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### COMMUNITY LABS: A PRIMER

### LAB + COMMUNITY

- Community labs provide
  - Space (benches, storage...)
  - Equipment (maintenance)
  - Biohazardous waste removal
  - Training (safety, equipment...)
  - Classes (biology of the cell, how to build a PCR machine)
  - Networking
  - Co-working

# Library of Alexandria circa 300 BC

Thomas Edison Machine Shop Circa 1880

# Hewlett and Packard's Garage in Palo Alto Circa 1938



# Opportunity space



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# BIOCURIOUS? Experiment with Friends.





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### Timeline

- 2009 BioCurious launches out of a garage
- 2010 BioCurious becomes one of the first projects on Kickstarter
- 2011 BioCurious, a the community lab and hackerspace for biotech opens
- 2012 3D Bioprinter and Bioluminescence projects begin
- 2013 BioCurious' President named White House Champion of Change
- 2014 BioCurious named 4<sup>th</sup> Most Innovative Company in the World in Education by FastCompany

# What is BioCurious?

- A hackerspace for biotech
- 1<sup>st</sup> and largest biohacker lab in the world
- The largest local "extra-institutional" community in the world
- 501c3 non-profit organization, volunteer-run, and committed to making biology accessible, affordable, and open to everyone
- A community lab built for and supported by members
- A place to "experiment with friends"

#### **Mission statement**

We believe that innovations in biology should be accessible, affordable, and open to everyone.

We're building a community biology lab for amateurs, inventors, entrepreneurs, and anyone who wants to experiment with friends.

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### We Care About

Democratization of technology

Education and (re)training

Community outreach

Growing a community of early – and late – adopters

Exploring opportunities created by access to biotech tools & training

### What we do

- Provide lab space and shared equipment
- Host classes, meetings, community events and projects
- Provide education lecture & hands-on lab courses
- Membership = \$100 per month
  - OR Pay \$1000 for a year (2 months free!)
- Open 7 days a week, staffed on a completely volunteer basis

BioCurious demands no IP or equity from lab space users

#### Who we are

- **•** Founders (6) all non-traditional scientists, all entrepreneurs who struggled to gain access to biotech
- Members (70)
  - Engineers Software, Mechanical, Chemical, Materials
  - Scientists Plant biologists, Biochemists, Physicists, (yes, even a Rocket Scientist)
  - Artists & Musicians
  - High school students
  - Entrepreneurs Looking for the next big thing
- Volunteers (40)
  - Students
  - Recent grads
  - Retired scientists
  - Scientists looking for work
- Local community (2300)
  - All of the above and everything in between. They have all loved science at some point in their lives.



# Projects

- In addition to membership, we offer free & open community projects (BioPrinter & Bioluminescence)
- Members may start any project that complies with safety regulations
  - Members supply their own reagents
- May sponsor a project
  - IGEM Real Vegan Cheese



#### Case study: Real Vegan Cheese

- Creating a more ethically sourced cheese
- Conducting a study of environmental and economic impacts of ruminate cheese vs. vegan cheese
- Filing a patent, which they intend to release to the public domain





### Case study: Bharat Farms

Software engineer wants to grow crops in India  $\rightarrow$  farmland barren

Moves to Sunnyvale. Looks for bioengineered solution

Finds plant biologist mentor. Creates proof of concept

Hires current members, finds new member-employees, recruits teenage daughter



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rom: Scientific Reports 3 Article number:3001 doi:10.1038/srep03001

# Safety Guidelines

- Self regulated as a BSL1 facility (well-characterized agents). No release of genetically modified organisms
- Volunteer safety team professional & retired scientists, recent grads, self-taught scientists
  - Created safety manual
  - Reviews projects
  - Oversees equipment, consumables, reagents, upkeep
- Anyone over 18 may be a member
  - Anyone under 18 must be accompanied by a parent/guardian
- All members and volunteers must go through (free) orientation and safety training. Must pass online safety quiz
  - Policies reviewed with each new project

#### What we are protecting

At BioCurious, we are concerned about protecting the safety of members and guests using our facility, the community in which we reside, the environment in which we live, and our own continued ability to operate a biohackerspace. We believe we have an obligation to these four groups, and as a member of BioCurious, so must you.

# Guiding Principles

- Open access
- Bottoms up research & organizational design
- Diversity across participants and experiments
- Safety for members, community, environment and ability to experiment
- Transparency
- Community & collaboration (mentorship & teamwork)

## Workshops

















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# Visit us!

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