**Agenda I**  
**Monday, December 14**

**8:45 – 9:30 AM**  
Registration and Poster Session Set Up  
*Coffee, juice, and other beverages available*

**9:30 – 9:35 AM**  
**Welcome** | Todd Golub

**9:35 – 11:05 AM**  
**First Plenary Session** | **Foundations of Disease**  
Chair: Benjamin Ebert

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<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Title</th>
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<tbody>
<tr>
<td>9:35</td>
<td>Robert Green</td>
<td>Empirical approaches to translational genomics and health outcomes</td>
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<tr>
<td>9:50</td>
<td>Pradeep Natarajan</td>
<td>Putting human genetics in reverse: Moving from phenotype-first to genotype-first approaches</td>
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<tr>
<td>10:05</td>
<td>Beth Stevens</td>
<td>Immune mechanisms of synapse loss in development and disease</td>
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<td>10:20</td>
<td>Tommi Vatanen</td>
<td>Testing the hygiene hypothesis: Microbiome development of infants with different lifestyles</td>
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<td>10:35</td>
<td>Will Flavahan</td>
<td>Insulator dysfunction and oncogene activation in IDH1 mutant gliomas</td>
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<tr>
<td>10:50</td>
<td>Brian Cleary</td>
<td>Global models of transcriptional regulation to predict the chromatin landscape and gene expression profiles of 127 human cell types</td>
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**11:05 – 11:30 AM**  
**Break**

**11:30 AM – 1:00 PM**  
**Second Plenary Session** | **Circuits and Mechanism**  
Chair: Cory Johannessen

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<tr>
<th>Time</th>
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<tr>
<td>11:30</td>
<td>Sharon Grossman</td>
<td>Decoupling the determinants of TF binding and enhancer activity</td>
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<tr>
<td>11:45</td>
<td>David Root</td>
<td>Systematic annotation of gene function at Broad</td>
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<tr>
<td>12:00</td>
<td>Johnathan Mercer</td>
<td>2014 Broad Institute Retreat Poster Winner</td>
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<td></td>
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<td>Drowning in data but starving for biology: The story of the Broad Institute Web Platform for Genome Networks</td>
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<td>12:15</td>
<td>Michael Lobritz</td>
<td>Metabolic signatures of antibiotic efficacy</td>
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<tr>
<td>12:30</td>
<td>Ginevra Botta</td>
<td>Systematic characterization of cancer drug resistance</td>
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<tr>
<td>12:45</td>
<td>Paola Arlotta</td>
<td>Decoding neuronal diversity: From cortical development to cortex in the dish</td>
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**1:00 – 2:45 PM**  
**Lunch**

**1:15 – 2:30 PM**  
**Breakout Sessions**

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<tr>
<th>Topic</th>
<th>Room</th>
<th>Leaders</th>
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<tbody>
<tr>
<td>Exceptional Organisms</td>
<td>Room 311</td>
<td>Vadim Gladyshev, Amit Choudhary, Manu Buys, Jitendra Sharma</td>
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At the Broad, we often focus on human “experiments of nature” to drive our understanding of disease. But what can we learn from examples from the animal world? Today, we’ll hear from Broad researchers working to leverage the amazing genetics and physiologies of truly exceptional organisms, from Africa (naked mole rat), Asia (Burmese python), Antarctica (Weddell seal), and South America (marmoset). You’ll get to learn some astonishing facts about these animals and discuss the researchers work in this really fun session!

**Getting Things Done, Broad-style: Productivity Hacks** | Room 310  
Moderator: Anne Carpenter  
Panelists: Brian Cleary, Ben Ebert, Bronwyn MacInnis, Kate Mulherin, Andy Porter, Samantha Singer, Nicky Toliday, John Travia, Jane Wilkinson
Although all Broadies are exceptional, some are better than others at just plain getting things done. Learn from some masters of organization and productivity at the Broad! Share your own tips, tricks, and software recommendations for staying organized! Discover life hacks that help Broadies survive!

The Role of the Consumer in Clinical and Research Genomics
Room 312
Moderator: Heidi Rehm
Panelists: Mark Daly, Robert Green, Sekar Kathiresan, Christine Seidman

The world of genomics is evolving quickly with consumers having increased access to their own genomic information. What is the right way to shepherd genomics into society and medicine? What role should the consumer play? How do we optimize for the best outcomes and least harm? Come discuss these topics with your colleagues!

Broad Platforms I: A New Hope | Room 309
Leaders: Platform Directors

Are you new to Broad? Come learn about how to engage with Broad Platforms and what makes these “centers of collaboration” so special and unique. Have you been around Broad a long time? Then come hear about the new technologies and capabilities that are being developed, and highlights of scientific success stories over the last year in our platforms. This is a great opportunity to join in a conversation with platform leadership about the past, present, and future of Broad Platforms.

Session I includes presentations from the Genomics Platform, Broad Technology Labs and the new FACs Facility, Genetic Perturbation Platform, PRISM, Cancer Cell Line Factory and the Target Accelerator, and the Broad Vivarium.

2:45 – 3:15 PM
Keynote | Steve Hyman
*New light on psychiatric disorders*

3:15 – 3:30 PM
Excellence Awards

3:30 – 4:30 PM
Third Plenary Session | *Understanding Complexity*
Chair: Hopi Hoekstra

3:30 | Itay Tirosh
*Understanding intratumor heterogeneity through single cell RNA-seq*

3:45 | Melissa Gymrek
*Dissecting the contribution of complex genetic variation to human traits*

4:00 | Xi Shi
*Genome engineering in human embryonic stem cells for disease modeling*

4:15 | Anthony Philippakis
*Broad Data Science Platform*

4:30 – 7:00 PM
Reception and Poster Session
Room 302 | 304 | 306
Agenda II
Tuesday, December 15

8:45 – 9:30 AM
Registration
Coffee, juice, and other beverages available

9:30 – 9:35 AM
Welcome | Daniel MacArthur

9:35 – 10:05 AM
Keynote | Feng Zhang
Genome editing using CRISPR-Cas Systems: Cas9, Cpf1, and beyond

10:05 – 11:05 AM
Fourth Plenary Session | Enabling Discovery Worldwide
Chair: Benjamin Neale

10:05 | Sheila Dodge
Broad Genomics: Genomes for the world

10:20 | Kristin Ardlie
Genetic control of the human transcriptome: Updates from the GTEx project

10:35 | Konrad Karczewski
Insights into functional genetic variation from 60,000 human exomes

10:50 | Steven Corsello
Drug repurposing at Broad

11:05 – 11:30 AM
Break

11:30 – 1:00 PM
Fifth Plenary Session | Impacting Patients
Chair: Heidi Rehm

11:30 | Anna Greka
Rare diseases and the quest for precision medicine

11:45 | Tanaz Sharifnia
Therapeutic discovery in chordoma: Partnering with patients to advance rare disease research

12:00 | Corrie Painter
The next revolution in genomics research: Engaged patients

12:15 | David Thomas
Targeting cancer cachexia

12:30 | Eamon Comer
Discovery and development of a multistage antimalarial with new mechanism of action using next generation synthesis

12:45 | Deb Hung
A TB small molecule candidate: Translating aspirations to reality

1:00 – 2:45 PM
Breakout Sessions

1:15 – 2:30 PM
Primer on Cancer Immunology | Room 312
Leaders: Marcela Maus, Mark Cobbold, Shawn Demehri, Nir Hacohen, and Nicholas Haining
We will provide a primer on cancer immunology and a discussion of future directions in the lab and the clinic.

What’s with all the Post-It Notes?: The Application of Visual Management at the Broad | Room 310
Leaders: Nelson Repenning and Timothy De Smet
Everyone can improve how they work and interact with their colleagues. Hear how the Genomics Platform implemented practical tools and methods, working with Nelson Repenning and his team from MIT School of Management, for sustainable improvement efforts of sequencing operations. Built on a foundation of principles and methods called Dynamic Work Design, these concepts and tools can be adapted to any type of work in any type of organization.

Broad Platforms II: Technology Strikes Back | Room 309
Leaders: Platform Directors
Are you new to Broad? Come learn about how to engage with Broad Platforms and what makes these “centers of collaboration” so special and unique. Have you been around Broad a long time? Then come hear about the new technologies and capabilities that are being developed, and highlights of scientific success stories over the last year in our platforms. This is a great opportunity to join in a conversation with platform leadership about the past, present, and future of Broad Platforms.
Open Access and Credit Attribution: Evolving Models in Scientific Publishing  |  Room 311
Moderator: Alex Bloemendal
Panelists: Mark Daly, Rhiannon MacRae, Daniel MacArthur, Jesse Boehm

How can researchers ensure that fellow scientists, physicians, and patients benefit from their findings when many journals are still closed-access? Should biology join physics, mathematics, statistics, computer science, and economics in embracing preprint servers? How might the community reap the benefits of free and rapid dissemination while mitigating the risks of intellectual theft and clinical harm? How should credit be apportioned and communicated for discoveries made by heterogeneous teams, especially as computational science and engineering collide with traditional experimental research? We’ll consider Broad’s unique niche in the publication ecosystem; examine policies implemented by Broad-affiliated groups (e.g., ATGU) and scientific journals; and debate whether every group at Broad should articulate and defend a policy on publication and credit that integrates their particular considerations with our shared mandate to “act nimbly, work boldly, share openly, and reach globally.”

2:45 – 4:15 PM
Sixth Plenary Session  |  Emerging Frontiers
Chair: Alexandra-Chloe Villani

2:45 | David Reich  
*Insights into human biology and history from ancient DNA*

3:00 | Lily Xu  
“Virtual microfluidics” for digital quantification and single cell sequencing

3:15 | Florence Wagner  
*Dissecting the kinome one carbon at a time: Rational design of exquisitely selective GSK3 kinase inhibitors for Fragile X syndrome*

3:30 | Rob Manguso  
*An in vivo pooled screening platform for immunotherapy target discovery*

3:45 | Dan Neafsey  
*Genetic diversity affects protective efficacy of the RTS,S/AS01 malaria vaccine*

4:00 | Mark Smith  
*Engineering the human microbiome: From current practices to future therapies*

4:15 – 4:30 PM
Closing Remarks  |  Eric Lander

5:00 – 7:00 PM
After-party  |  Second floor connector between 415 Main Street and 75 Ames

Shuttle buses begin at 4:30 PM from the Boylston Street entrance.