



## Chemistry Enabling Advances and Discoveries in Biology and Medicine

June 24 - 25, 2017

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### Chairs

Elizabeth I. Parkinson and Cynthia M. Chio

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### Proctor Academy

204 Main Street

Andover, NH, US

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### Conference Description

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The Gordon Research Seminar on High Throughput Chemistry and Chemical Biology is a unique forum for graduate students, post-docs, and other scientists with comparable levels of experience and education to present and exchange new data and cutting edge ideas.

The focus of this meeting is on chemical approaches to elucidating and solving outstanding problems in biomedicine. We will discuss recent advances in synthetic, medicinal, and analytical chemistry that enable the structures and functions of molecules of therapeutic interest to be detected, probed, and modulated selectively in model systems. We will also concentrate on recent advances in drug discovery that could help translate these insights into powerful therapeutics. Our keynote speaker will be Prof. Emily Balskus from Harvard University.

### Related Meeting

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This GRS will be held in conjunction with the "High Throughput Chemistry and Chemical Biology" Gordon Research Conference (GRC). Those interested in attending both meetings must submit an application for the GRC in addition to an application for the GRS. Refer to the [associated GRC program page](#) for more information.

### Conference Program

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## Saturday

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| 2:00 pm - 5:00 pm | Arrival and Check-in   |
| 3:30 pm - 3:45 pm | Introductory Comments by GRC Site Staff / Welcome from the GRS Chair   |
| 3:45 pm - 4:30 pm | <b>Keynote Session: Advances in Chemical Biology</b><br>Discussion Leader: <b>Elizabeth Parkinson</b> (University of Illinois at Urbana-Champaign, USA)                                  |
| 3:45 pm - 4:25 pm | <b>Emily Balskus</b> (Harvard University, USA)<br>"Deciphering the Human Microbiome with Chemistry"  |
| 4:25 pm - 4:30 pm | Discussion   |
| 4:30 pm - 6:00 pm | <b>Poster Session</b>  |
| 6:00 pm - 7:00 pm | Dinner   |
| 7:30 pm - 9:30 pm | <b>Advances in Compound Library Design, Generation, and Utilization</b><br>Discussion Leader: <b>Sarah Tasker</b> (University of Illinois at Urbana-Champaign, USA)                      |
| 7:30 pm - 7:45 pm | <b>Camille Villequey</b> (École Polytechnique Fédérale de Lausanne (EPFL), Switzerland)<br>"Expanding Chemical and Structural Diversity of Phage-Encoded Macrocyclic Peptide Libraries"  |
| 7:45 pm - 7:50 pm | Discussion   |
| 7:50 pm - 8:05 pm | <b>Naoko Ichiishi</b> (Merck & Co., Inc., USA)<br>"Use of High Throughput Experimentation to Develop Enabling Late Stage Functionalization Approaches for Chemical Biology Applications" |
| 8:05 pm - 8:10 pm | Discussion   |
| 8:10 pm - 8:25 pm | <b>Jon Bogart</b> (University of North Carolina at Chapel Hill, USA)<br>"A Chemoenzymatic Platform for the Discovery of Thiopeptide Therapeutics"  |

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| 8:25 pm - 8:30 pm  | Discussion   |
| 8:30 pm - 8:45 pm  | <b>Alix Chan</b> (Harvard University, USA)<br>"Discovery of Bioactive Small Molecules from a DNA-Encoded Library x Library Selection"  |
| 8:45 pm - 8:50 pm  | Discussion   |
| 8:50 pm - 9:05 pm  | <b>Carlos Moreno-Yruela</b> (University of Copenhagen, Denmark)<br>"Interrogating Substrate Specificity of Human Histone Deacetylases Using Peptide Microarrays"   |
| 9:05 pm - 9:10 pm  | Discussion   |
| 9:10 pm - 9:30 pm  | General Discussion   |
| <b>Sunday</b>      |  |
| 7:30 am - 8:30 am  | Breakfast  |
| 9:00 am - 11:00 am | <b>Development of Chemical Probes and Therapeutics</b><br>Discussion Leader: <b>Justin Rettenmaier</b> (Whitehead Institute for Biological Research, USA)  |
| 9:00 am - 9:15 am  | <b>Juliane Totzke</b> (Duke University, USA)<br>"EDHS-206, a Potent and Selective Inhibitor of TAK1, Targets Pro Survival TNF $\alpha$ Dependent Signaling, Inducing Apoptosis in Rheumatoid Arthritis and Breast Cancer Models" |
| 9:15 am - 9:20 am  | Discussion   |
| 9:20 am - 9:35 am  | <b>Zachary Hill</b> (University of California, San Francisco, USA)<br>"Probing the Ligandable Surface of PTP1B Through Tethering-Based Ligand Scanning"  |
| 9:35 am - 9:40 am  | Discussion   |
| 9:40 am - 9:55 am  | <b>Markus Lakemeyer</b> (Technical University of Munich, Germany)<br>"Probing the Oligomeric Assembly and Catalytic Activity of <i>S. aureus</i> ClpP Using Small Molecules"   |
| 9:55 am - 10:00 am | Discussion   |

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| 10:00 am - 10:15 am | <b>Chunyan Ren</b> (Icahn School of Medicine at Mount Sinai, USA)<br>"Structural-Based Design of Epigenetic Chemical Modulators for CBX7 Chromodomain" |
| 10:15 am - 10:20 am | Discussion   |
| 10:20 am - 10:35 am | <b>Denise Field</b> (Pfizer, USA)<br>"Selective Downregulation of JAK2 and JAK3 by an ATP-Competitive Pan-JAK Inhibitor"                               |
| 10:35 am - 10:40 am | Discussion   |
| 10:40 am - 11:00 am | General Discussion   |
| 11:00 am - 12:30 pm | <b>Poster Session</b><br><i>Coffee will be served in the poster area from 11:00 am - 11:30 am</i>  |
| 12:30 pm - 1:30 pm  | Lunch  |
| 1:30 pm - 2:30 pm   | <b>Assays for Novel Target Identification</b><br>Discussion Leader: <b>Evijola Llabani</b> (University of Illinois at Urbana-Champaign, USA)           |
| 1:30 pm - 1:45 pm   | <b>Dylan Mitchell</b> (University of Michigan, USA)<br>"Leveraging a Novel Activity-Based Probe for the Identification of 4E-BP1 Kinases"              |
| 1:45 pm - 1:50 pm   | Discussion   |
| 1:50 pm - 2:05 pm   | <b>Jonathan Shrimp</b> (National Cancer Institute, NIH, USA)<br>"CRISPR-Cas9 Profiling of Lysine Acetyltransferase Activity"                           |
| 2:05 pm - 2:10 pm   | Discussion   |
| 2:10 pm - 2:30 pm   | General Discussion   |
| 2:30 pm - 3:00 pm   | <b>Evaluation Period</b><br><i>Fill in GRS Evaluation Forms</i>  |
| 3:00 pm             | Seminar Concludes  |

## Contributors

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