

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

9:35 | Robert Green
Empirical approaches to translational genomics and health outcomes

9:50 | Pradeep Natarajan
Putting human genetics in reverse: Moving from phenotype-first to genotype-first approaches

10:05 | Beth Stevens
Immune mechanisms of synapse loss in development and disease

10:20 | Tommi Vatanen
Testing the hygiene hypothesis: Microbiome development of infants with different lifestyles

10:35 | Will Flavahan
Insulator dysfunction and oncogene activation in IDH1 mutant gliomas

10:50 | Brian Cleary
Global models of transcriptional regulation to predict the chromatin landscape and gene expression profiles of 127 human cell types

11:05 – 11:30 AM

Break

11:30 AM – 1:00 PM

Second Plenary Session | *Circuits and Mechanism*

Chair: Cory Johannessen

11:30 | Sharon Grossman

Decoupling the determinants of TF binding and enhancer activity

11:45 | David Root

Systematic annotation of gene function at Broad

12:00 | Johnathan Mercer

2014 Broad Institute Retreat Poster Winner

Drowning in data but starving for biology: The story of the Broad Institute Web Platform for Genome Networks

12:15 | Michael Lobritz

Metabolic signatures of antibiotic efficacy

12:30 | Ginevra Botta

Systematic characterization of cancer drug resistance

12:45 | Paola Arlotta

Decoding neuronal diversity: From cortical development to cortex in the dish

1:00 – 2:45 PM

Lunch

1:15 – 2:30 PM

Breakout Sessions

Exceptional Organisms | Room 311

Leaders: Vadim Gladyshev, Amit Choudhary, Manu Buys, Jitendra Sharma

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 Tolliday, 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 AM – 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

Lunch

1:15 – 2:30 PM

Breakout Sessions

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.

Session II includes presentations from Metabolite Profiling Platform, Proteomics Platform, Imaging Platform, CMAP, The Klarman Cell Observatory, Broad Technology Labs Foundry, and the Center for Development of Therapeutics.

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.

