MICHIGAN PHYSIOLOGICAL SOCIETY (MPS)

2014 ANNUAL MEETING REPORT

Established in 2013, The Michigan Physiological Society is an officially sanctioned local chapter under the umbrella of the American Physiological Society. Its purpose is to promote an increase of integrative physiological knowledge, its dissemination and its utilization in the state of Michigan. The Society will provide a dynamic, inquiry-based environment where non-reductionist physiological research and teaching are valued, discussed, and critiqued. The Michigan Physiological Society (MPS) was officially approved at the 2013 Summer Council Meeting.

The 2014 Annual Meeting for the Michigan Physiological Society (MPS) was held at Michigan State University in East Lansing, MI the 15th and 16th of May, 2014.

The meeting hosted 140 attendees, representing: Adrian College, Alma College, Brock University, Central Michigan University, Mayo Clinic, Michigan State University, Michigan Technological University, Northern Michigan University, Oakland University, University of Michigan, The University of Western Ontario and Wayne State University.

The Society welcomed Keynote Speaker Michael J. Joyner, MD Caywood Professor of Mayo Clinic, Department Anesthesiology. Dr. Joyner's keynote address was titled, "Chasing Mendel: Integration vs. Reductionism."



2013-2014 MPS Member Photo

Best Oral Presentations

The best oral presentations were selected for recognition from the 18 total oral presentations and were presented with a \$250 check based on generous donations. Congratulations to the following award recipients:

- Paulo Caceres, Post-doc from Henry Ford Hospital
 - "VAMP3 mediates apical delivery of the renal co-transporter NKCC2 and regulates urinary salt excretion and blood pressure."
- Maxwell Laws, Undergraduate Student from Wayne State University
 - "Physical (in)activity-induced changes in tonic excitation and inhibition in the rostral ventrolateral medulla (RVLM)."
- Nadia Ayala-Lopez, Graduate Student from Michigan State University
 - "ASP+ reveals potential function of the serotonin transporter in perivascular adipose tissue."
- Andrew Chapp, Graduate Student from Michigan Technological University
 - "Ethanol metabolite increases activity of rostral ventrolateral medulla projecting central nucleus of amygdala (CEA-RVLM) neurons and requires activation of local NMDA receptors."
- Sophia Lunt, Post-doc from Michigan State University
 - "Altered sugar metabolism of cancer cells supports synthesis of DNA precursors."

Best Poster Presentations

The best poster presentations were selected for recognition from the 37 total poster presentations and were presented with a \$100 check based on generous donations. Congratulations to the following award recipients:

- Judith Ingles, Graduate Student from Wayne State University
 - "Functional studies of rostral ventrolateral medulla (RVLM) neurons using manganeseenhanced magnetic resonance imagining (MEMRI) in sedentary vs physically active rats."
- Humphrey Peterson-Jones, Undergraduate Student from Michigan State University
 - "Decreased transglutaminase activity in aorta from hypertensive rats, measured by in situ detection of a free amine donor."
- Daniel Huereca, Graduate Student from Wayne State University
 - "Single unit recordings from putative presympathetic neurons in the rostral ventrolateral medulla (RVLM) of sedentary and physically active rats."



2013-2014 Oral and Poster Presentation Award Winners

The 2013-2014 Executive Board Members were as follows:

• Greg Fink Ph.D. (President/CAC representative)

Michigan State University Dept. of Pharmacol. & Toxicol. Phone: (517) 353-4648

Email: finkg@msu.edu

Jason R. Carter, Ph.D. (President-Elect)

Michigan Technological University Dept. of Kinesiol. & Integrative Physiol.

Phone: (906) 487-2715 Email: jcarter@mtu.edu

• Erica Wehrwein, Ph.D. (Secretary-Treasurer/Site coordinator)

Michigan State University Department of Physiology Phone: (517) 884-5043 Email: wehrwei7@msu.edu

Sue Barman, Ph.D. (Chair, Meeting Planning Committee)

Michigan State University Dept. of Pharmacol. & Toxicol. Phone: (517) 432-3154 Email: barman@msu.edu Term ends May 2017

James Poteracki (Site Coordinator)

Michigan State University Dept. of Physiology Phone: (517) 884-5043 Email: poterac2@msu.edu



2014-2015 Executive Board and Planning Committee.

The following MPS members were elected by acclimation to the Executive Board:

- Erica Wehrwein, PhD of Michigan State University President-Elect
- James Poteracki, BS of Michigan State University Secretary-Treasurer

The Society welcomes this incoming member into their new role.

The planning of the 2014 Annual MPS Conference would not have been successful without the great support of the planning committee, in addition to the administrative staff at Michigan State University Department of Physiology and those who assisted with meeting set-up:

Susan Barman (Michigan State University), Greg Fink (Michigan State University), David Rodenbaugh (Oakland University), Jason Carter (Michigan Technological University), Erica Wehrwein (Michigan State University), James Poteracki (Michigan State University, Kim Crain (Michigan State University), Qinghui Chen (Michigan Technological University), Monica McCullough (Adrian College), Zeljka Minic (Wayne State University), Nara Parameswaran (Michigan State University), Paulo Pires (Michigan State University) and Chris Westerkamp (Ferris State University).

The 2014-2015 Executive Board Members are as follows:

Jason R. Carter, Ph.D. (President, CAC Representative)

Michigan Technological University Dept. of Kinesiol. & Integrative Physiol.

Phone: (906) 487-2715 Email: jcarter@mtu.edu

Erica Wehrwein, Ph.D. (President-Elect)

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James Poteracki (Secretary-Treasurer)

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Sue Barman, Ph.D. (Membership and Fundraising Committee Chair)

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Greg Fink Ph.D. (Past-President)

Michigan State University Dept. of Pharmacol. and Toxicol.

Phone: (517) 353-4648 Email: finkg@msu.edu A special thank you on behalf of the Society and its Executive Board is offered to our generous institutional sponsors, who supported the 2014 MPS meeting:

Diamond Sponsor: \$2,000

• Michigan State University College of Human Medicine (Dr. Marsha Rappley-Dean)

Platinum Sponsors: \$1,000

- Michigan State University College of Natural Sciences (Dr. R James Kirkpatrick-Dean)
- Michigan State University College of Osteopathic Medicine (Dr. William D. Strampel-Dean)
- Michigan State University Office of the Provost (Douglas Estry-Associate Provost for Undergraduate Education & Dean of Undergraduate Studies)
- Michigan State University, Office of the Vice President for Research & Graduate Studies (Dr. Stephen Hsu-Dean)
- Michigan Technological University Graduate School (Dr. Jacqueline E Huntoon-Dean);
 Department of Kinesiology& Integrative Physiology (Dr. Jason Carter-Chair); and
 Department of Biological Sciences (Dr. Shekhar Joshi-Chair)

Gold Sponsors: \$500-999

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- Oakland University William Beaumont School of Medicine, Department of Biomedical Sciences

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The 2015 MPS Conference will be held at Boyne Mountain Resort in Boyne, MI from April 30th through May 1st, 2015.

MPS Annual Meeting 2014

Annual Meeting 2014: Minutes

These are the unconfirmed minutes of the Annual Meeting of the Michigan Physiological Society (MPS), held at Michigan State University in East Lansing, MI on the 15th and 16th of May, 2014.

THURSDAY APRIL 15 th , 2014	
1.	 Welcome and Meeting Opening Dr. Greg Fink (President), Michigan State University (MSU) Dr. Charles "Lee" Cox, Professor and Chair, Dept of Physiology, MSU Dr. Sue Barman, former President of American Physiological Society "Link between APS and MPS."
2.	 Keynote Address Dr. Michael J. Joyner, MD Caywood Professor of Mayo Clinic, Department of Anesthesiology CHASING MENDEL: INTEGRATION VS. REDUCTIONISM
3.	Opening Reception • MSU Union Ballroom
4.	Poster Session A Bierhalter, H 14 EXAMINATION OF INTESTINAL CHANGES IN PRE AND POST-MENOPAUSAL MODELS Bowlin, M 12 SPIDERS IN MOTION: DEMONSTRATING ADAPTATION,
	STRUCTURE-FUNCTION RELATIONSHIPS, AND TRADE-OFFS IN AN UNDERGRADUATE LABORATORY EXERCISE Bucan, J 11** SEXUAL DIMORPHISM IN THE SIGNALING PATHWAYS IN THE RENAL CORTEX OF SPONTANEOUSLY HYPERTENSIVE RATS
	Chakravarthy, H 35 SPHINGOLIPID METABOLISM AND THE DEVELOPMENT OF DIABETIC RETINOPATHY
	Darios, E 10 CONTRACTILE MECHANISMS IN THE CERVIX AND UTERUS
	Fletcher, NM 18 DICHOLOROACETATE INCREASES SENSITIVITY TO CHEMOTHERAPY BY MODULATION OF ANTIOXIDANTS IN EPITHELIAL OVARIAN CANCER
	Gifford, BG 23** GASTRIC ANTRAL ORGANOIDS ARE SUSTAINED BY INTRINSIC NOTCH SIGNALING
	Gordish, KL 15** SUSTAINED RESVERATROL INFUSION INCREASES RENAL BLOOD FLOW WITHOUT CHANGING GLOMERULAR FILTRATION RATE IN NORMAL RAT
	Hares, F 29** CHARACTERIZATION OF THE JAK/STAT PATHWAYS IN CARDIAC MYOCYTES IN ANGIOTENSIN II-INDUCED HYPERTENSION
	Harwood, MH 19** THE ACUTE CARDIOVASCULAR RESPONSES TO MARATHON AND ULTRAMARATHON COMPETITION
	Huereca, DJ 31** SINGLE UNIT RECORDINGS FROM PUTATIVE PRESYMPATHETIC NEURONS IN THE ROSTRAL VENTROLATERAL MEDULLA (RVLM) OF

SEDENTARY AND PHYSICALLY ACTIVE RATS

Ingles, JA 25** FUNCTIONAL STUDIES OF ROSTRAL VENTROLATERAL MEDULLA (RVLM) NEURONS USING MANGANESE-ENHANCED MAGNETIC RESONANCE IMAGING (MEMRI) IN SEDENTARY VS. PHYSICALLY ACTIVE RATS

Kasper, JD 20INFLUENCE OF EXERCISE INTENSITY AND PDH ACTIVATION IN SKELETAL MUSCLE ENERGETICS

Kelly, KL 8** A MILLENNIAL PERSPECTIVE OF PHYSIOLOGY AS A DISCIPLINE

Lee, T 21** ROLE OF NON-HEMATOPOIETIC B-ARRESTIN1 IN INTESTINAL INFLAMMATION

McCabe, I 37 LEPTIN RECEPTOR MUTATIONS AFFECT BONE DENSITY AND MARROW ADIPOSITY

Obey, K 30 ISOLATION AND CHARACTERIZATION OF LAMINA PROPRIA DENDRITIC CELLS FROM COLON

Ortiz-Capisano, MC 2 TRPC CHANNELS ARE INVOLVED IN ENDOTHELIN 1 MEDIATED INHIBITION OF RENIN RELEASE FROM JUXTAMEDULAR CELLS

Pal, D 24 EFFECT OF CHOLINERGIC STIMULATION IN PREFRONTAL CORTEX ON ELECTROENCEPHALOGRAPHIC ACTIVATION AND SLEEP-WAKE STATES

Palaniyandi, SS 22 CARDIAC STEM/PROGENITOR CELLS WITH HIGH ALDEHYDE DEHYDROGENASE ACTIVITY EXHIBIT INCREASED STEMNESS AND SURVIVAL

Petersen-Jones, HG 1** DECREASED TRANSGLUTAMINASE ACTIVITY IN AORTA FROM HYPERTENSIVE RATS, MEASURED BY IN-SITU DETECTION OF A FREE AMINE DONOR

Pizzimenti, NM 26ENERGETIC DEMANDS DURING EXERCISE IS RESPONSIBLE FOR ACTIVATION OF P38F MAP KINASE IN ISOLATED FAST TWITCH MOUSE SKELETAL MUSCLES

Polina, A 5** UROMODULIN IN HUMAN RENAL CELL CARCINOMA (RCC)

Poteracki, J 6 LESSONS LEARNED: IMPROVING A LARGE-SCALE PHUN WEEK EVENT AT A SCIENCE CENTER

Purcell, E32 OPTOGENETIC MODULATION OF MOTOR INPUT TO SOMATOSENSORY CORTEX: FREQUENCY-DEPENDENT EFFECTS ON SENSORY-EVOKED RESPONSES

Raehtz, S 38 ESTROGEN DEFICIENCY INDUCED INTESTINAL INFLAMMATION AND PERMEABILITY IS LINKED WITH OSTEOPOROSIS

Reaz, S4 E2F5: A POTENTIAL TUMOR SUPPRESSOR OF BREAST CANCER

Rossi, NR 3 EFFECT OF COMBINED V1A+V1B VASOPRESSIN

RECEPTOR BLOCKADE PARAVENTRICULAR **NUCLEUS** WITHIN THE ON **NEUROCARDIOVASCULAR RESPONSES** WHAT'S THE MATTER WITH MAT? - MARROW ADIPOSE Scheller, E 36 TISSUE, METABOLISM AND SKELETAL HEALTH STIMULATION OF ER STRESS AND INFLAMMATION BY Shan, Z 13 NEURONAL (PRO)RENIN RECEPTOR IS MEDIATED BY TOLL LIKE RECEPTOR 4 ACTIVATION 27** ALTERATIONS IN JANUS (JAK2)/SIGNAL TRANSDUCER OF Singhal, S ACTIVATED TRANSCRIPTION (STAT) SIGNALING PATHWAY IN HUMAN RENAL CELL CARCINOMA (RCC) Sleiman, NH 34 CARDIAC SR PROTEIN SORTING AND TRAFFICKING ACROSS THE ER INVOLVES INTACT MICROTUBULES ROLE OF G PROTEIN-COUPLED RECEPTOR KINASE 2 IN Steury, M 28 TNFA INDUCED SIGNALING IN COLON EPITHELIAL CELLS Swamy, B STUDENT UNDERSTANDING OF GLUCOSE HOMEOSTASIS: NOT SO "SWEET" 33 EFFECT OF DICHLOROACETATE ON MITOCHONDRIAL Tonson, A MAXIMAL CAPACITY MEASURED BY 31P MRS Wiseman, RW **16, 17** NON-INVASIVE MRI ARTERIAL-VENOUS DIFFERENCE MEASUREMENT OF SKELETAL MUSCLE OXYGEN CONSUMPTION DURING ISOMETRIC CONTRACTIONS Young, LW CAN PERIPHERAL 5-HT CROSS INTO THE CNS? COLOCALIZATION OF SERT AND RECA-1 IN THE MALE RAT BRAIN 5. **Social Event** Lansing Lugnuts vs Dayton Baseball Game Cooley Law School Stadium FRIDAY MAY 16th, 2014 **Morning Announcements** 6. 7. **Oral Session 1** Session Co-Chairs Taehyung Lee, (MSU) Gail Gifford, (U of M) 0 **Presenters** Paulo S Caceres Wayne State University and HFH, (Post-doc) VAMP3 MEDIATES APICAL DELIVERY OF THE RENAL COTRANSPORTER NKCC2 AND REGULATES URINARY SALT EXCRETION AND BLOOD PRESSURE Ida T Fonkoue, MTU, (Graduate student) MENTAL STRESS AND CARDIOVÁSCULAR REACTIVITY IN HUMANS: A TIME-DEPENDENT RESPONSE Jonathan P Rennhack, MSU, (Graduate student) THE ROLE OF E2F TRANSCRIPTION FACTOR FAMILY IN HER2+ **BREAST CANCER METASTASIS** Hillary Woodworth, MSU, (Graduate student) LATERAL HYPOTHALAMIC NEUROTENSIN NEURONS REGULATE

LOCOMOTOR ACTIVITY AND WATER INTAKE VIA THE MESOLIMBIC DOPAMINE SYSTEM Madhan Subramanian, WSU, (Post-doc) ROSTROCAUDAL CHANGES IN THE PROTEIN EXPRESSION OF RECEPTOR SUBUNITS WITHIN THE ROSTRAI VENTROLATERAL MEDULLA (RVLM) OF SEDENTARY AND ACTIVE RATS Jasdeep Kaur, WSU, (Graduate student) MUSCLE METABOREFLEX ACTIVATION DURING DYNAMIC EXERCISE EVOKES EPINEPHRINE RELEASE RESULTING IN B-2 MEDIATED VASODILATION 8. **Breakout SessionS** Sessions A: Physiology Outreach/PhUn Week Activities, James Poteracki (MSU) **B: Active Learning Strategies** Chair: David Rodenbaugh (OU) Panelists: Monica McCullough (Adrian College), Adele Denison (MSU) and Erica Wehrwein (MSU) **C:** Career Development Co-chairs: Jason Carter (MTU) and Chris Westerkamp (Ferris State) Panelists: Stephanie Watts (MSU), Pat Mueller (WSU), Melissa Bowlin (UM-Dearborn) and Noreen Rossi (WSU) 9. **Oral Session 2 Session Co-Chairs** Nicole Fletcher-King, (WSU) Morton H. Harwood, (MTU) 0 **Presenters** Maryetta D Dombrowski, WSU, (Graduate student) CARDIOVASCULAR RESPONSES TO DISINHIBITION OF ROSTRAL VENTROLATERAL MEDULLA (RVLM) FOLLOWING UNILATERAL RVLM BLOCKADE IN SEDENTARY OR PHYSICALL ACTIVE, SINOAORTIC DENERVATED RATS Ankita B Jaykumar, HFH, (Graduate student) REAL TIME MONITORING OF NKCC2 ENDOCYTOSIS BY TOTAL INTERNAL REFLECTION FLUORESCENCE (TIRF) MICROSCOPY **Sophia Y Lunt**, MSU, (Post-doc) ALTERED SUGAR METABOLISM OF CANCER CELLS SUPPORTS SYNTHESIS OF DNA PRECURSORS Elise S Demitrack, U of M, (Post-doc) NOTCH REGULATES GASTRIC ANTRAL LGR5+ STEM CELLS TO CONTROL EPITHELIAL CELL HOMEOSTASIS Isola AM Brown, MSU, (Graduate student) ENTERIC GLIAL NITRIC OXIDE POTENTIATES P2X7R-MEDIATED **NEURON DEATH** Derrick J Feenstra, MSU, (Graduate Student) THE ROLE OF INTERLEUKIN-1A IN HYPERGLYCEMIA-INDUCED CASPASE-1 ACTIVATION AND CELL DEATH IN MUELLER CELLS 10. **Group Photo/Vendor Visits** 11. Oral Session 3 (Cardiovascular/Respiratory) **Session Co-Chairs** Erica Sheller, (U of M) Naama Sleiman-Mahmoud, (WSU) **Presenters** Maxwell T Laws, WSU, (Undergraduate student) PHYSICAL (IN)ACTIVITY-INDUCED CHANGES IN TONIC EXCITATION AND INHIBITIÓN IN THE ROSTRAL VENTROLATERAL MEDULLA (RVLM) Andrew Chapp, MTU, (Graduate student) ETHANOL METABOLITE INCREASES ACTIVITY OF ROSTRAL

VENTROLATERAL MEDULLA PROJECTING CENTRAL NUCLEUS OF AMYGDALA (CEA-RVLM) NEURONS AND REQUIRES ACTIVATION OF LOCAL NMDA RECEPTORS

- Nadia Ayala-Lopez, MSU, (Graduate student)
 - ASP+ REVEALS POTENTIAL FUNCTION OF THE SEROTONIN TRANSPORTER IN PERIVASCULAR ADIPOSE TISSUE
- o Vishal R Mali, HFH, (Post-doc)
 - IMPAIRED ALDEHYDE DEHYDROGENASE 2 ACTIVITY CONTRIBUTES TO CARDIAC DAMAGE AND DYSFUNCTION BY INHIBITING MITOCHONDRIAL RESPIRATION IN HYPERGLYCEMIC RATS
- Paulo W Pires, MSU, (Post-doc)
 - ANTI-HYPERTENSIVE THERAPY REDUCES MYOGENIC TONE AND INCREASES THE RESTING DIAMETER OF CEREBRAL PENETRATING ARTERIOLES IN HYPERTENSIVE RATS
- Vanesa D Ramseyer, WSU, (Post-doc)
 - VACUOLAR PROTEIN SORTING-ASSOCIATED PROTEIN 13C: A NOVEL PLAYER IN BROWN ADIPOCYTE LIPID METABOLISM

12. Advocacy Session

JR Haywood, PhD

Professor and Assistant Vice President, Office of Regulatory Affairs, MSU President-Elect of FASEB

o "Be an advocate for science funding."

13. Business Meeting

- Financial Summary
 - Secretary and Treasurer Erica Wehrwein (MSU): budget, expenses and donations
- Date of next Annual Meeting
 - The next Annual MPS Meeting will be held at Boyne Mountain Resort, from April 30th through May 1st, 2015.
- The meeting saw the following members of the Executive Board complete terms:
 - Greg Fink, PhD of MSU Past-President
 - On behalf of the Society, Jason Carter (President) offered thanks to this outgoing member of the board for their outstanding services.
- A ballot was distributed and a popular vote was taken at the meeting to elect a new member. The results of that vote were tallied and the following MPS member was elected to the Executive Board:
 - o Erica Wehrwein, PhD of WSU President-Elect
 - o James Poteracki, BS of MSU Secretary-Treasurer
 - On behalf of the society, Jason Carter (President) welcomed this incoming member into their new roles via email.

14. Awards Presentation

- Oral Presentations: 18 total oral presentations
 - Award recipients
 - Paulo Caceres, Post-doc from Henry Ford Hospital
 - Maxwell Laws, Undergraduate Student from Wayne State University
 - Nadia Ayala-Lopez, Graduate Student from Michigan State University
 - Andrew Chapp, Graduate Student from Michigan Technological University
 - Sophia Lunt, Post-doc from Michigan State University
- **Poster Presentations:** 37 total poster presentations
 - Award recipients
 - Judith Ingles, Graduate Student from Wayne State University
 - Humphrey Peterson-Jones, Undergraduate Student from Michigan State University
 - Daniel Huereca, Graduate Student from Wayne State University