




MDI Biological Laboratory

# 46<sup>th</sup> MBMSS

Maine Biological and Medical Sciences Symposium

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April 26-27, 2019  
MDI Biological Laboratory  
Maren Conference Center



# 2019 MBMSS

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The 46th Annual Maine Biological and Medical Sciences Symposium (MBMSS) is a state-wide gathering of scientists and students. It is an opportunity to share research results, exchange ideas, promote collaboration, and network with Maine scientists in a variety of disciplines.

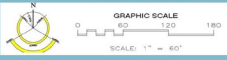


*Cover image credit: Losick Lab (2018), Polyploidy, Drosophila*

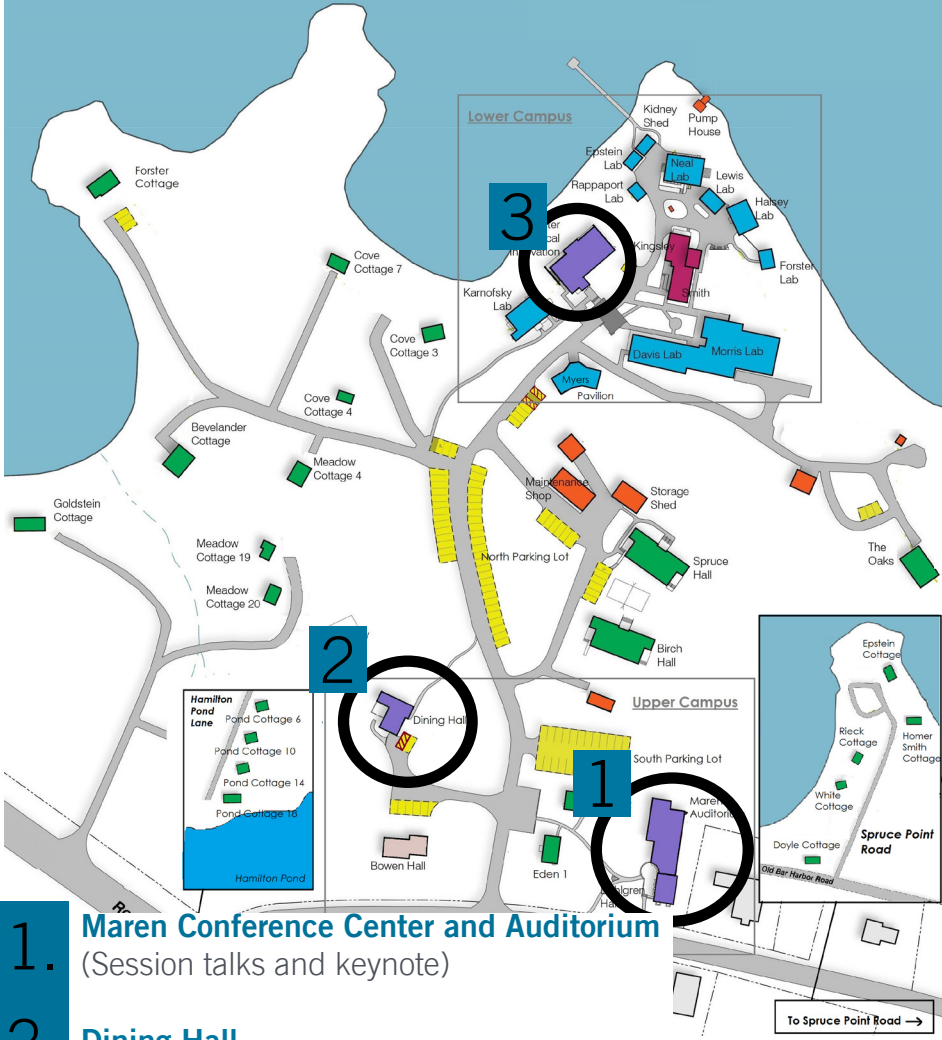
*Maine's IDeA Network of Biomedical Research Excellence is supported by grants from the National Institute of General Medical Sciences (P20GM103423), National Institutes of Health*

# Campus Map

## MDI Biological Laboratory



Legend	
<span style="color: #C00000;">■</span> Administration Buildings	<span style="color: #6A5ACD;">■</span> Education Programs
<span style="color: #00B0F0;">■</span> Laboratory   Science Facilities	<span style="color: #A9A9A9;">■</span> Roadways
<span style="color: #008000;">■</span> Housing	<span style="color: #FFFF00;">■</span> Parking   ~75 Spaces
<span style="color: #FF4500;">■</span> Maintenance Facilities	<span style="color: #FFD700;">■</span> Handicap Parking



1. **Maren Conference Center and Auditorium**  
(Session talks and keynote)
2. **Dining Hall**
3. **Maine Center for Biomedical Innovation**  
(Poster sessions A, B, and C)

12:00 - 4:00 PM

**Symposium Registration**

Maren Conference Center

Poster Session A presenters may set up their posters any time before the 4:15 pm session

1:00 PM

**Symposium Welcome and Introduction**

**Jane Disney, Ph.D.**, Director of Education, MDI

Biological Laboratory

Maren Auditorium

1:10 - 3:00 PM

**Session I: The Science Behind the Opioid Crisis**

Session Chair: Karen Houseknecht

1:10 - 1:20 PM

**Opening Remarks**

**Karen Houseknecht, Ph.D.**, Associate Provost,

University of New England

1:20 - 1:40 PM

**Ian Meng, Ph.D.**, Professor, University of New England

*Introduction and role of pain in opioid abuse and addiction*

1:40 - 2:00 PM

**Elissa Chesler, Ph.D.**, Professor, The Jackson Laboratory

*Genetics and addiction*

2:00 - 2:20 PM

**Vivek Kumar, Ph.D.**, Assistant Professor, The Jackson Laboratory

*Modeling addiction behaviors in the mouse*

2:20 - 2:40 PM

**Leslie Ochs, Ph.D.**, Assistant Professor, Interim Chair Department of Social and Administrative Pharmacy, University of New England

*The role of prescribing practices in the opioid crisis*

# Friday, April 26<sup>TH</sup>

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2:40 - 3:00 PM

## **Additional Discussion**

Maren Conference Center

3:00 - 3:15 PM

## **Break**

3:15 - 4:15 PM

## **Session II: Ecology / Immunology / Cell Biology**

Maren Auditorium

Session Chair: Jim Coffman

3:15 - 3:30 PM

**Colleen O'Loughlin, Ph.D.**, Assistant Professor, Bates College  
*Skin microbiome and possible skin probiotics for therapies*

3:30 - 3:45 PM

**Michael Kienzler, Ph.D.**, Assistant Professor, University of Maine  
*Development of light molecules for biological/therapeutic applications*

3:45 - 4:00 PM

**Chris Moore, Ph.D.**, Assistant Professor, Colby College  
*Tempering positive feedback in population models of mutualism*

4:00 - 4:15 PM

**Michael Wilczek**, Graduate Student, University of Maine  
*Utilizing primary astrocytes to understand early events of a deadly and untreatable viral infection in the brain*

4:15 - 5:45 PM

## **Reception and Poster Session A**

Maine Center for Biomedical Innovation

Cash bar available

5:45 - 7:15 PM

## **Dinner\***

Dining Hall

7:15 PM

## **Keynote Speaker Welcome and Introduction**

Maren Auditorium

Dustin Updike, Ph.D., Assistant Professor, MDI  
Biological Laboratory

7:20 - 8:15 PM

## **Linda Bockenstedt, M.D.,**



Harold W. Jockers  
Professor of Medicine,  
Yale University  
*The Quest to  
Understand Lyme  
Disease*

\*Please note there will be two dinner seatings to ease congestion at the dining tables: 5:45 pm and 6:30 pm. Check your name tag for your seating.

Lyme disease, due to the Ixodes tick-transmitted spirochete *Borrelia burgdorferi*, is the most common vector-borne disease in North America. Despite public health measures, the geographic range of *Borrelia burgdorferi*-infected ticks is expanding and the incidence of Lyme disease is increasing. Humans infected with *Borrelia burgdorferi* can exhibit a variety of clinical signs and symptoms, the pathogenesis of which are incompletely understood. This presentation will describe recent advances in the pathogenesis of Lyme disease in animal models and humans.

8:15 - 9:00 PM

## **Keynote Reception and Dessert**

Maren Conference Center

# Saturday, April 27<sup>TH</sup>

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8:15 - 9:00 AM

## **Poster Session B Set Up**

Maine Center for Biomedical Innovation

9:00 - 10:20 AM

## **Poster Session B and Breakfast Bites**

Maine Center for Biomedical Innovation,  
second floor

Poster presenters must take their posters away  
at the end of this session

10:20- 10:30 AM

## **Poster Session C Set Up**

Maine Center for Biomedical Innovation

10:45 AM - 12:00  
PM

## **Session III: Gene Networks and Regulation / Data Science**

Maren Auditorium

Session Chair: Melissa Maginnis

10:45 - 11:00 AM

**April Hill, Ph.D.**, Professor, Bates College  
*Evolution of conserved gene regulatory  
networks*

11:00 - 11:15 AM

**Juyoung Shim, Ph.D.**, Postdoctoral Research  
Fellow, MDI Biological Laboratory  
*Inhibition of TOR pathway activates  
myogene transcription and enhances health  
of striated body muscle in C. elegans*

11:15 - 11:30 AM

**Kristen Brown-Donovan**, Graduate Student,  
University of Maine  
*The promise of genetic profiling for late  
blight resistance in potato*



# Saturday, April 27<sup>TH</sup>

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11:30 - 11:45 AM

**Emily Spaulding**, Graduate Student,  
Graduate School of Biomedical Sciences  
and Engineering

*In vivo translational profiling of motor neurons reveals activation of the integrated stress response through GCN2 kinase in tRNA synthetase-mediated peripheral neuropathy*

11:45 AM - 12:00  
PM

**Lindsey Fitzsimons**, Graduate Student,  
Graduate School of Biomedical Sciences  
and Engineering

*Primary cilia of the cardiac neural crest orchestrate critical aspects of ventricular myocardial maturation and postnatal cardiac function*

12:00 - 1:00 PM

## **Lunch**

MDI Biological Laboratory Dining Hall

1:00 - 1:50 PM

## **Career Panelists and Expo for Students**

Maren Auditorium

1:00 - 1:05 PM

### **Introduction to Career Panel**

**Jane Disney, Ph.D.**, Director of Education,  
MDI Biological Laboratory

1:05 - 1:10 PM

**Carrie Cowan**, Director of Pre and Post-  
Doctoral Programs, The Jackson Laboratory

1:10 - 1:15 PM

**Melissa Rockwood**, Scientific Recruiter, The  
Jackson Laboratory

1:15 - 1:20 PM

**Elizabeth Bergst**, Education Program  
Manager, Maine Medical Center Research  
Institute



**Saturday, April 27<sup>TH</sup>**

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1:20 - 1:25 PM

**Clarissa Henry**, Associate Professor,  
Graduate School of Biomedical Science  
and Engineering

1:25 - 1:30 PM

**Julie Cross**, Sr. R&D Manager II, IDEXX  
Laboratories

1:30 - 1:35 PM

**Peggy Jo Fague**, Director, InSphero Inc.

1:35 - 1:50 PM

**Questions and Answers**

2:00 - 3:15 PM

**Poster Session C**

Maine Center for Biomedical Innovation

3:15 PM

**Final Comments / Symposium Conclusion**

Maine Center for Biomedical Innovation

**Please visit the Instrument Exchange under the Myers Pavilion!**



*\*Maine's IDEa Network of Biomedical Research Excellence is supported by grants from the National Institute of General Medical Sciences (P20GM103423), National Institutes of Health.*

## Poster Session A



## Poster Session B

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Ryan Andrick  
Bailey Blair  
Jessie Bolduc  
Jonathan Bomar  
Mason Crocker  
Jaycee Cushman  
Ari Dehn  
Ian Gans  
Mitchell Harling  
Matthew Hartmann  
Gabriel Jensen  
Vivin Karthik  
Andre Khalil  
Eraj Khokhar  
Elisabeth Kilroy  
Devon Martin  
Monique Mills  
George Murray  
Kathryn Patenaude  
Timotheus Peace  
William Petterson  
Tonia Roberson  
William Simke  
Sarai Smith  
Benjamin Tero  
Jasmine Waite

Shawn Bayrd  
Anna Bowsher  
Andrea Call  
Lily Charpentier  
Heather Duquette  
Zachary Ellsworth  
Kayla Gjelsvik  
Christine Hale  
Mohammad Hashmi  
Sarah Holbrook  
Cory Johnson  
Sarah Latario  
Junyeong Lee  
Colleen Mayberry  
Victoria Mayers  
Sarah McCallister  
Kashif Mehmood  
Atefeh Rajaei  
Emily Robinson  
Ezekiel Robinson  
Jesse Rochester  
Ursula Roesse  
Caitlin Wiafe-Kwakye  
Benjamin Williams

Presenters are listed alphabetically  
by last name.

## Poster Session C

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Francesca Armstrong  
Alan Baez  
Brooklyn Brown  
Jack Burnell  
Matthew Davis  
Jeanne DuShane  
Caiden Fraser  
Emma Freeman  
Niklas Hase  
Travis Haysley  
Grace Link  
Sarah Nichols  
Katharina Roese  
Romario Romain  
Mikahla Searles  
Grace Smith  
Ashley Soucy  
Katie Stieber  
Dylan Taplin  
Ryan Tebo  
Emma Tobin  
Elizabeth Whitmore  
Jake Willows

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by last name.