOMED
“Bioengineering of thermoreversible hydrogel for potential application in bone fracture healing”

3:00 – 3:15 p.m. Oral Presentation 7: Darren Gordon, Graduate Student, University of Toledo
“Bilirubin burns fat by the nuclear receptor PPARα”

3:15 – 4:30 p.m. Poster Session B

4:45 p.m. Business Meeting, Awards and Group photo.
Adjourn – safe travels home!
2017 OPS Officers and Organizing Committee

**OPS Officers**

President     J. Gary Meszaros, Ph.D.
               NEOMED
Treasurer     Dan Halm, Ph.D.
               Wright State University
President Elect   Bryan Mackenzie, Ph.D.
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               Ohio State University
Sage          Peter Lauf, Ph.D.
               Wright State University

**Organizing Committee**

Karen Greene, CAP-OM, NEOMED
Ileen Ciccozzi, BBA, NEOMED

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**KEYNOTE LECTURE**

“A common physiological link between hematological cancer and cardiovascular disease”

Kenneth Walsh, Ph.D.
Aram V. Chobanian Distinguished Professor
Director, Whitaker Cardiovascular Institute
Boston University School of Medicine
OPS 2017 Sponsors and Donors

The Ohio Physiological Society gratefully acknowledges the financial support of the following sponsors and donors of OPS 2017

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College of Pharmacy, Office of the Dean – Dr. Richard Kasmer

Biomedical Sciences Graduate Program – Alex Galazyuk, Ph.D.

Integrated Pharmaceutical Medicine Graduate Program – Denise Inman, Ph.D.

Research, Entrepreneurship, Development and Innovation (REDIZone) – Elliott Reed, J.D., MBA

Dept. of Integrative Medical Sciences – William Chilian, Ph.D.
### Poster Presenters (alphabetical)

<table>
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Abstracts (numerical)
Poster Session A (1-30); Poster Session B (31-63)

Abstract 1: Activation of Farnesoid X Receptor Attenuates Inflammatory Response of Cytokine-Exposed Immortalized and Primary Mouse Astrocytes
Presentor/Institution: Shelbie Burchfield, NEOMED
Mentor: Dr. Jason Richardson

Abstract 2: Stimulation of Coronary Collateral Growth by Induced Smooth Muscle Vascular Progenitor Cells in Metabolic Syndrome
Presentor/Institution: Anurag Jamaiyar, NEOMED
Mentor: Dr. Liya Yin

Abstract 3: A Novel Regulatory Role of TRAPPC9 in L-Plastin-mediated Actin Ring Formation and Osteoclast
Presentor/Institution: Nazar Hussein, Kent State University
Mentor: Dr. Fayez Safadi

Abstract 4: A Comparison Between Osteoactivin and Bone Morphogenetic Protein-2 in a Rat Spinal Fusion Model
Presentor/Institution: Kevin Budge, Kent State University
Mentor: Dr. Fayez Safadi

Abstract 5: Stabilization of Hypoxia Inducible Factor by Cobalt Chloride Can Alter Renal Epithelial Transport
Presentor/Institution: Subhra Nag, Cleveland State University
Mentor: Dr. Andrew Resnick

Abstract 6: Nitrite Regulates Mitochondrial Dynamics to Inhibit Vascular Smooth Muscle Cell Proliferation & Restenosis
Presentor/Institution: Christopher Reyes, University of Pittsburgh
Mentor: Dr. Sruti Shiva
Abstract 7: Renal proximal tubule-specific knockout of Na/K-ATPase α1 in the mouse  
Presenter/Institution: Shreya Mukerji, Marshall University  
Mentor: Drs. Zijian Xie, Sandrine Pierre

Abstract 8: Calibration of intracellular ion probes  
Presenter/Institution: Priyanka Rana, Kent State University/NEOMED  
Mentor: Dr. Michael Model

Abstract 9: Inhibition of IL-1β induced NO by Imperatorin in human OA chondrocytes  
Presenter/Institution: Nashrah Ahmad, NEOMED  
Mentor: Dr. Tariq Haqqi

Abstract 10: The Therapeutic Effect of GPNMB in a Traumatically-Induced Osteoarthritic Model  
Presenter/Institution: Bryson Cook, Kent State/NEOMED  
Mentor: Dr. Fayez Safadi

Abstract 11: TRPV4 deletion improves cardiac function, structure and remodeling following myocardial infarction  
Presenter/Institution: Ravi Adapala, NEOMED  
Mentor: Dr. Charles Thodeti

Abstract 12: Development of combined LC-MS/MS analysis for Citric Acid Cycle Intermediates, Acylcarnitines and Amino Acids  
Presenter/Institution: Rohan Shah, Cleveland State University  
Mentor: Dr. Yana Sandler

Abstract 13: Cytochrome B5 Reductase 3 is required for proper cardiomyocyte heme redox regulation and function  
Presenter/Institution: Nolan Carew, University of Pittsburgh  
Mentor: Dr. Adam Straub

Abstract 14: Hepcidin interaction with ferroportin in the Xenopus oocyte expression system  
Presenter/Institution: Kyle Vieth, University of Cincinnati  
Mentor: Dr. Bryan Mackenzie
Abstract 15: Dynamic Chromatin Binding Regulates IL-33 Extracellular Release During Necrosis
Presentor/Institution: Cora Miracle, CCHMC – Cincinnati
Mentor: Dr. Marc Rothenberg

Abstract 16: Can somatostatin analogues attenuate hypertension associated with chronic intermittent hypoxia?
Presentor/Institution: Kajal Kamra, Wright State University
Mentor: Dr. Christopher Wyatt

Abstract 17: Slothfulness is Not a Sin: Lowering the Energy Costs of Posture and Locomotion
Presentor/Institution: Kyle Spainhower, Youngstown State University
Mentor: Dr. Michael Butcher

Abstract 18: Forelimb Muscle Function During Locomotor Behaviors in Tree Sloths (Xenarthra:Pilosa)
Presentor/Institution: Marissa Gorvet, Youngstown State University
Mentor: Dr. Michael Butcher

Abstract 19: Effects of Serum and Dimethylsulfoxide in the Presence and Absence of Ouabain on Growth of Two Human Epithelial Cell Lines.
Presentor/Institution: Gousia Begum, Wright State University
Mentor: Dr. Peter Lauf

Abstract 20: Post-cranial morphology in xerarthrans: hindlimb structure and function
Presentor/Institution: Sarah Marshall, Youngstown State University
Mentor: Dr. Michael Butcher

Abstract 21: Effects of Fluoridated Water of Pineal Morphology in Male Rats
Presentor/Institution: Aaron Mrvelj, Youngstown State University
Mentor: Dr. Mark Womble
Abstract 22: Imaging Biomarkers to Ascertain Mechanism of transcranial direct current stimulation  
Presentor/Institution: Ernest Mitchell, Wright State University  
Mentor: Dr. Ulas Sunar

Abstract 23: A novel non-canonical regulation of soluble VEGF/VEGFR2 signaling by mechanosensitive ion channel TRPV4 in endothelial cells  
Presentor/Institution: Anantha Kanugula, Kent State/NEOMED  
Mentor: Dr. Charles Thodeti

Abstract 24: CCCP Mediated Inhibition of Oxidative Stress Induces Adult Cardiomyocyte Proliferation  
Presentor/Institution: Perwez Alam, University of Cincinnati  
Mentor: Dr. Rafeeq Ahmed

Abstract 25: Biliverdin reductase A and alcoholic liver disease  
Presentor/Institution: Abdhul Hamoud, University of Toledo  
Mentor: Dr. Terry Hinds, Jr.

Abstract 26: Targeting Cysteinyl Leukotriene 2 Receptor as a Therapeutic Target for Tumor growth and metastasis: A new function for old receptor  
Presentor/Institution: Lakshminarayan Teegala, University of Akron  
Mentor: Dr. Sailaja Paruchuri

Abstract 27: Physiological cardiac hypertrophy in the Na/K-ATPase α1s/s α2 s/s mouse.  
Presentor/Institution: Pauline Marck, Marshall University  
Mentor: Dr. Sandrine Pierre

Abstract 28: The Cause of Insulin Resistance: Le Chatelier’s Principle, the Connectivity of Metabolism, Circadian Rhythm and the Brain  
Presentor/Institution: Dr. Kathleen Broomall, Miami University
Abstract 29: Increased Cysteine Sulfonation of Complex I Mediates Mitochondrial Dysfunction in the Post-ischemic Heart
Presenter/Institution: Patrick Kang, NEOMED
Mentor: Dr. Yeong-Renn Chen

Abstract 30: Electrochemically Modified Sensitive Nitric Oxide Sensors for Detecting Nitric Oxide at the Level of Single Cells.
Presenter/Institution: Tiyash Bose, Cleveland State University
Mentor: Dr. Mekki Bayachou

Abstract 31: Role of Na/K-ATPase α-isoform in pluripotency and adipocyte differentiation of human induced pluripotent stem cells (iPSC)
Presenter/Institution: Minqi Huang, Marshall University
Mentor: Drs. Zijian Xie, Sandrine Pierre

Abstract 32: Role of PGE2 in TGFβ-Induced Lung Fibroblast Differentiation
Presenter/Institution: Matthew Snyderman, University of Akron
Mentor: Dr. Sailaja Paruchuri

Abstract 33: Reversibility of phenotypic plasticity of organ size after acclimation to low and high quality diet in the viviparous cockroach Diploptera punctate.
Presenter/Institution: Elizabeth Reagan, The Ohio State University
Mentor: Dr. Agustin Munoz-Garcia

Abstract 34: CD44v9 and Cystine-Glutamate Transporter xCT Emerge During Gastric Regeneration: a mechanism that potentiates defense against ROS to allow for effective healing in response to injury
Presenter/Institution: Emma Teal, University of Cincinnati
Mentor: Dr. Yana Zavros

Abstract 35: Challenges in determining the oxidative stress marker—malondialdehyde (MDA) in human red blood cells
Presenter/Institution: Aparna Poluparthi, Wright State University
Mentor: Dr. Norma Adragna
Abstract 36: Structure-based design and optimization a novel hydrazine-derived inhibitors for gut microbial TMA lyase CutC
Presentor/Institution: Ashraf Duzan, Cleveland Clinic
Mentor: Dr. Stanley Hazen

Abstract 37: Orphan nuclear hormone receptor small heterodimer partner leads to impaired glucose-stimulated insulin secretion
Presentor/Institution: Jung Eun Park, NEOMED
Mentor: Dr. Yoon Kwang lee

Abstract 38: Butein: a small molecule activator of AMPKα/TSC2/ULK1 suppresses inflammation, oxidative stress and apoptosis in chondrocytes under pathological conditions
Presentor/Institution: Mohammed Ansari, NEOMED
Mentor: Dr. Tariq Haqqi

Abstract 39: Symbiotic nitrogen provisioning by freshwater insect gut microbial assemblages through nitrate reduction.
Presentor/Institution: Dr. Paul Ayayee, Kent State University
Mentor: Dr. Laura Neff

Abstract 40: The effect of cold-acclimation, freezing, and thawing in Cope’s gray treefrog, Dryophytes chrysoscelis: responses of the cryoprotectant system
Presentor/Institution: Dr. M. Clara do Amaral, Mount St. Joseph Univ.

Abstract 41: Leukotriene D4 and prostaglandin E2 synergism in inflammation and asthma
Presentor/Institution: Dr. Sailaja Paruchuri, University of Akron

Abstract 42: Role of SDF: CXCR4 axis in impaired post-AMI cardiac repair in diabetes
Presentor/Institution: Dr. Feng Dong, NEOMED

Abstract 43: The bone marrow endothelial progenitor cell response to septic infection
Presentor/Institution: Dr. Ping Zhang, NEOMED
Abstract 44: Efficacy of Fecal Metabolomics as a Non-Invasive Tool for Age-Determination in Bats with Exceptional Longevity
Presentor/Institution: Dr. Lisa Cooper, NEOMED

Abstract 45: Characterization of the Glycosylation of Aquaglyceroporin HC-3 in Erythrocytes from Dryophytes chrysoscelis, a Freeze Tolerant Anuran
Presentor/Institution: Dante Pezzutti, University of Dayton
Mentor: Dr. Carissa Krane

Abstract 46: Placental corticotropin-releasing hormone expression in humanized transgenic mouse lines
Presentor/Institution: Shivani Tumukuntala, University of Cincinnati
Mentor: Dr. Louis Muglia

Abstract 47: Metal-ion transport activity of the copper transporter family members Ctr1 and Ctr2
Presentor/Institution: Corbin Azucenas, University of Cincinnati
Mentor: Dr. Bryan Mackenzie

Abstract 48: Disrupting Nuclear Transport with 5-Fluorouracil and Gemcitabine
Presentor/Institution: Audrey Nickle, Westminster College
Mentor: Dr. Karen Resendes

Abstract 49: Dynorphin (Dyn) expression is a marker of spinal inhibitory interneurons throughout postnatal development
Presentor/Institution: Lauren Styczynski, University of Cincinnati
Mentor: Dr. Mark Baccei

Abstract 50: Muscle catabolism in a mouse model of persistent inflammation, immunosuppression, and catabolism syndrome (PICS)
Presentor/Institution: Rahul Chandwani, University of Cincinnati
Mentor: Dr. Charles Caldwell
Abstract 51: Baseline physical activity and the efficacy of cognitive behavioral therapy for insomnia in older adults: is low physical activity associated with the worse sleep outcomes?
Presentor/Institution: Timothy Yeung, Washington & Jefferson
Mentor: Dr. Cathy Alessi

Abstract 52: Genotype-dependent binding and regulation of gene expression by PU.1 at IL-10 risk loci in B cells from patients with Systemic Lupus Erythematosus.
Presentor/Institution: Quinn Smith, University of Cincinnati
Mentor: Dr. Matt Weirauch

Abstract 53: Identification of novel small molecule kinase antagonists of the prolactin receptor in breast cancer
Presentor/Institution: Chinmay Bakshi, University of Cincinnati
Mentor: Dr. Nira Ben-Jonathan

Abstract 54: Is Inadequate Myocardial Perfusion a Cause of Heart Failure?
Presentor/Institution: Punita Peketi, University of Akron
Mentor: Dr. William Chilian

Abstract 55: Sporadic appearance of paralytic spongiform neurodegeneration in a colony of inbred mice is associated with CNS retrovirus expression
Presentor/Institution: Magdeline Durbak, University of Akron
Mentor: Dr. William Lynch

Abstract 56: Resolving novel agents to accelerate skeletal muscle membrane repair
Presentor/Institution: Aubrey Rose, The Ohio State University
Mentor: Dr. Noah Weisleder

Abstract 57: Improved cardiac remodeling after in vivo knockdown of type VI collagen following myocardial infarction
Presentor/Institution: Nicholas Baker, Washington & Jefferson
Mentor: Dr. J. Gary Meszaros
Abstract 58: Investigation of Membrane Binding of α-synuclein using Electron Spin Resonance Spectroscopy
Presentor/Institution: Christina Robb, Westminster College
Mentor: Dr. Jessica Sarver

Abstract 59: Role of NADPH oxidase 4 in TGF-β1-mediated fibroblast differentiation and airway remodeling
Presentor/Institution: Samrawit Ghebreigziabher, University of Akron
Mentor: Dr. Sailaja Paruchuri

Abstract 60: Oligomerization of ferroportin and the mechanism of autosomal dominance in ferroportin disease
Presentor/Institution: John Bonamer, University of Cincinnati
Mentor: Dr. Bryan Mackenzie

Abstract 61: Role of N-glycosylation in the activity of divalent metal-ion transporter-1
Presentor/Institution: Justin Dunham, University of Cincinnati
Mentor: Dr. Bryan Mackenzie

Abstract 62: TRPA1 ion channel stimulation enhances cardiomyocyte contractile function via a CaMKII-dependent pathway.
Presentor/Institution: Monica Ghosh, Kent State University
Mentor: Dr. Derek Damron

Abstract 63: Gpnmb/Osteoactivin Plays a Novel Role in Autophagy-Mediated Osteoclast Differentiation and Function
Presentor/Institution: Fatima Jaber, Kent State University
Mentor: Dr. Fayez Safadi
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