

# IMPACT



MAYO CLINIC  

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HEALTH SYSTEM

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University of Wisconsin  
**Eau Claire**

**2020 IMPACT Symposium**

**March 7, 2020**

**Mayo Clinic Health System  
Eau Claire, Wisconsin**

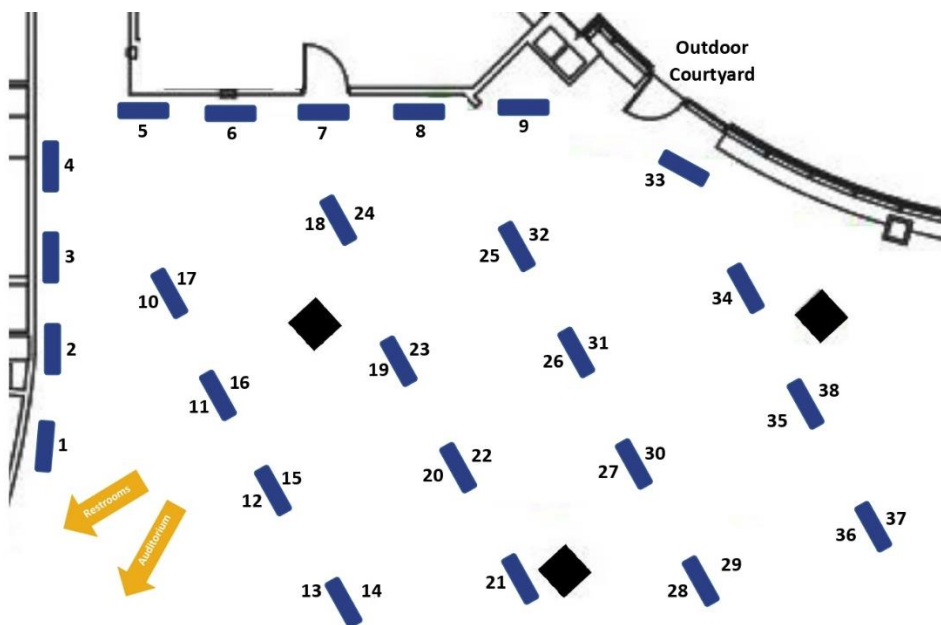
# SCHEDULE OF EVENTS

8:00—8:45	<b>Team Registration</b>	Lobby
9:00—9:15	<b>Welcome Address</b> <i>Richard A. Helmers, M.D.</i> <i>Regional Vice President,</i> <i>Mayo Clinic Health System, Northwest Wisconsin</i> <b>Mike Carney, Ph.D.</b> <i>Associate Vice Chancellor for Academic Affairs,</i> <i>University of Wisconsin-Eau Claire</i>	Auditorium
9:15—9:30	<b>Group Photo</b>	Auditorium
9:30—10:15	<b>Poster Presentation Session 1</b> <i>Students at odd-numbered poster locations will be present at their posters throughout this time</i>	Atrium
10:15—10:20	<i>Switch Poster Sessions</i>	
10:20—11:05	<b>Poster Presentation Session 2</b> <i>Students at even-numbered poster locations will be present at their posters throughout this time</i>	Atrium
11:05—11:15	<b>BREAK</b>	
11:15—12:00	<b>Keynote Speaker</b> <i>Doo-Sup Choi, Ph.D.</i> <i>Department of Molecular Pharmacology and Experimental Therapeutics, Mayo Clinic</i>	Auditorium
12:00—1:00	<b>Lunch with Networking Opportunities</b> <i>A sandwich buffet is available in the Atrium. We encourage you to take the opportunity to network with others during this time.</i>  <i>Teams are invited to have team photos taken near the elevator vestibule throughout the lunch hour.</i>	
1:00—2:15	<b>Oral Presentation Session 1</b>	Auditorium
2:15—2:30	<b>BREAK</b>	
2:30—3:45	<b>Oral Presentation Session 2</b>	Auditorium
3:45—4:00	<b>Closing Remarks</b>	Auditorium

# POSTER SESSION 1

9:30—10:15 a.m.

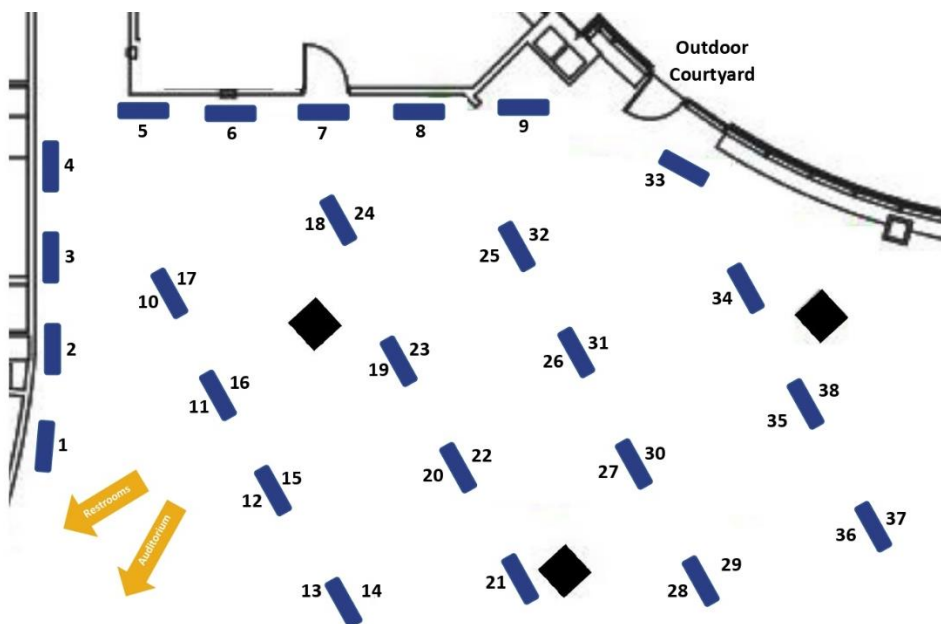
POSTER LOCATION	INSTITUTION	AUTHORS
1	St. Olaf College	Alwin, A. & Anderson, S.
3	University of Minnesota Rochester	Alnaimat, B., Machado, C., Orakwe, C., & Shalle, Z.
5	Northwestern Health Sciences University	AbuAyed, R., Hwang, H., Lum, S., & Mian, H.
7	Crown College	Cunningham, G., Gregoria, M., Hammargren, J., & Yang, A.
9	College of Saint Benedict/Saint John's University	Claypool, M., Imm, E., Lott, G., & Nguyen, M.
11	University of Northwestern-St. Paul	DeSmith, B., Caswell, C., Ertsgarrd, D., & Malstrom, F.
13	Northwestern Health Sciences University	Sundlof, M., Gordon, T., Engelhardt, S., & Tangu, M.
15	University of Wisconsin-Stevens Point	Freese, K. K., Richetto, S., & Stenzel, K.
17	Crown College	Holt, E., Dirks, M., & Jarvi, A.
19	Northwestern Health Sciences University	Hannah, K., McBean, K., Amrut-Raikar, V., & Mikaye, V.
21	Coe College	JadKarin, L. & Dangremond, K.
23	University of Wisconsin-Eau Claire	Leavens, C., Easker, A. K. & Barnes, K.
25	Northwestern Health Sciences University	Mackay, C., Moore, N., Morissette, K., & Santana, D.
27	Northwestern Health Sciences University	Nuthals, M., Manual, J., Collie, P., & Thao, K.
29	Ripon College	Przybelski, A., Gunnlaugsson, A., & Kolenda, R.
31	University of Northwestern-St. Paul	Schwitters, S., Bry, M., Johnston, C., & Szarfraniec, G.
33	Concordia College	Strickland, Z., David, K., & Jacobson, I.
35	University of Wisconsin-Eau Claire – Barron County	VanDyke, K., Zhao, X., & Tang, M.
37	University of Northwestern-St. Paul	Valine, E., Bowman, J., Abler, A., & Fritz, A



# POSTER SESSION 2

10:20—11:05 a.m.

POSTER LOCATION	INSTITUTION	AUTHORS
2	Northwestern College	Almail, A., Hendricks, D., & Paauw, H.
4	St. Olaf College	Abdulkarim, I., Mitchen, T., Mohammadzadah, H., Wang, K.
6	University of Wisconsin-Parkside	Bakowski, D. & Bracker, J.
8	University of Northwestern-St. Paul	Courneya, L., Crosson, J., Hackney, J., & Martinson, S.
10	Minnesota State University Moorhead	Sherpa, N.C. & Pandey, R.
12	Minnesota State University Moorhead	Edzards, K., Marshall, N., & Spooner, L.
14	University of Minnesota Rochester	Engel, Z. & Graber, S.
16	St. Olaf College	Garrett, Z., Grier, A., Landherr, M., & Meader, B.
18	Northwestern Health Sciences University	Holbrook, C., Kreager, H., & Mills, L.
20	Northwestern Health Sciences University	Johnson, D., Malle-Barlow, C., Park, G., & Sun, A.
22	University of Minnesota Twin Cities	Leuschen, H., Nourae, C., Ross, D., & Taghizadeh, K.
24	Northwestern Health Sciences University	Miller, A., Miller, A., Van Eyll, B., & Thao, B.
26	Concordia College	Nguyen, D. & Perez, S.
28	DePaul University	Nagy, S., Sulaiman, S., Villa, J., & Zayed, W.
30	University of Wisconsin-Whitewater	Saxon, B., Popodi, N., Brodjian, A., & Klimisch, S.
32	Carleton College	Saintil, S., Vang, S., Sewell, K., & Bagereka, P.
34	Century College	VanDenBoom, A. & VanDenBoom, R.
36	Marian University	Veese, D., Agbenya, E., Glaser, M., & Dunca, K.
38	Minnesota State University Moorhead	VanRaden, N., Schaefer, A., Mohammed, A., & Mehrer, K.



# KEYNOTE BIO: Doo-Sup Choi, Ph.D.

**Doo-Sup Choi, Ph.D.**, serves as the Director of the Samuel C. Johnson Genomics of Addiction Program and Director of the Mayo Rodent Behavior Facility at Mayo Clinic in Rochester, Minnesota. Dr. Choi is a neuroscientist and Professor of Pharmacology and Psychiatry at Mayo Clinic.



Dr. Choi's laboratory focuses on identifying novel therapeutic targets utilizing cutting-edge techniques in the areas of molecular biology, biochemistry, genetics, neuroimaging and pharmacology. Dr. Choi and his colleagues are particularly interested in the neurobiological mechanisms of several addictive behaviors, such as sensitivity (level of response) to alcohol intoxication, reward, aversion, withdrawal symptoms, and alcohol drinking or self-administration. An additional area of focus is investigation of co-occurring or comorbid neuropsychiatric disorders such as depression, anxiety and bipolar disorders. Dr. Choi's goal is to translate his team's research into clinical practice. Dr. Choi and his colleagues focus on the development of genomic and metabolomic biomarkers for drug response to optimize pharmacotherapy through individualized treatment methods.

In his role as the director of the Samuel C. Johnson Genomics of Addiction Program at Mayo Clinic, Dr. Choi leads a programmatic team of basic and clinical investigators. Through their multidisciplinary collaboration, the team is well-equipped to translate findings into clinical practice.

Dr. Choi is a regular member of the Clinical, Treatment and Health Services Research Review Subcommittee of the National Institutes of Health's National Institute on Alcohol Abuse and Alcoholism, a full member of the American College of Neuropsychopharmacology, and a 2015 recipient of the David Lehr Research Award from the American Society for Pharmacology and Experimental Therapeutics.

Dr. Choi completed a post-doctoral fellowship in the neurobiology of addiction with the Department of Biopharmaceutical Sciences at the University of California, San Francisco. He completed his Ph.D. in cellular and molecular biology with IGBMC/CNRS/Inserm at Louis Pasteur University in Strasbourg, France. Dr. Choi earned both his M.S. in biochemistry and molecular biology and B.S. in biochemistry at Yonsei University in Seoul, Korea.

# ORAL PRESENTATION SESSION 1

TIME	INSTITUTION <i>Presentation Title</i>	PRESENTERS
1:00	St. Olaf College <i>Alcoholism and Probiotic Bacteria: Combatting Withdrawal Responses Using Probiotics</i>	Abigail Alwin & Sophia Anderson
1:15	University of Minnesota Rochester <i>Clock in Alcohol, Clock Out Dopamine; Anomalies in Circadian Rhythm and Lymphatic System</i>	Zamzam Shalle, Chidiogo Orakwe, Cierra Machado & Betra Alnaimat
1:30	Concordia College <i>Pro-inflammatory Cytokine Interleukin-1beta Activates Alcoholism Cycle</i>	Duong Nguyen & Sofia Perez
1:45	College of Saint Benedict/Saint John's University <i>Can Theta Wave Induction Lower Inflammation and Alcohol Consumption in Mice?</i>	Mackenzie Claypool & My Nguyen
2:00	University of Wisconsin-Stevens Point <i>CCl2 and Its Neuroprotective Effects: A Link Between Neuroinflammation and Alcoholism</i>	Kaitlin Freese, Sydney Richetto & Kyla Stenzel

# ORAL PRESENTATION SESSION 2

TIME	INSTITUTION <i>Presentation Title</i>	PRESENTERS
2:30	Northwestern Health Sciences University <i>Acute Inflammation in the VTA Coupled with Binge Drinking: The Mechanistic Link Triggering Chronic Neuroinflammation and Addiction</i>	Taylor Gordon, Marie-Louise Tangu, Madison Sundlof & Stephen Engelhardt
2:45	Minnesota State University Moorhead <i>Binge Drinking Causes Neuroimmune Activation and Dysregulation of Ghrelin Receptor Heteromers in the VTA Modulating Addictive Behaviors</i>	Andrea Schaefer, Kayla Mehrer, Nick VanRaden & Asma Mohammed
3:00	Northwestern Health Sciences University <i>Binge Drinking, Disrupted Circadian Rhythms, and Neuroinflammation: A Synergistic Pathway to Alcohol Use Disorder</i>	Rebecca AbuAyed, Hassan Mian, Stephanie Lum & Hannah Hwang
3:15	University of Northwestern-St. Paul <i>MCP-1 &amp; Microglia Upregulation in AUD</i>	Sydney Schwitters, Maison Bry & Caleb Johnston
3:30	Carleton College <i>TGF-<math>\beta</math> Inhibition of IL-1<math>\beta</math> Activity in Acute Binge Alcohol Consumption</i>	Sara Saintil, Shealuck Vang, Katrina Sewell & Polycarpe Bagereka

*The winners of the 2020 IMPACT Competition will be announced on Friday, March 20, 2020.*

# JUDGE BIOGRAPHIES

**Andrew Calvin, M.D.**, is a Mayo Clinic specialist in cardiovascular medicine who serves as principle investigator for an ongoing trial in vascular medicine and co-chair for the Education Committee for northwest Wisconsin.

**Katie Campbell, Ph.D.**, is the founding director of the IMPACT program and an assistant professor of interprofessional education at St. Catherine University focused on improving support for parents of children with Hypoplastic Left Heart Syndrome.

**Brad Carter, Ph.D.**, is an assistant professor of biology at UW-Eau Claire who teaches molecular biology/neuroscience and biological inquiry. Students in his lab research the impact of environmental factors associated with autism spectrum disorders on brain formation and function using zebrafish.

**Doo-Sup Choi, Ph.D.**, is a neuroscientist and professor of pharmacology and psychiatry at Mayo Clinic. He serves as the director of the Samuel C. Johnson Genomics of Addiction Program and director of the Mayo Rodent Behavior Facility at Mayo Clinic in Rochester, Minnesota.

**Felix Chukwudelunzu, M.D.**, is an assistant professor of Neurology in the Mayo Clinic College of Medicine and Science. He has special interest and training in cerebrovascular diseases.

**Anthony Furlano, D.O.**, is a core faculty member of the Mayo Clinic Family Medicine Residency Program – Eau Claire, where he also serves as the director of Osteopathic Education. He has special interests in quality improvement, hospital medicine, and osteopathic manipulative treatment.

**David Jewett, Ph.D.**, is a professor of psychology at UW-Eau Claire with expertise in experimental psychology. He specializes in behavioral pharmacology, psychopharmacology, behavioral analysis, and behavioral testing.

**David Leland, Ph.D.**, is a cognitive neuroscientist and associate professor of psychology at UW-Eau Claire. Dr. Leland specializes in electroencephalography, event-related potentials, attention, decision-making, substance dependence, and incentive motivation.

**Chetna Mangat, M.D.**, joined Mayo Clinic Health System in 2014 and is an assistant professor of Pediatrics at Mayo Clinic College of Medicine and Science. Her special interests include education, research, and preventive health in pediatrics.

**Doug Matthews, Ph.D.**, is a UW-Eau Claire professor of psychology with an established research interest in alcohol use and misuse. He leads the Wisconsin Addiction Research Lab.

**Tim Nelson, M.D., Ph.D.**, is an associate professor of medicine and pharmacology in the Hypoplastic Left Heart Syndrome Program at Mayo Clinic and Director of the multi-disciplinary team that spans basic discovery science to FDA-monitored clinical trials.

**Robert Peck, M.D.**, is a psychiatrist with Mayo Clinic Health System, where he has worked for 26 years. He is the current chair of the Physician Personnel Committee and past medical director of the New Journey Addiction Treatment program.

**Phil Starski** is a Ph.D. student in the Mayo Clinic College of Medicine and Science Biomedical Research Training Neuroscience Track. He works in the Neurobiology of Alcoholism and Drug Addiction laboratory under the leadership of principal investigator Doo-Sup Choi, Ph.D.

**Joe Wildenberg, M.D., Ph.D.**, is a physician-neuroscientist in interventional radiology at Mayo Clinic Health System. His interests surround using data science to answer complex questions about health and healthcare delivery.

## ACKNOWLEDGEMENTS

The IMPACT program would not be possible without the following support and contributions. Many thanks to:

*Dr. Richard Helmers, Mayo Clinic Health System, and Dr. James Schmidt, University of Wisconsin-Eau Claire*

*Dr. Tim Nelson and the Todd and Karen Wanek Family Program for Hypoplastic Left Heart Syndrome*

*Dr. Doug Matthews and the Wisconsin Addiction Research Laboratory*

*IMPACT 2020 judges for the written submissions, poster presentations, and oral presentations*

*IMPACT Planning Committee: Nicole Aloia, Dr. Julie Anderson, Beth Blackburn, Joey Bohl, MJ Brukaradt, Dr. Katie Campbell, Dr. Mike Carney, Billy Felz, Judy Fox, Dr. Jamie Lyman Gingerich, Dr. Karen Havholm, Mike Knuth, Dr. Doug Matthews, Dr. Tim Nelson, Traci Paulson, Sarah Tweedale, and Isabel Walters*

*Our hosts, Mayo Clinic Health System and Morrison Healthcare, as well as Event Support Technician Jeff Thompson*

*UW-Eau Claire Facilities department, Printing Services, Office of Research and Sponsored Programs, and photographer Bill Hoepner*

*The faculty mentors, family, and friends of all IMPACT participants*