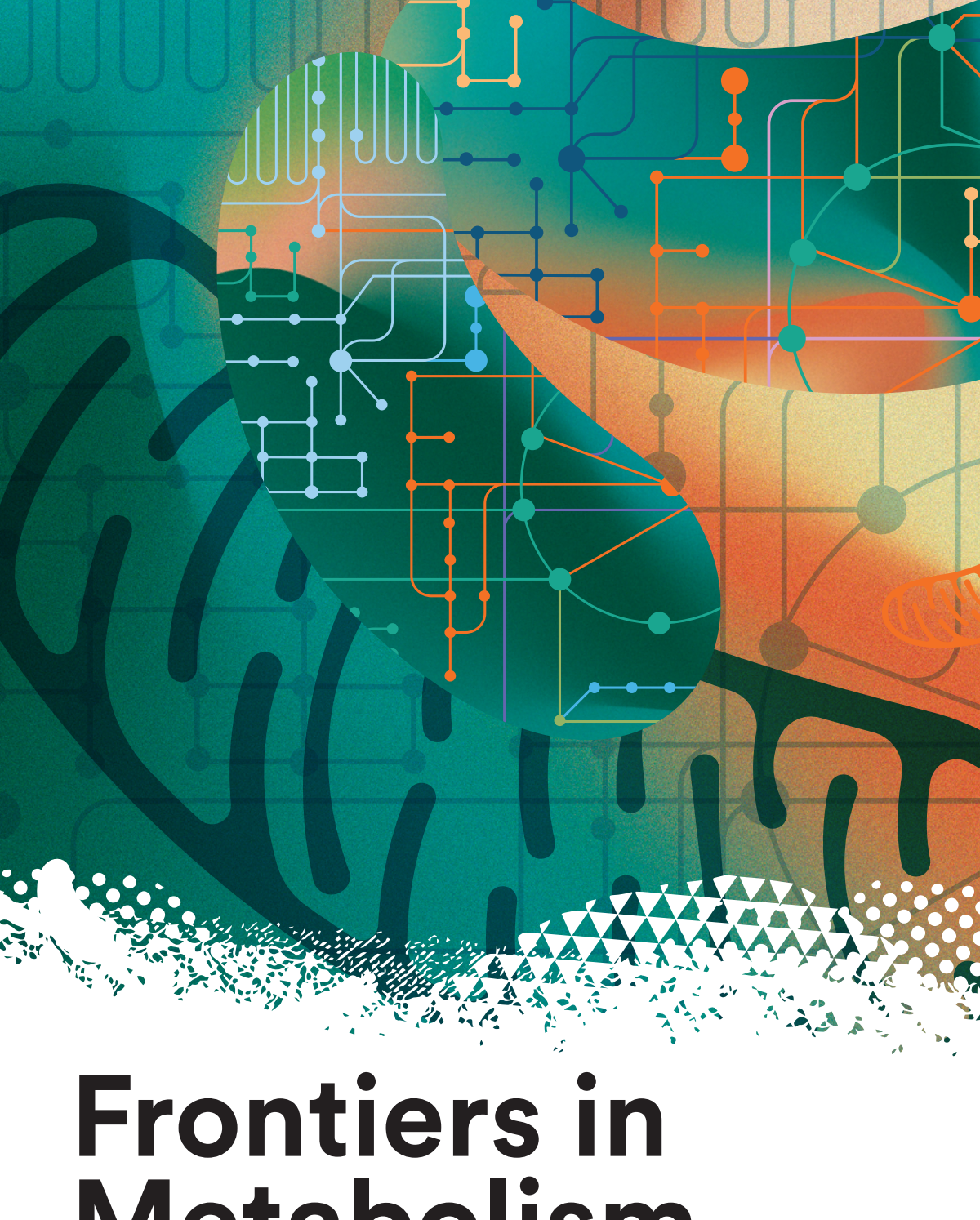


Frontiers in Metabolism

Mechanisms of Metabolic Disease

September 16-18, 2019

MORGRIDGE
INSTITUTE FOR RESEARCH

Welcome

to the 2019 Frontiers in Metabolism meeting at the Morgridge Institute for Research in Madison, Wisconsin.

Metabolism research is experiencing a renaissance driven by an increasing realization that changes in basic metabolic processes define and drive diverse human diseases. This burgeoning field has sparked the creation of new subfields, launched new journals, and ushered in new technologies for probing and quantifying metabolic processes. Frontiers in Metabolism was founded to assemble leading scientists from across the metabolism space to discuss topics that transcend traditional boundaries. The meeting is intentionally broad in theme and small in size, forcing us to stretch our thinking and to learn from the important advances that lie outside of our individual areas of expertise. Frontiers is also intended to be a venue that highlights emerging talent and fosters the type of interactions that seed collaborations and launch careers.

Frontiers in Metabolism is part of a larger Metabolism Initiative within the Morgridge Institute and the University of Wisconsin–Madison that aims to build upon our campus's rich history metabolic research, and is conducted in partnership with the Lausanne Integrative Metabolism and Nutrition Alliance (LIMNA).

We hope you enjoy your time in Madison, and look forward to your participation!

Dave Pagliarini
Jenelle Gierhart-Sutter

2019 Conference Agenda

Sessions are held in the DeLuca Forum

= Event located in Main Court

Monday, September 16th

TIME	ACTIVITY	WHO
1:30 – 3:30 pm	Registration and Welcome	
3:30 – 3:45 pm	Welcome and official opening	Dave Pagliarini
3:45 – 5:15 pm	**Session 1: Mitochondria, Metabolism, and Disease**	**Chair: Dave Pagliarini**
3:45 – 4:10 pm	Mitochondria and Aging	Johan Auwerx
4:10 – 4:35 pm	Defective lipid trafficking	Helen Hobbs
4:35 – 5:00 pm	The New Biology of Type 2 Diabetes	Gerald Shulman
5:00 – 5:25 pm	Role of Autophagy in Cancer	Eileen White
5:25 – 5:45 pm	Refreshment Break	Everyone
5:45 – 6:30 pm	Special Session – Stephen Meyn – UW Center for Human Genomics and Precision Medicine	Stephen Meyn
6:30 – 6:45 pm	Closing Remarks	Morgridge Institute CEO - Brad Schwartz
6:45 pm – 8:00 pm	Welcome Reception (Heavy Hors d'oeuvres) & Poster Session #1	Everyone

Tuesday, September 17th

TIME	ACTIVITY	WHO
7:30 – 8:30 am	Breakfast	Everyone
8:30 – 9:50 am	**Session 2: Metabolism and Aging**	**Chair: Ricki Colman**
8:30 – 8:55 am	Metabolism as an intrinsic modulator of Aging	Rozalyn Anderson
8:55 – 9:20 am	Epigenetic and metabolic regulation of aging	Anne Brunet
9:20 – 9:35 am	Decreased consumption of branched-chain amino acids promotes lifespan and healthspan in wild-type and progeroid mice	Nicole Cummings
9:35 – 9:50 am	Targeting macrophage metabolism to improve therapy in pancreatic cancer	Christopher Halbrook
9:50 – 10:15 am	Coffee Break	Everyone
10:15 – 11:30 am	**Session 3: Immunometabolism**	**Chair: Jing Fan**
10:15 – 10:40 am	Immunometabolic Integration in Health and Disease	Gökhan Hotamisligil
10:40 – 11:05 am	Dynamic Remodeling of Mitochondrial Metabolism in Macrophages Over a Course of Immune Response	Jing Fan
11:05 – 11:30 am	Mitochondrial lipid composition in memory T cell metabolism and function	Erika Pearce
11:30 – 2:00 pm	Lunch & Poster Session #2	Everyone
2:00 – 3:20 pm	**Session 4: Mitochondria in Metabolism**	**Chair: Natalie Niemi**
2:00 – 2:25 pm	Mitochondrial DNA Stress Signaling	Gerald Shadel
2:25 – 2:50 pm	The nutrient microenvironment of tissues and tumors affects the metabolism of resident cells	Alexander Muir
2:50 – 3:05 pm	Profiling of cell type-specific mitochondria reveals functional and molecular diversity in the central nervous system	Caroline Fecher
3:05 – 3:20 pm	Perilipin 5 Links ATGL Lipolytic Activity to PGC-1α/PPAR-α signaling	Charles Najt
3:20 – 3:50 pm	Coffee Break	Everyone
3:50 – 5:05 pm	**Session 5: Lipid Metabolism**	**Chair: Judith Simcox**
3:50 – 4:15 pm	Vitamin K2 Synthesis and ER-Associated Degradation of HMG CoA Reductase	Russell DeBose-Boyd
4:15 – 4:40 pm	New pathways for cellular and systemic lipid transport	Peter Tontonoz
4:40 – 5:05 pm	Phase of Fat: Mechanisms and regulation of fat storage	Tobias Walther
5:05 – 7:00 pm	Meet the Speakers Dinner	RSVP'd Attendees and Speakers Only
Following formal meeting activities	Optional: Informal Gathering – Memorial Union Terrace located at 800 Langdon Street, Madison, WI 53706. Come grab a chair and enjoy the atmosphere at the historic Memorial Union Terrace with fellow meeting attendees. The Terrace is among the most iconic locations on the UW–Madison campus for relaxing and taking in a fall evening. **Please join us!**	

Wednesday, September 18th

TIME	ACTIVITY	WHO
7:30 – 8:30 am	Breakfast	Everyone
8:30 – 10:00 am	**Session 6: Systems Approaches to Metabolic Analyses**	**Chair: Daniel Amador-Noguez**
8:30 – 8:55 am	Metabolic Dysregulation and Human Disease Phenotypes	Ralph DeBerardinis
8:55 – 9:20 am	Tracing energy metabolism / Tracing metabolism in vivo	Joshua Rabinowitz
9:20 – 9:45 am	From enyzme expression landscapes to metabolomes – how a new generation of high-throughput analytics enables the prediction of entire cellular metabolomes	Markus Ralser
9:45 – 10:00 am	The source of glycolytic intermediates in mammalian tissues	Tara TeSlaa
10:00 – 10:30 am	Coffee Break	Everyone
10:30 – 11:45 am	**Session 7: Metabolism in Cellular Homeostasis and Disease**	**Chair: Jason Cantor**
10:30 – 10:55 am	Metabolic Transitions in Cancer: Lessons from Viral Infection	Heather Christofk
10:55 – 11:20 am	Regulation of Growth and Metabolism	David Sabatini
11:20 – 11:45 pm	Mapping Biochemical Pathways in Human Biology and Disease by Activity-Based Proteomics	Ben Cravatt
11:45 – 1:30 pm	Lunch & Poster Session #3	Everyone
1:30 – 2:45 pm	**Session 8: Mitochondrial Communication**	**Chair: Mateusz Manicki**
1:30 – 1:55 pm	ER-Mitochondrial Contact Sites Act as a Platform for Morphological Decision Making	Gia Voeltz
1:55 – 2:20 pm	Mitochondrial SUMOylation as a central organizer of signaling complexes	Heidi McBride
2:20 – 2:35 pm	The small GTPase Rab32 resides on lysosomes to regulate mTORC1 signaling	Kristina Drizyte-Miller
2:35 – 2:50 pm	Brain creatine deficiency, increased grooming and structural cerebellar changes in a new KI rat model of creatine transporter deficiency	Lara Duran-Trio
2:50 – 3:20 pm	Refreshment Break	Everyone
3:20 – 4:35 pm	**Session 9: Metabolism Dynamics**	**Chair: Alan Attie**
3:20 – 3:45 pm	Mitochondria at the crossroads of metabolic flexibility and bioenergetics	Deborah Muoio
3:45 – 4:10 pm	Circadian regulation of exercise physiology	Katja Lamia
4:10 – 4:25 pm	Inhibiting triglyceride storage in adipose tissue induces beiging of white fat, and increased glucose disposal by brown fat	Chandramohan Chitraju
4:25 – 4:45 pm	**Award Presentations and Closing Remarks**	
4:25 – 4:35 pm	Awards Ceremony	Dave Pagliarini
4:35 – 4:45 pm	Closing remarks	Dave Pagliarini

Invited Speakers

Rozalyn Anderson, PhD

Associate Professor of Medicine
SMPH, UW–Madison

Metabolism as an Intrinsic Modulator of Aging

Tuesday, September 17th – 8:30 am

Johan Auwerx, M.D., Ph.D.

Professor
Ecole Polytechnique Federale de Lausanne, Switzerland

Mitochondria and Aging

Monday, September 16th – 3:45 pm

Anne Brunet, Ph.D.

Michele and Timothy Barakett Professor of Genetics
Stanford University

Epigenetic and Metabolic Regulation of Aging

Tuesday, September 17th – 8:55 am

Heather Christofk, Ph.D.

Associate Professor of Biological Chemistry
UCLA

Metabolic Transitions in Cancer: Lessons from Viral Infection

Wednesday, September 18th – 10:30 amm

Ben Cravatt, Ph.D.

Professor and Gilula Chair of Chemical Biology
Scripps Research

Mapping Biochemical Pathways in Human Biology and Disease by Activity-Based Proteomics

Wednesday, September 18th – 11:20 am

Ralph J. DeBerardinis, MD. PhD.

Investigator, Howard Hughes Medical Institute
Professor, UT Southwestern Medical Center

Metabolic Dysregulation and Human Disease Phenotypes

Wednesday, September 18th – 8:30 am

Russell A. DeBose-Boyd, Ph.D.

Professor of Molecular Genetics
University of Texas Southwestern Medical Center, Dallas, TX

Vitamin K2 Synthesis and ER-Associated Degradation of HMG CoA Reductase

Tuesday, September 17th – 3:50 pm

Jing Fan, Ph.D.

Metabolism Investigator, Morgridge Institute for Research
Assistant Professor of Nutritional Sciences
University of Wisconsin – Madison

Dynamic Remodeling of Mitochondrial Metabolism in Macrophages Over a Course of Immune Response

Tuesday, September 17th – 10:40 am

Helen H. Hobbs

Investigator, HHMI
Professor of Internal Medicine and Molecular Genetics
University of Texas Southwestern Medical Center

Defective lipid trafficking

Monday, September 16th – 4:10 pm

Gökhan S. Hotamıslıgil, MD, PhD

James S. Simmons Chair of Genetics & Metabolism
Director, Sabri Ülker Center for Metabolic Research
Department of Genetics & Complex Diseases
Assoc. Member, Harvard-MIT Broad Institute,
Harvard Stem Cell Institute
Harvard T.H. Chan School of Public Health

Immunometabolic Integration in Health and Disease

Tuesday, September 17th – 10:15 am

Katja A. Lamia, Ph.D.

Associate Professor of Molecular Medicine
Scripps Research, La Jolla, CA

Circadian Regulation of Exercise Physiology

Wednesday, September 18th – 3:45 pm

Heidi M McBride, Ph.D

Professor, Neurology and Neurosurgery
McGill University, Montreal

Mitochondrial SUMOylation as a Central Organizer of Signaling Complexes

Wednesday, September 18th – 1:55 pm

Deborah M. Muoio, Ph.D.

Professor Departments of Medicine and
Pharmacology & Cancer Biology
Director, Basic Science Research
Sarah W. Stedman Nutrition and Metabolism Center
Duke Molecular Physiology Institute

Mitochondria at the Crossroads of Metabolic Flexibility and Bioenergetics

Wednesday, September 18th – 3:20 pm

Erika Pearce, Ph.D.

Director of the Department of Immunometabolism
Max Planck Institute of Immunobiology and
Epigenetics – Germany

Mitochondrial Lipid Composition in Memory T Cell Metabolism and Function

Tuesday, September 17th – 11:05 am

Joshua Rabinowitz, M.D., Ph.D.

Professor of Chemistry & Integrative Genomics
Princeton University

Tracing Energy Metabolism / Tracing Metabolism in Vivo

Wednesday, September 18th – 8:55 am

Markus Ralser, Ph.D.

Group Leader
Charité University Medicine, Berlin, and
The Francis Crick Institute, London

From Enzyme Expression Landscapes to Metabolomes - How a New Generation of High-throughput Analytics Enables the Prediction of Entire Cellular Metabolomes

Wednesday, September 18th – 9:20 am

David M. Sabatini, M.D., Ph.D.

Member, Professor of Biology
Whitehead Institute for Biomedical Research, MIT

Regulation of Growth and Metabolism

Wednesday, September 18th – 10:55 am

Dr. Gerald S. Shadel

Professor and Audrey Geisel Chair
Salk Institute of Biological Sciences

Mitochondrial DNA Stress Signaling

Tuesday, September 17th – 2:00 pm

Gerald I. Shulman, MD, PhD

Cowgill Professor of Medicine and Cellular & Molecular Physiology
Yale University School of Medicine

The New Biology of Type 2 Diabetes

Monday, September 16th – 4:35 pm

Peter Tontonoz, M.D., Ph.D.

University of California, Los Angeles
Professor of Pathology and Laboratory Medicine

New Pathways for Cellular and Systemic Lipid Transport

Tuesday, September 17th – 4:15 pm

Gia Voeltz

Professor of MCD Biology
HHMI-University of Colorado-Boulder

ER-Mitochondrial Contact Sites Act as a Platform for Morphological Decision Making

Wednesday, September 18th – 1:30 pm

Tobias Walther, PhD

Professor of Genetics and Complex Diseases
(Harvard T.H. Chan SPH)
Professor of Cell Biology
HHMI Investigator

Phase of Fat: Mechanisms and Regulation of Fat Storage

Tuesday, September 17th – 4:40 pm

Eileen White, PhD

Deputy Director
Rutgers Cancer Institute of New Jersey

Role of Autophagy in Cancer

Monday, September 16th – 5:00 pm

Meeting Sessions and Location

All meeting sessions will take place in the H.F. DeLuca Forum located on the 1st floor of the Discovery Building (330 N. Orchard Street, Madison, WI).

Meet the Speakers Dinner – Dinner with speakers at Steenbock's on Orchard. This dinner is for RSVP'd attendees and speakers only. Dinner will take place on Tuesday, September 17th, starting with cocktails at 5:05 pm and dinner served at ~5:30 pm.

****Special note:** On Tuesday, September 17th following meeting activities, there will be an informal gathering at the Memorial Union Terrace located at 800 Langdon Street, Madison, WI 53706. Come grab a chair and enjoy the atmosphere at the historic Memorial Union Terrace with fellow meeting attendees. The Terrace is among the most iconic locations on the UW–Madison campus for relaxing and taking in a fall evening. Please join us!

Registration

Registration will start at 1:30 PM on Monday, September 16th. The registration table will be located outside of the H.F. DeLuca Forum on the 1st floor of the Discovery Building (330 N. Orchard Street, Madison, WI) Your meeting registration gives you entry to a range of programming activities, including:

- Talks and Poster Sessions
- Program Book
- Welcome Reception
- Lunches
- Breaks

Traveling to Meeting Venue

TAXI SERVICE

The city of Madison has taxi services.

Green Cab: 608-255-1234

Union Cab: 608-242-2000

RIDESHARE SERVICES

Lyft and Uber operate in Madison. Download the respective apps in your mobile app store for pricing and availability.

Map

See page 12

Badges

For catering purposes, please ensure that you wear your conference badge throughout the conference. Replacement badges are available at the registration desk.

Speakers

Oral presenters are reminded to be in the H.F. DeLuca Forum no later than 10 minutes before the start of the session in order to preload presentation. An A/V specialist will be available to assist with the transition.

Poster Sessions

Poster sessions will take place in the Main Court.

Poster presenters should bring their poster with them to registration to be hung. Poster should remain hung for the duration of the meeting.

Poster Session 1

All Poster Presenters
Monday, September 16th
6:45 pm – 8:00 pm

Poster Session 2

Odd Numbered Posters
Tuesday, September 17th
11:30 pm – 2:00 pm

Poster Session 3

Even Numbered Posters
Wednesday, September 18th
11:45 am – 1:30 pm

Twitter

The official meeting #Hashtag is:

#FrontiersinMetabolism

Please use this #Hashtag when tweeting about the conference.

Wi-fi

Wi-Fi is available free of charge through the conference venue during the conference.

Go to Settings and select:
Discovery-Guest or **Towncenter**

Open a browser - Enter the following address in the search bar:
http://discovery.wisc.edu

You will be redirected to a wireless authentication page – Scroll to the bottom of the page and click **Accept**

Map

Discovery Building
330 N. Orchard Street
Madison, WI 53715

Camp Randall Stadium
1440 Monroe Street
Madison, WI 53711

State Street

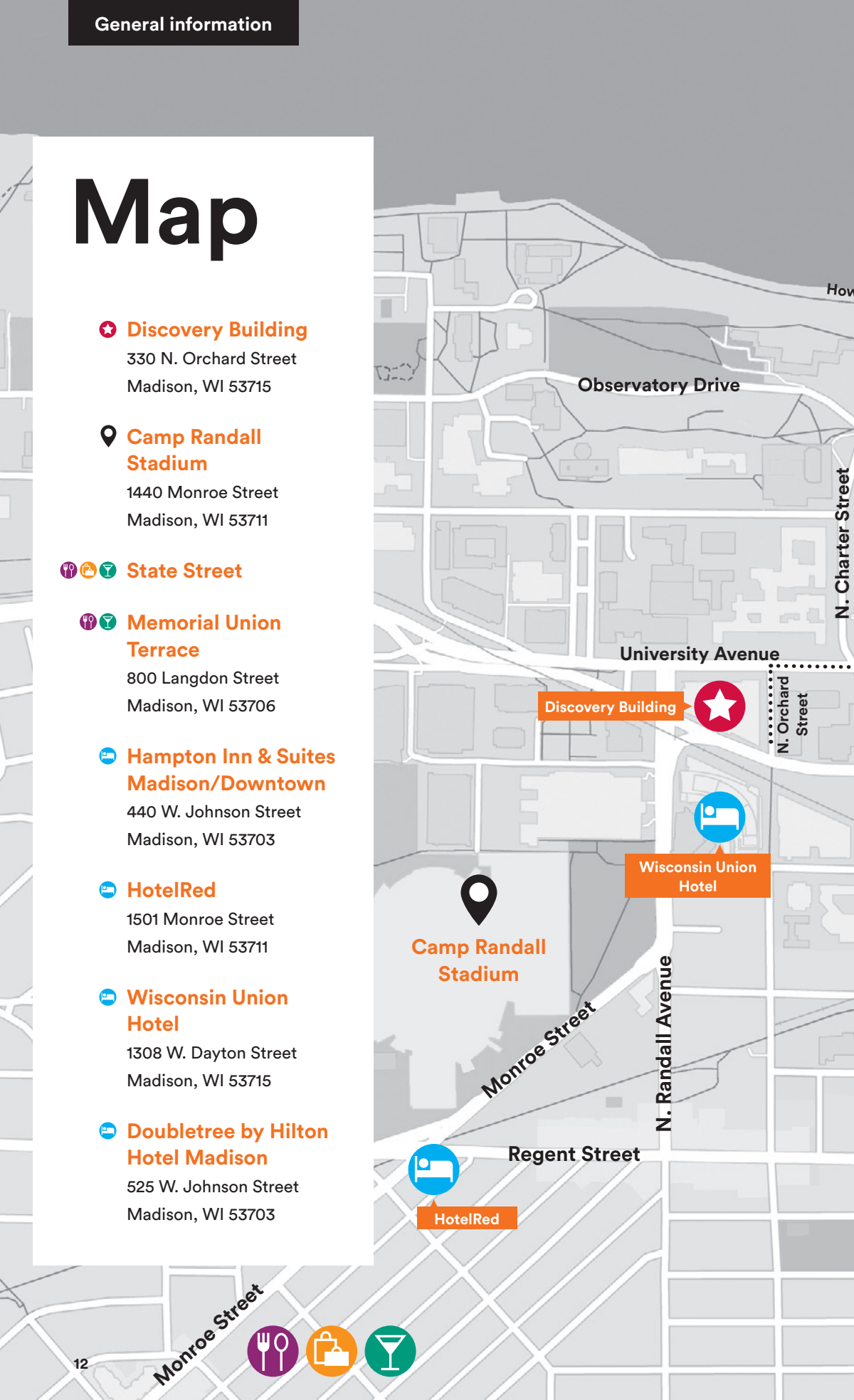
Memorial Union Terrace
800 Langdon Street
Madison, WI 53706

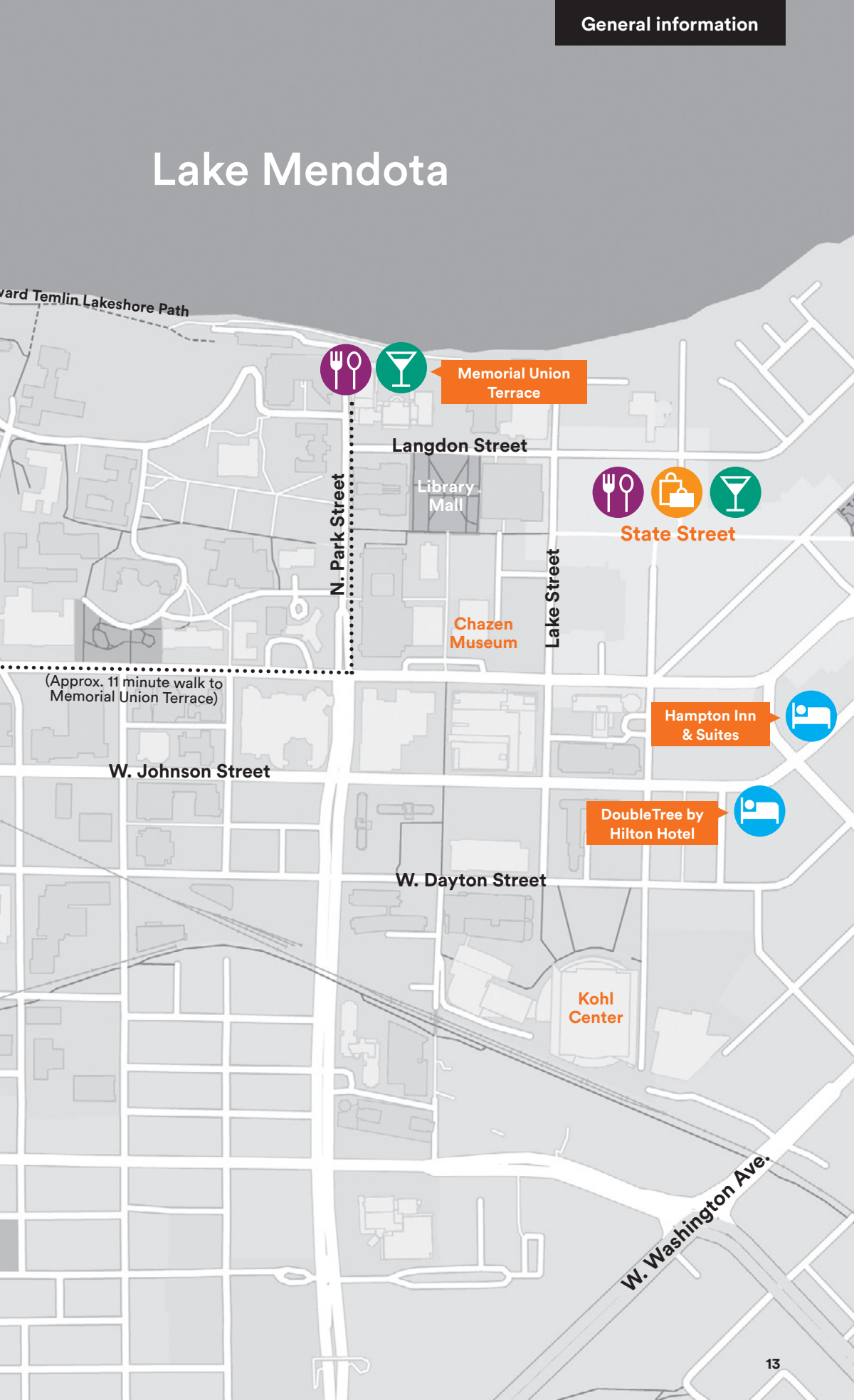
Hampton Inn & Suites Madison/Downtown
440 W. Johnson Street
Madison, WI 53703

HotelRed
1501 Monroe Street
Madison, WI 53711

Wisconsin Union Hotel
1308 W. Dayton Street
Madison, WI 53715

Doubletree by Hilton Hotel Madison
525 W. Johnson Street
Madison, WI 53703

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vard Temlin Lakeshore Path
Memorial Union Terrace
Langdon Street
Library Mall
N. Park Street
Lake Street
State Street
Chazen Museum
(Approx. 11 minute walk to Memorial Union Terrace)
Hampton Inn & Suites
W. Johnson Street
DoubleTree by Hilton Hotel
W. Dayton Street
Kohl Center
W. Washington Ave.

Exhibition Sponsors

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Promega provides cell-based assays to measure metabolic activity in cells such as glucose uptake, glycolysis, glutaminolysis, lipogenesis, and oxidative stress. These sensitive bioluminescent methods for measuring metabolic changes are powerful tools in the pursuit of understanding cell health and disease. Located in Madison, WI, Promega is here to help you in your research.

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At Thermo Fisher Scientific, we are committed to helping researchers and scientists in academia and industry harness the power of metabolomics to gain in-depth biological insight, facilitate biomarker discovery, and advance scientific research. We've developed leading solutions in the areas of separation, detection, and software. We'll continue to pursue advancements to delve deeper into the metabolome, so you can go beyond the edge of what we ever thought possible.

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2019 Poster Guide

All Poster Presenters
Poster Session 1
Monday, September 16
6:45 pm – 8:00 pm

Odd Numbered Posters
Poster Session 2
Tuesday, September 17
11:30 am – 2:00 pm

Even Numbered Posters
Poster Session 3
Wednesday, September 18
11:45 am – 1:30 pm

POSTER #	POSTER PRESENTATION
1	**Drosophila larvae maintain NAD+ redox balance by coordinately regulating lactate and glycerol-3-phophate metabolism** Hongde Li, Kasun Buddika, Maria C. Sterrett, Cole R. Julick, Rose C. Pletcher, Chelsea J. Gosney, Anna K. Burton, Jonathan A. Karty, Kristi L. Montooth, Nicholas S. Sokol, **Madhulika Rai**, and Jason M. Tennessen Indiana University
2	**S100A9 extends lifespan in insulin deficiency** **Despina Mikropoulou**, Serena Ricci, Giorgio Ramadori, Sanda Ljubicic, Xavier Brenachot, Christelle Veyrat-Durebex, Ebru Aras, Rafael M. Ioris, Jordi Altirriba, Elisabeth Malle, Dirk Foell, Thomas Vogl, and Roberto Coppari University of Geneva
3	**Dysregulated Branched Chain Amino Acid Metabolism Acts as a Diagnostic Predictor of Insulin Sensitivity and Cardiometabolic Outcomes** **Dipsikha Biswas**, Kathleen Tozer, Lester J Perez, Christine Aguaire, Alexandra Yip, Jennifer Shea, Keith Brunt, Jean-Francois Legare, Ansar Hassan, Yassine Al Hiani, Petra Kienesberger, Thomas Pulinilkunnil Dalhousie University

POSTER #	POSTER PRESENTATION
4	**Dietary isoleucine is a key regulator of metabolic health** **Deyang Yu**, Nicole E. Cummings, Cara L. Green, Alexandra Spicer, Victoria Flores, Cholsoon Jang, Ildiko Kasza, Maria Nikodemova, Matt H. Wakai, Jay L. Tomasiewicz, Shany E. Yang, Blake R. Miller, Heidi H. Pak, Jacqueline A. Brinkman, Caroline M. Alexander, Joshua D. Rabinowitz, Joseph A. Baur, Kristen C Malecki, Dudley W. Lamming University of Wisconsin – Madison
5	**Early B Cell Factor activity controls developmental and environmental thermogenic gene programs in brown adipose tissue** **Anthony R. Angueira**, Suzanne N. Shapira, Jeff Ishibashi, Samay Sampat, Hee-Woong Lim, and Patrick Seale Perelman School of Medicine at the University of Pennsylvania
6	**Use of physiologic media to understand the role of alanine in acute myeloid leukemia metabolism** **Kimberly S. Huggler** and Jason R. Cantor Morgridge Institute for Research
7	**Metabolic Regulation of Bacterial Isoprenoid Synthesis** **Mehmet Tatli**, Julia Martien, Julio Rivera Vazquez, Alexander Hebert, Julio Rivera Vazquez, Joshua J. Coon and Daniel Amador-Noguez University of Wisconsin-Madison
8	**When an oncometabolite isn't an oncometabolite: endogenous L-2-hydroxyglutarate production is common among Dipteran larvae** **Nader Mahmoudzadeh**, Hongde Li, Alexander J. Fitt, William E. Martenis, Daniel B. Schwab, Lauren Nease, Charity G. Owings, Jonathan A. Karty, Richard W. Hardy, Armin P. Mozcek, Christine J. Picard, and Jason M. Tennessen Indiana University
9	**Local tissue biomarkers of response to therapy for glioblastoma** **Karishma R. Rajani**, Lucas Carlstrom, Joshua Jacobs, Mark Schroeder, Ian Olson, Matthew Hainy, Xuewei Wang, Jann N. Sarkaria and Terry C. Burns Mayo Clinic

POSTER #	POSTER PRESENTATION
10	**Identification of Trans-epistatic Inheritance of Two Alleles Protecting Against Obesity in Mice** **Zhonggang Li**, Chris Gottsacker, Zirui Tao, Jenny Nguyen, Alexander Scharp, Fernanda B. Leyva Jaimes, Sophia Ly, Sydney C. Bruggeman, Samantha St. Clair, Dave Nelson, Mei-I Yen, Chi-Liang Eric Yen, Brian W. Parks University of Wisconsin – Madison
11	**Rescue of UBAID1 Deficient Embryonic Lethality By ERAD-Resistant HMGCR** **YoungAh Jo**, Steven S. Kim, Kristina Garland, Iris Fuentes, Lisa Dicarlo, Sarah L. Booth, Bret Evers, Jonathan Rios, and Russell A. DeBose-Boyd University of Texas Southwestern Medical Center
12	**Angiopoietin-2–integrin α5α1 enhances vascular fatty acid transport and prevents ectopic lipid–induced insulin resistance** **Hosung Bae** Korea Advanced Institute of Science and Technology (KAIST)
13	**Two-stage metabolic remodeling in macrophages in response to LPS and interferon-γ stimulation** **Gretchen L. Seim**, Emily C. Britt, Steven V. John, Franklin J. Yeo, Aaron R. Johnson, Richard S. Eisenstein, David J. Pagliarini, Jing Fan Morgridge Institute for Research
14	**Improved skeletal muscle function and remodeling observed in aged mice treated with the pan-adiponectin receptor agonist AdipoRon** **Anne Schaar**, Priya Balasubramanian, Porsha Howell, Angela Greenman, Stephen Martin, Gary Diffee, and Rozalyn Anderson University of Wisconsin – Madison
15	**Kinetic tracer infusion measures tissue TCA flux in vivo** **Caroline R. Bartman**, Yihui Shen, Sheng Hui, Joshua D. Rabinowitz Princeton University
16	**Different metabolic pathways support lipogenesis in fat versus liver** **Zhaoyue Zhang**, Tara TeSlaa, Joshua Rabinowitz Princeton University

POSTER #	POSTER PRESENTATION
17	**Methyl-Metabolite Depletion Elicits Adaptive Responses to Support Heterochromatin Stability and Epigenetic Persistence** **Spencer Haws** University of Wisconsin – Madison
18	**Fluorescence lifetime imaging of the metabolic state of activated macrophages during wound response in larval zebrafish** **Veronika Miskolci**, Elizabeth Berge, Kelsey Tweed, Alexandra Walsh, Steve Trier, Courtney McDougal, John-Demian Sauer, Melissa Skala and Anna Huttenlocher University of Wisconsin – Madison
19	**Systems Biochemistry Analyses of a Human Knockout Cell Library Defines New Functions for Orphan Mitochondrial Proteins** **Jarred W. Rensvold**, Evgenia Shishkova, Paul D. Hutchins, Adam Jochem, Matthew J.P. Rush, Sean R. Peters, Katherine A. Overmyer, Ian J. Miller, Alexander S. Hebert, Joshua J. Coon and David J. Pagliarini Morgridge Institute for Research
20	**Role of cytochrome c phosphorylation in brain ischemia/reperfusion injury** **Hasini Kalpage**, Jenney Liu, Junmei Wan, Icksoo Lee, Asmita Vaishnav, Valerian E. Kagan, Arthur R. Salomon, Lawrence I. Grossman, Brian F.P. Edwards, Maik Hüttemann Wayne State University
21	**Stress induced p53-p21 signaling axis confers protection against T1D in NOD mice** Hugo Lee, **Hulya Zeynep Oktay**, Sierra Schreiber, Shreyash Sonthalia, Quincy Harenda, and Feyza Engin University of Wisconsin – Madison
22	**Fasting Duration Regulates the Metabolic Response to Caloric Restriction** **Heidi H. Pak**, Cara L. Green, Nicole E. Cummings, Shany E. Yang, Sabrina Dumas, Mikaela J. Koller and Dudley W. Lamming University of Wisconsin – Madison

POSTER #	POSTER PRESENTATION
23	**Quantitative analysis of mitochondrial NADPH upon generation of mitochondria-specific H2O2** **Sun Jin Moon** Massachusetts Institute of Technology
24	**Progressive metabolic dysfunction contributes to hallmark pathologies in a novel wild-derived mouse model of Alzheimer's disease** **Kristen D. Onos**, Heidi Kocalis, Kelly J. Keezer, Adele E. Finch, Mike Sasner, and Gareth R. Howell The Jackson Laboratory
25	**Comprehensive quantification of fuel use by the human heart** **Cholsoon Jang**, Danielle Murashige, Josh Rabinowitz, David Frankel, Zolt Arany Princeton University
26	**Altered UPR function and beta cell dedifferentiation before insulitis protects mice against type 1 diabetes** **Hugo Lee**, Yong Syu-Lee, Quincy Harenda, Stefan Pietrzak, Hulya Zeynep Oktay, Sierra Schreiber, Yian Liao, Yash Sonthalia, Sunduz Keles, Rupa Sridharan, and Feyza Engin University of Wisconsin – Madison
27	**Metabolic dynamics modulate cancer progression through mROS/HIF-1a axis** **Hamidullah Khan**, Steven John, Sushmita Roy, Patrick Buethe, Aman Nihal, Aman Prasad, Justin Jeffery, Jing Fan and Stefan M. Schieke University of Wisconsin – Madison
28	**The role of Aldolase C in cholesterol metabolism** **James Votava**, Steve John, Danielle Golner, Zhonggang Li, Jing Fan, Brian Parks University of Wisconsin – Madison

POSTER #	POSTER PRESENTATION
29	**Overcoming hydrophobic barriers: How an isoprene lipid-binding protein promotes eukaryotic coenzyme Q biosynthesis** Danielle C. Lohman, Deniz Aydin, **Mateusz Manicki**, Halil Aydin, Rachel M. Guerra, Helaina C. Von Bank, Robert W. Smith, Vanessa Linke, Erin Weisenhorn, Molly T. McDevitt, Paul Hutchins, Emily M. Wilkerson, Benjamin Wancewicz, Jason Russell, Matthew S. Stefely, Emily T. Beebe, Adam Jochem, Adam Frost, Joshua J. Coon, Craig A. Bingman, Matteo Dal Peraro, and David J. Pagliarini Morgridge Institute for Research
30	**Pptc7 is an essential phosphatase for promoting mammalian mitochondrial metabolism and biogenesis** **Natalie M. Niemi**, Gary Wilson, Kathryn A. Overmyer, Nora Vogtle, Lisa Myketin, Danielle C. Lohman, Kathryn L. Schueler, Alan D. Attie, Chris Meisinger, Joshua J. Coon, and David J. Pagliarini Morgridge Institute for Research
31	**A Systems Genetics Approach to Understanding Obesity** **Samantha L. St. Clair**, Sabrina L. Belisle, Sydney C. Bruggeman, Fernanda Leyva Jaimes, Zhonggang Li, Brian W. Parks University of Wisconsin – Madison
32	**You are what (your bacteria) eat: how bacteria affect host epigenetic states** **Sydney P. Thomas**, Kimberly A. Krautkramer, Kymberleigh A. Romano, Federico E. Rey, John M. Denu University of Wisconsin – Madison
33	**Serine catabolism feeds NADH when respiration is impaired** **Lifeng Yang** Princeton University

POSTER #	POSTER PRESENTATION
34	**Regulation of body weight and composition by dietary histidine** **Victoria Flores**, Alexandra Spicer, Nicole E. Cummings, Eunhae Park, Deyang Yu, Shany Yang, Matthew Wakai, Jay Tomasiewicz, Cara L. Green, Kristen MC Malecki, Dudley W. Lamming University of Wisconsin – Madison
35	**Identification of uridine as a novel nutrient in pancreatic cancer** **Matthew Ward,** Pawan Poudel, Zeribe Nwosu, Anguraj Sadanandam, Costas Lyssiotis University of Michigan
36	**Energy balance and glucose homeostasis in eight genetically diverse mouse strains** Kristen Onos, Caroline Wise, Jubilee Ajiboye, Kelly Keezer, Jacqueline White, Janine Wotton, Gareth Howell, John Lighton and **Heidi Kocalis** The Jackson Laboratory
37	**ACSS2 Promotes Nuclear Protein Acetylation Beyond Histones in a Tissue-Specific Response to Fasting** **Anastasia J. Lindahl**, John R. Moffett, Jishnu K. S. Krishnan, Abhilash Appu, Narayanan V. Puthillathu, Peethambaran Arun, Kristen Hamilton, Steven Mog, Sarani Ghosal, Amanda Christy, Christine Christensen, Roopa Biswas, Aryan M. A. Namboodiri, John Denu University of Wisconsin – Madison
38	**Intestinal Long-chain Fatty Acid Oxidation Regulates Systemic Energy Metabolism and Glucose Homeostasis** **Mitchell Lavarias**, David Nelson, Mei-I Yen, Spencer Haws, Rashpal Dhillon, John Denu, Michael Wolfgang, and Chi-Liang Eric Yen University of Wisconsin – Madison

POSTER #	POSTER PRESENTATION
39	**Sensitive Bioluminescent Assays for Monitoring Changes in Tumor and Immune Cell Metabolism** **Donna M. Leippe**, Michael P. Valley, Gediminas Vidugiris, Natasha Karassina, Jolanta Vidugiriene and James J. Cali Promega Corporation
40	**Carbomer-based adjuvant (CBA) potentiates CD8 T cells by metabolically rewiring dendritic cells** **Woojong Lee** University of Wisconsin – Madison
41	**Sex and Strain Determine the Metabolic Response to Dietary Protein Level** **Cara Green** University of Wisconsin – Madison
42	**Transgenerational disruptions in DNA methylation and gene expression by ancestral folate supplementation** **Laura Borth**, Andy Madrid, Ligia Papale, Nithya Hariharan, Reid Alisch, John Denu, Bermans Iskandar University of Wisconsin – Madison
43	**Mitochondrial Dysfunction Drives Deoxsphingolipid Synthesis** **Esther W. Lim**, Michal Handzlik, Martina Wallace, Daniel Garcia, Elijah Trefts, Reuben Shaw, Christian M. Metallo University of California, San Diego
44	**Perilipin 5 Links ATGL Lipolytic Activity to PGC-1α/PPAR-α signaling** **Charles P Najt** and Douglas G. Mashek University of Minnesota

POSTER #	POSTER PRESENTATION
45	**Profiling of cell type-specific mitochondria reveals functional and molecular diversity in the central nervous system** **Caroline Fecher**, Laura Trovó, and Thomas Misgeld, et al Technical University of Munich
46	**The source of glycolytic intermediates in mammalian tissues** **Tara TeSlaa**, Sheng Hui, Joshua Rabinowitz Princeton University
47	**Decreased consumption of branched-chain amino acids promotes lifespan and healthspan in wild-type and progeroid mice** **Nicole E. Cummings**, Elizabeth N. Konon, Alexis T. Mitchell, Colin Boyle, Megan Finke, Haley Schuster, Allison C. Rodgers, Lexington R. Haider, Sareyah Ahmed, Abigail Radcliff, Jessica Wu, Dawn S. Sherman, Elizabeth M. Williams, Soha Ahmad, Timothy Hacker, and Dudley W. Lamming University of Wisconsin – Madison

Dear Fellow Metabolism Researchers,

Thank you for attending the **2019 Frontiers in Metabolism – Mechanisms of Metabolic Disease** meeting at the Morgridge Institute for Research.

We would like to offer our sincere thanks to everyone who worked diligently to organize this symposium and to all of our participants and attendees, especially our speakers who have traveled from all over the world to participate in this meeting. Finally, we are grateful to our generous meeting sponsors for without their support this meeting would not be possible – Agilent, Cayman Chemical, Promega, Thermo Fisher, and the Morgridge Institute for Research.

Best wishes,

Dave Pagliarini
Jenelle Gierhart-Sutter

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