



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



Northeast Ohio

MEDICAL UNIVERSITY

PROGRAM

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 chrysolcelis 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 PPAR α ”
- 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

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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



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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.



Northeast Ohio

MEDICAL UNIVERSITY

Poster Presenters (alphabetical)

Poster #	Last Name	First Name	Title	Institution
11	Adapala	Ravi	Graduate	NEOMED
9	Ahmad	Nashrah	Graduate	NEOMED
24	Alam	Perwez	Postdoc	Univ. of Cin.
38	Ansari	Mohammed	Postdoc	NEOMED
39	Ayayee	Paul	Faculty	Kent State
47	Azucenas	Corbin	Undergrad.	Univ. of Cin.
57	Baker	Nicholas	Undergrad.	Wash.& Jeff.
53	Bakshi	Chinmay	Undergrad.	Univ. of Cin.
19	Begum	Gousia	Graduate	Wright State
60	Bonamer	John	Undergrad.	Univ. of Cin.
30	Bose	Tiyash	Graduate	Cleveland State
28	Broomall	Kathleen	Faculty	Miami Univ.
4	Budge	Kevin	Graduate	Kent State
1	Burchfield	Shelbie	Graduate	NEOMED
13	Carew	Nolan	Graduate	Univ. of Pitt.
50	Chandwani	Rahul	Undergrad.	Univ. of Cin.
10	Cook	Bryson	Medical	NEOMED
44	Cooper	Lisa	Faculty	NEOMED
40	do Amaral	Clara	Faculty	Mt. St. Joseph
42	Dong	Feng	Faculty	NEOMED
61	Dunham	Justin	Undergrad.	Univ. of Cin.
55	Durbak	Magdeline	Undergrad.	Univ. of Akron
36	Duzan	Ashraf	Graduate	Cleve. St/CCF
59	Ghebreigziabher	Samrawit	Undergrad.	Univ. of Akron
18	Gorvet	Marissa	Graduate	Youngstown St
62	Ghosh	Monica	Graduate	Kent State
25	Hamoud	Abdhul	Graduate	Univ. Toledo
31	Huang	Minqi	Graduate	Marshall
3	Hussein	Nazar	Graduate	Kent State
63	Jaber	Fatima	Graduate	Kent State
2	Jamaiyar	Anurag	Graduate	NEOMED
16	Kamra	Kajal	Graduate	Wright State
29	Kang	Patrick	Research	NEOMED
23	Kanugula	Anantha	Postdoc	NEOMED

Poster Presenters (alphabetical)

Poster #	Last Name	First Name	Title	Institution
27	Marck	Pauline	Postdoc	Marshall
20	Marshall	Sarah	Graduate	Youngstown St
15	Miracle	Cora	Res. Asst.	CCHMC Cin.
22	Mitchell	Ernest	Undergrad.	Wright State
21	Mrvelj	Aaron	Graduate	Youngstown St
7	Mukherji	Shreya	Graduate	Marshall
5	Nag	Subhra	Graduate	Cleveland State
48	Nickle	Audrey	Undergrad.	Westminster
37	Park	Jung Eun	Postdoc	NEOMED
41	Paruchuri	Sailaja	Faculty	Univ. of Akron
54	Peketi	Punita	Undergrad.	Univ. of Akron
45	Pezzutti	Dante	Undergrad.	Univ. of Dayton
35	Poluparthi	Aparna	Graduate	Wright State
8	Rana	Priyanka	Graduate	Kent State
33	Reagan	Elizabeth	Graduate	Ohio State
Univ				
6	Reyes	Christopher	Graduate	Univ. of Pitt.
58	Robb	Christina	Undergrad.	Westminster
56	Rose	Aubrey	Undergrad.	Ohio State Univ
12	Shah	Rohan	Graduate	Cleveland State
52	Smith	Quinn	Undergrad.	Univ. of Cin.
32	Snyderman	Matthew	Graduate	Univ. of Akron
17	Spainhower	Kyle	Graduate	Youngstown St
49	Styczynski	Lauren	Undergrad.	Univ. of Cin.
34	Teal	Emma	Graduate	Univ. of Cin.
26	Teegala	Lakshminarayan	Postdoc	Univ. of Akron
46	Tumukuntala	Shivani	Undergrad.	Univ. of Cin.
14	Vieth	Kyle	Res. Asst.	Univ. of Cin.
51	Yeung	Timothy	Undergrad.	Wash.&Jeff.
43	Zhang	Ping	Faculty	NEOMED

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

Presenter/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

Presenter/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

Presenter/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

Presenter/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

Presenter/Institution: Subhra Nag, Cleveland State University

Mentor: Dr. Andrew Resnick

Abstract 6: Nitrite Regulates Mitochondrial Dynamics to Inhibit Vascular Smooth Muscle Cell Proliferation & Restenosis

Presenter/Institution: Christopher Reyes, University of Pittsburgh

Mentor: Dr. Sruti Shiva

Abstract 7: Renal proximal tubule-specific knockout of Na/K-ATPase $\alpha 1$ 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-1 β 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 Sandlers

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: Hpcidin 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

Presenter/Institution: Cora Miracle, CCHMC – Cincinnati

Mentor: Dr. Marc Rothenberg

Abstract 16: Can somatostatin analogues attenuate hypertension associated with chronic intermittent hypoxia?

Presenter/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

Presenter/Institution: Kyle Spainhower, Youngstown State University

Mentor: Dr. Michael Butcher

Abstract 18: Forelimb Muscle Function During Locomotor Behaviors in Tree Sloths (*Xenarthra:Pilosa*)

Presenter/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.

Presenter/Institution: Gousia Begum, Wright State University

Mentor: Dr. Peter Lauf

Abstract 20: Post-cranial morphology in xenarthrans: hindlimb structure and function

Presenter/Institution: Sarah Marshall, Youngstown State University

Mentor: Dr. Michael Butcher

Abstract 21: Effects of Fluoridated Water of Pineal Morphology in Male Rats

Presenter/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 $\alpha 1s/s$ $\alpha 2 s/s$ 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 TGF β -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
Presenter/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
Presenter/Institution: Jung Eun Park, NEOMED
Mentor: Dr. Yoon Kwang lee

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

Abstract 39: Symbiotic nitrogen provisioning by freshwater insect gut microbial assemblages through nitrate reduction.
Presenter/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
Presenter/Institution: Dr. M. Clara do Amaral, Mount St. Joseph Univ.

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

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

Abstract 43: The bone marrow endothelial progenitor cell response to septic infection
Presenter/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 chrysolcelis, 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?

Presenter/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.

Presenter/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

Presenter/Institution: Chinmay Bakshi, University of Cincinnati

Mentor: Dr. Nira Ben-Jonathan

Abstract 54: Is Inadequate Myocardial Perfusion a Cause of Heart Failure?

Presenter/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

Presenter/Institution: Magdeline Durbak, University of Akron

Mentor: Dr. William Lynch

Abstract 56: Resolving novel agents to accelerate skeletal muscle membrane repair

Presenter/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

Presenter/Institution: Nicholas Baker, Washington & Jefferson

Mentor: Dr. J. Gary Meszaros

Abstract 58: Investigation of Membrane Binding of α -synuclein using Electron Spin Resonance Spectroscopy
Presenter/Institution: Christina Robb, Westminster College
Mentor: Dr. Jessica Sarver

Abstract 59: Role of NADPH oxidase 4 in TGF- β 1-mediated fibroblast differentiation and airway remodeling
Presenter/Institution: Samrawit Ghebreigziabher, University of Akron
Mentor: Dr. Sailaja Paruchuri

Abstract 60: Oligomerization of ferroportin and the mechanism of autosomal dominance in ferroportin disease
Presenter/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
Presenter/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.
Presenter/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
Presenter/Institution: Fatima Jaber, Kent State University
Mentor: Dr. Fayeze Safadi

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