

# Broad Institute of MIT & Harvard



## Enabling the Collaboration Experience

October 17, 2011



# Overview

## 1. What is the Broad Institute?

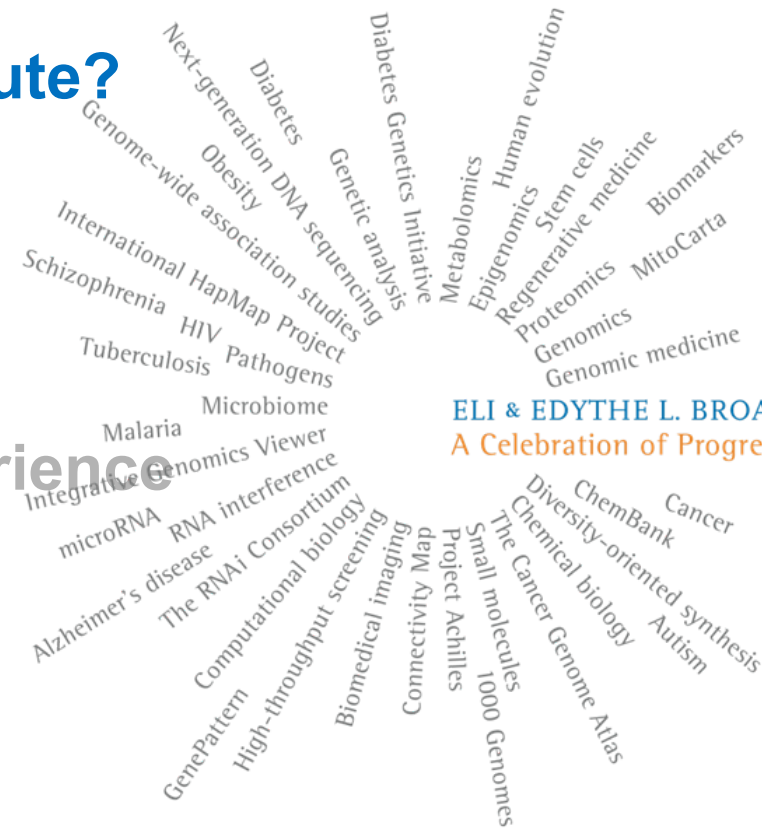
## 2. What do we do?

## 3. How are we organized?

## 4. The Collaboration Experience

## 5. Challenges

## 6. Future



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A Celebration of Progress and Promise

# A brief organizational history

## **2002: Two major research groups come together**

- Whitehead/MIT Center for Genome Research
- Harvard Institute of Chemistry and Cell Biology

## **2004: Broad Institute launched**

- Initial \$100M gift from Broad Foundations
- A 10-year “experiment” in collaborative science

## **2004 – 2009: Broad doubles in size**

- Governed by MIT-Harvard leadership
- Administratively managed within MIT

## **2006: 7CC headquarters building opens**

- 250,000 sq. ft. March 2006 fully occupied

## **2006: Broads double initial gift to \$200M**

- Unrestricted for Broad research and operations

## **2007: Creation of new Stanley Center**

- Founding \$100M, 10-year gift from Stanley Medical Research Institute

## **2008: “Experiment” declared a success**

- Broads announce new endowment of \$400 million
- Combined \$600M Current Use + Endowment Gift

## **2009: Broad Institute, Inc. established**

- 501(c)3 formed 9/08; Operations begin 7/09

## **2010: Carlos Slim foundation provides \$65M**

- New initiative in genomic disease research
- 1st U.S. collaboration to receive funding



From left: Eric Lander, Susan Hockfield, Drew Faust, Eli Broad, Edythe Broad, Deval Patrick, David Baltimore

# Governance



## **Educational, scientific and charitable 501(c)3 corporation**

### **Members of Corporation:**

- MIT
- Harvard
- The Eli and Edythe Broad Foundation

### **Board of Directors (currently 15): fiduciary body**

- Institute Director
- 7 designated directors from Universities, Broad Foundation, Hospitals
- 7 undesignated directors, world class leaders from science, law, education, and business

# Board of Directors: Leaders in Academia



**Drew Gilpin Faust**  
**President, Harvard University**  
*Former Dean, Radcliff Institute of Advanced Study  
Member, American Academy of Arts and Sciences*



**Susan Hockfield**  
**President, MIT**  
*Former Provost, Yale University  
Member, American Academy of Arts and Sciences*



**Diana Chapman Walsh**  
**President emerita, Wellesley College**  
*Former Chair, Health and Social Behavior HSPH  
Member, American Academy of Arts and Sciences*



**David Baltimore**  
**President emeritus, Cal Tech**  
**Nobel Laureate**  
*Former President, Rockefeller University  
Founding Director, Whitehead Institute  
National Medal of Science recipient  
Member, National Academy of Sciences  
Member, American Academy of Arts and Sciences*



**Phillip Sharp**  
**Institute Professor, MIT**  
**Nobel Laureate**  
*National Medal of Science recipient  
Member, National Academy of Sciences  
Member, U.S. Institute of Medicine  
Member, American Academy of Arts and Sciences*



**Eric Lander**  
**President and Director, Broad Institute**  
Professor, MIT  
Professor, Harvard Medical School  
Member, National Academy of Sciences  
Member, U.S. Institute of Medicine



**Jeffrey Flier**  
**Dean, Harvard Medical School**  
*Former Chief Academic Officer, BI-DMC  
Member, U.S. Institute of Medicine  
Member, American Academy of Arts and Sciences*



**Dennis Ausiello**  
**Chief of Medicine, MGH**  
Jackson Professor Clinical Medicine, HMS  
Member U.S. Institute of Medicine  
Member, American Academy of Arts and Sciences

# Board of Directors: Leaders in Industry



## **Eli Broad**

**Founder, The Broad Foundations**  
*Founder, SunAmerica*  
*Founder, KB Homes*  
*Life Trustee, Cal Tech*



## **Louis Gerstner**

**Retired Chairman and CEO, IBM Corporation**  
*Former Chairman and CEO, RJR Nabisco*  
*Former CEO and Chairman, American Express*



## **Ratan Tata**

**Chairman, Tata Sons**  
*Former Chairman, Tata Industries*  
*Chair, Government of India Investment Commission*  
*International advisory board member, Mitsubishi*  
*Advisory board member, JP Morgan Chase*



## **Arthur Levinson**

**Chairman of Genentech, Inc.**  
*Former CEO, Genentech*  
*Director, Apple, Inc.*  
*Fellow, American Academy of Arts & Sciences*



## **Seth Klarman**

**President and Founder, The Baupost Group**  
*Board of Managers, CareGroup/CJP Partnership*



## **William Lee**

**Co-managing partner, WilmerHale**  
*Former managing partner Hale and Dorr*  
*Member, Harvard University Board of Overseers*  
*Former trustee, Boston Medical Center*



## **Patty Stonesifer**

**Chair, Board of Regents, Smithsonian Institution**  
*Founding CEO, Bill & Melinda Gates Foundation*  
*Former SVP, Microsoft Corporation*  
*Member, Council on Foreign Relations*  
*Member, American Academy of Arts and Sciences*

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3. How are we organized?

4. The Collaboration Experience

5. Challenges

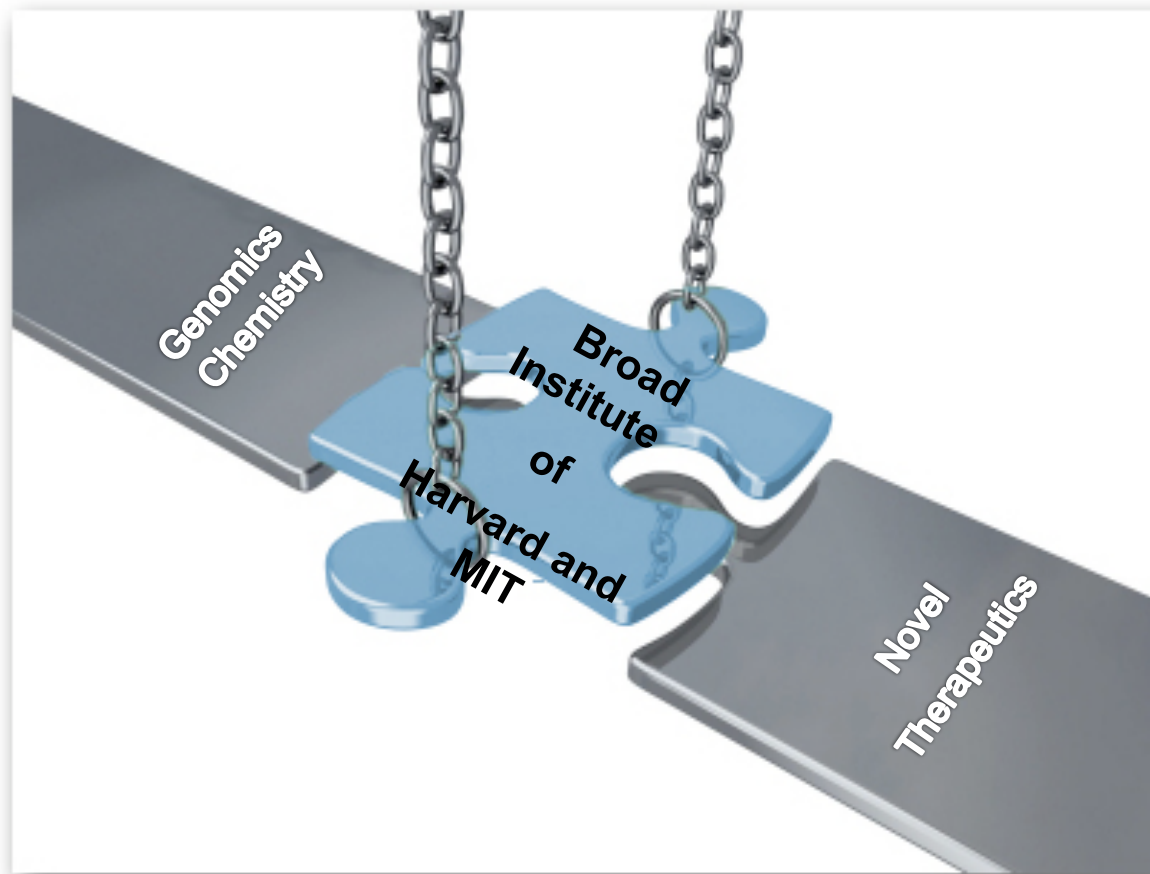
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## *Transforming Drug Discovery*





# The Challenge & Opportunity



## Historic opportunity

- Genomics made biology finite and knowable
- Powerful new tools, information and methods

## Requires new models for biomedical research:

- Foster collaboration across disciplines and organizations
- Combine individual creativity and industrial-strength teamwork
- Tackle projects at any scale
- Act nimbly
- Reach globally



# The Broad Model



## ***A new kind of research institution....***

Tackling bold transformational projects that are defining a new field of biomedicine for the next 50 years and beyond

## ***A partnership with MIT, Harvard, and the Harvard hospitals....***

Enabling and extending the research capacity of leading universities and medical institutions

## ***A collaborative scientific community...***

Bringing together thought leaders contributing to multidisciplinary and integrated programs

## ***A flagship for many of the most ambitious scientific projects of our time....***

Powered by world-leading, professionally-led platforms

## ***A commitment to rapid innovation and exchange of ideas ....***

Revolutionizing technological & computational applications to advance intractable problems

# Evidence of Transformational Success

## Highlights of big-impact projects and roles across a variety of approaches

- Largest NIH-funded Center for DNA Sequencing and Analysis
- RNAi Consortium: tools to modulate all human and mouse genes
- Leader of Human Microbiome Project
- One of three Comprehensive Centers for Molecular Libraries Initiative
- Center for Genotype-Tissue Expression (GTEx) program
- The Cancer Genome Atlas and International Cancer Genome Consortium
- International HapMap and 1000 Genomes Projects
- And many more!

# Components of Research

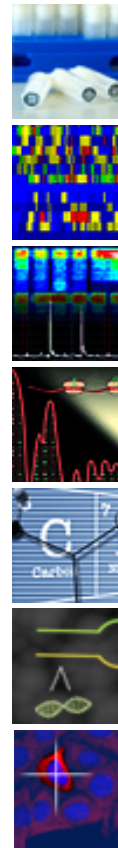


## Programs



- ❖ Cancer
- ❖ Medical and Population Genetics
- ❖ Chemical Biology
- ❖ Genome Biology
- ❖ Cell Circuitry
- ❖ Infectious Disease
- ❖ Metabolic Disease
- ❖ Psychiatric Disease

## Platforms



- ❖ Genome Sequencing
- ❖ Genetic Analysis
- ❖ Chemical Biology and Novel Therapeutics
- ❖ RNAi
- ❖ Proteomics
- ❖ Metabolite Profiling
- ❖ Biological Samples
- ❖ Image Analysis

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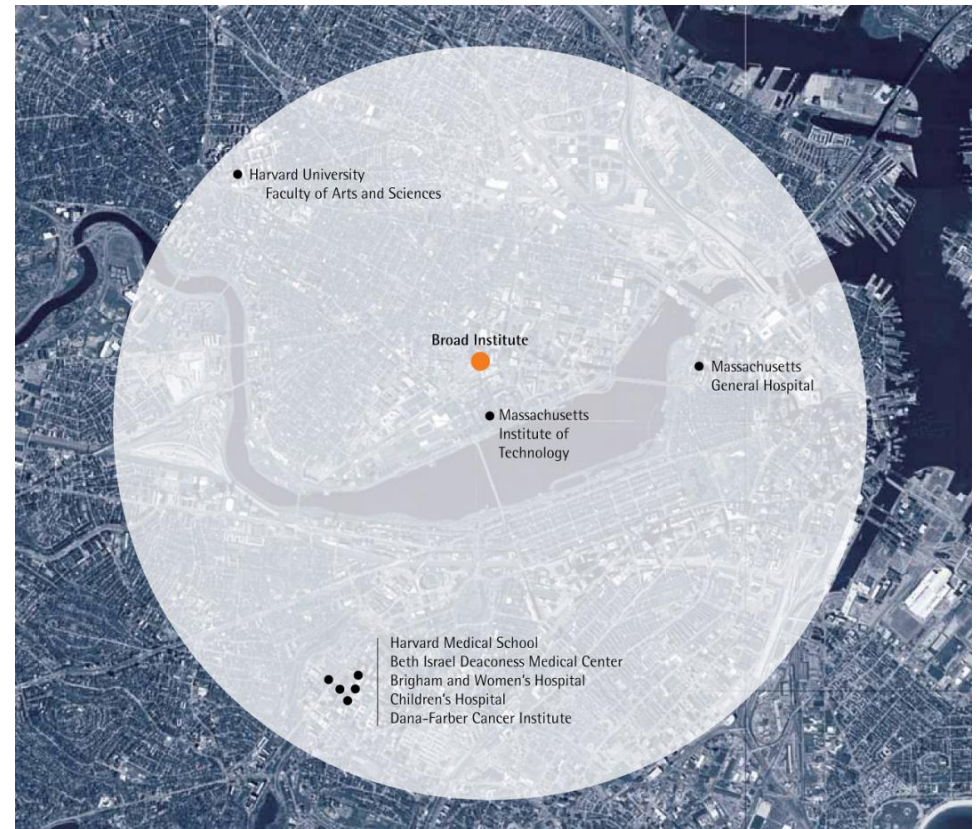


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# The Boston-Cambridge Nexus

**A horizontal connector  
across multiple  
institutions**

- MIT
- Harvard
- Massachusetts General Hospital
- Brigham & Women's Hospital
- Dana Farber Cancer Institute
- Beth Israel Deaconess Med Center
- Children's Hospital



**Annual biomedical research funding in Boston area:  
\$2B**

**Broad: About 10% (\$200M)**

# Broad Facilities – Now



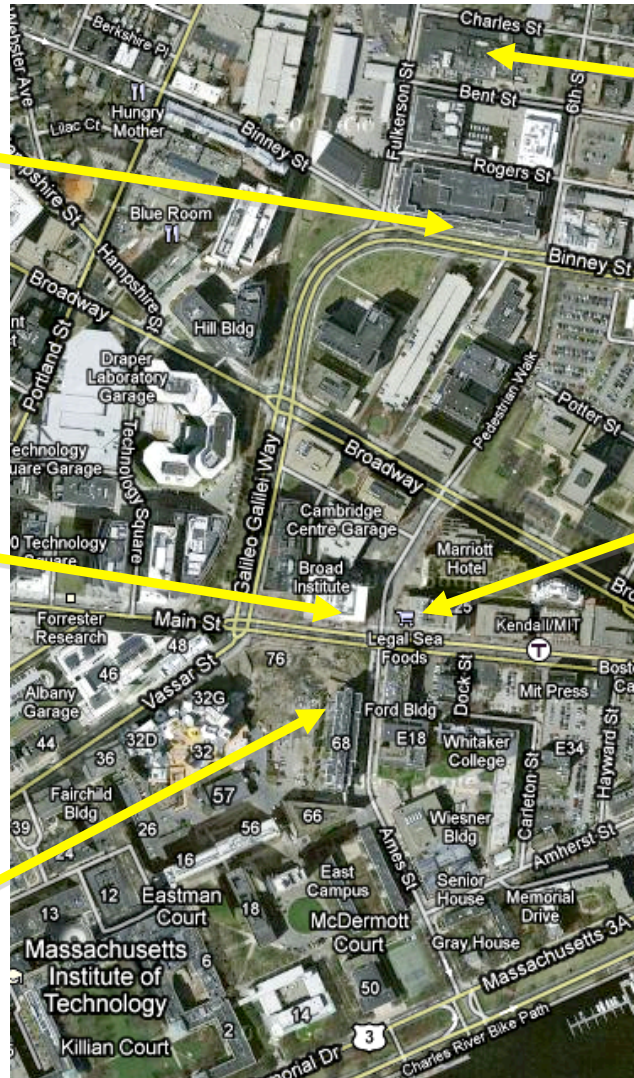
## Lab/Office Swing Space

301 Binney St.  
• 79,000 sq ft of lab and office space

## Headquarters

7 Cambridge Ctr  
• 230,000 sq ft of lab and office space

## Massachusetts Institute of Technology



## Sequencing center

320 Charles St.  
• 110,000 sq ft of lab and office space

## Office Space

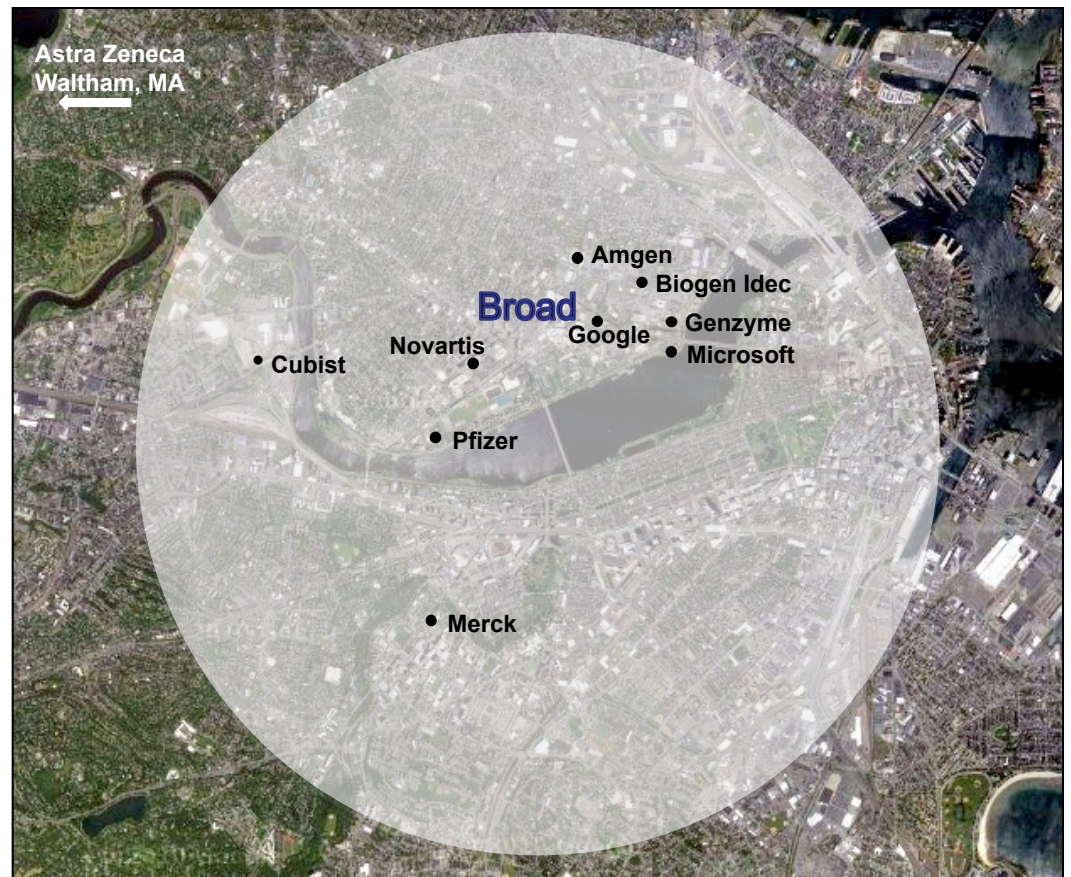
5 Cambridge Ctr  
• 17,705 sq ft of office space

440,000 sq. ft. in  
5 locations

# Industry Partners

## Examples of Broad research collaborations with industry:

- **Novartis**  
(Cancer, DFCI)
- **Pfizer**  
(Diabetes, MGH)
- **Merck**  
(Stanley, MIT)
- **Genzyme**  
(Malaria, HSPH)
- **Cubist**  
(TB, Chem screening)
- **Astra Zeneca**  
(Imaging)





# Institutional Partners



**MIT, Harvard and Hospitals are tightly coupled to Broad**

**Parties to Broad Operating Agreement** – prescribes and guides ways for institutions to work together

**Collaboration Coordinating Committee** – ensures smooth scientific collaboration; meets twice annually; reports to Board of Directors

**Core Faculty** – coordination on Faculty searches

**Associate Faculty** – review and approve slate of nominations for Broad appointments

**Joint Collaboration** – coordinate scientific strategies (e.g. inter-institutional projects, core facilities planning)

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# It's all about the C's



**Dennis Ritchie:1941-2011**  
**Inventor of C, co-developer of Unix**

# It's all about the C's



**Collaboration**

**Communications**

**Content**

**Community**

**Cloud**

# Communication



**lwww (idub)**

**'Broad'cast**

**Blog**

**GTalk**

**GTalkVid**

**Tweet**

**Yammer**

# Content



**Dropbox**

**Googledocs**



Wiki, Wiki, Wiki, Wiki

**Portals**

**Send-it**

**FTP**

**Aspera (p2p)**

# Community



Future?

# B2B and BroadExchange



The screenshot shows the Broad B2B Dashboard homepage. At the top, there's a navigation bar with the Broad Institute logo and user information: "Welcome, Martin | 63 Unread BroadQs | Broad Intranet | Edit Profile | Account | Sign Out". Below this is a "Dashboard" section with tabs for "My Profile", "Groups", and "Posters". A "Post:" area includes icons for BroadQ, Status, Link, WOW!, and Announcement. The main content area is titled "What's Happening on Broad B2B" and features a "Top Updates" section with a list of recent posts. On the right side, there are three widgets: "Edit my Profile" showing an 80% completion bar, "WOW!" with a "Broadies conquer Boston" post, and "Profile Spotlight" featuring Daniel B. Wral. At the bottom, there's a "Recent BroadQs" section with 63 unread items.

The screenshot shows the BroadExchange group page. The navigation bar is identical to the dashboard. The main content area is titled "BroadExchange" and includes a description: "A place for Broad-minded exchanges. Non-work related. Announcements. Stuff for sale, trade or give-away. Menus and yoga schedules. Carpools and lunch-time games. Crafts and arts. Arts and crafts. Running, jumping, skipping." Below this is a "Latest Activity" section with a list of recent posts, including "Broad Café at 320 Charles: Week of 10/17/11" and "Broad Café at 320 Charles: Week of 10/3/11". On the right side, there's a "Group Actions" sidebar with options like "Post a BroadQ", "Upload a document", and "Add members to this group". Below that is an "Announcements" section listing various weekly menus, such as "Broad Café at 320 Charles: Week of 10/17/11" and "Hot Sandwich-ALL WEEK".



# New – 'Social' Tagging



# Cloud



Google



GenomeSpace

Dropbox

# Challenges



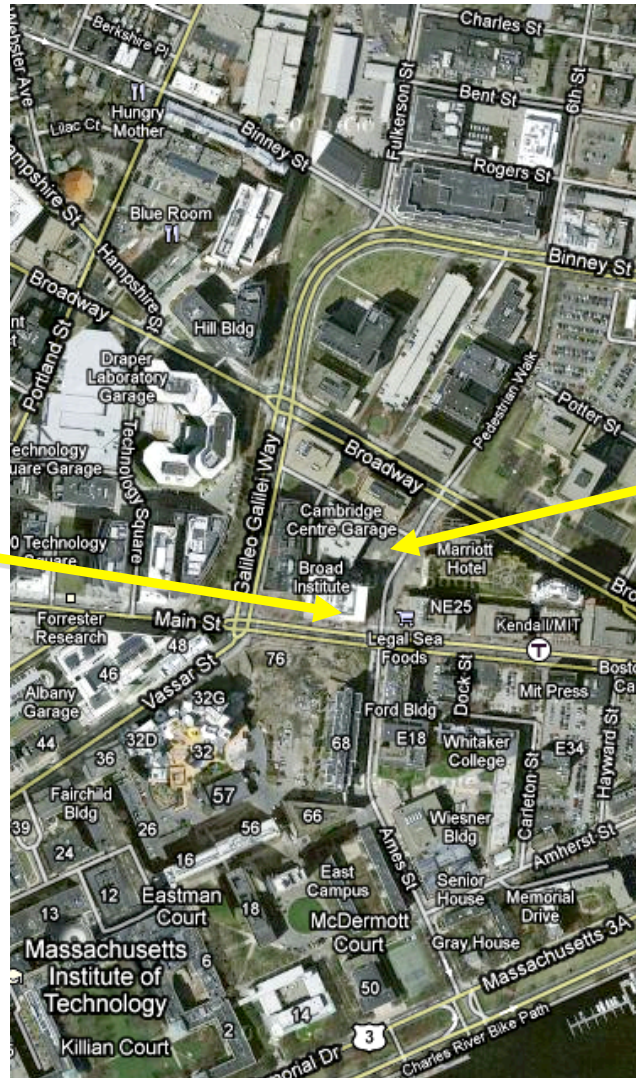
- Need multiple communication channels
  - Iwww is great – but folks rely on email
  - Fliers and posters are important tool
- Security
  - Risk profile varies with each institute e.g. MGH
  - Human subject data management access
  - Sharing of keys/passwords e.g. associates
- Policies
  - Likely see policy around social media e.g. IP-related
- Minimal Investment strategy
  - Darwinian evolution or survival of fittest

# Parting Thoughts



- The correct titration of technology is needed to enhance collaboration
  - When it becomes easier to sit on your butt you won't leave your home/office – this is anti-collaborative
  - Lack of facetime means lack of focus on the topic (multi-tasking)
  - Need to bring people together in new and unique ways
  - Create additional channels to bring people together where there is a barrier
  - Technology should not displace real-time in-person activity but only complement

# Broad Facilities – Consolidated



Headquarters  
7 Cambridge Ctr  
• 230,000 sq ft  
of lab and office  
space

Proposed new  
building  
75 Ames  
• 250,000 sq ft of lab  
and office space

480,000 sq. ft. in  
2 locations

# 75 Ames

