CoLabs initiative
CRL SUBGROUP COMMITTEE

December 2017 Charge from the PH Master Plan Steering Committee

• Design a new model for central lab resources
  • Capitalizes on critical personnel and cutting-edge methods & technologies
  • Drives collaboration across disciplines

• Produce high level plans for contiguous space housing all CRL components
  • Integrates core activities into one centralized place, i.e. sample processing, high-dimensional imaging, multi-“omic” analyses, and others

• Maximize impact & engagement

• Launch within a 2-year timeline
CRL SUBGROUP COMMITTEE

Membership and Process

NADAV AHITUV, PHD
Bioengineering & Therapeutics

VINCENT CHAN, PHD
Pathology

ERIC CHOW, PHD
Biochemistry & Biophysics

LINDSEY CRISWELL, MD, MPH
Medicine

DAVID ERLE, MD
Medicine

DIANE KAY
Space & Capital Planning

MAX KRAMMEL, PHD
Pathology

TIPII MACKENZIE, MD
Surgery

ALEX MARSON, MD, PHD
Microbiology and Immunology

MICHAEL MCMANUS, PHD
Diabetes Center

PATTI MITCHELL
Capital Programs

ELIZABETH SINCLAIR, PHD
Research Resource Program

MATTHEW SPITZER, PHD
Otolaryngology—Head and Neck Surgery

SAUL VILLEDA, PHD
Anatomy

KATHERINE YANG, PHARMD, MPH
Clinical Pharmacy

JIMMIE YE, PHD
Epidemiology & Biostatistics

KARIN WONG
Space Strategy

HUGH COTTER, AIA
Oculus Architects, Inc.

JANUARY-APRIL 2018:
• 5 committee meetings
• 7 task forces
• Website, email announcements
• Existing facility inventory
• Site visits
• Endorsement by PH Master Plan Steering Committee
CRL SUBGROUP COMMITTEE
Challenges

• Fragmented facilities
  • Difficult to find and use cores
  • Limits collaboration and synergies
  • Inefficient use of space and equipment

• Lagging investments in transformative methods & technologies
  • Data sciences
  • Genomics

• Unreliable long-term financial support
  • Inefficiencies
  • Inadequate institutional support for cores (9% versus 27% nationally)

• Retention of world-class staff
CRL SUBGROUP COMMITTEE

Goals & Opportunities

• **Rejuvenating Parnassus**
  Complete promptly a highly-visible model for developing big and bold initiatives at Parnassus

• **Building on Parnassus’ strength**
  Emphasize Parnassus’ unique strengths by exploring the biological basis of disease in transformative new ways and by complementing resources available elsewhere

• **Fostering collaboration**
  Enhance a sense of community by moving beyond the traditional “core” model and facilitating the communization of resources, expertise, and data

• **Creating excellence, responsiveness, and sustainability**
  Recruit and retain excellent people who are engaged and nimble in recognizing emerging opportunities, and who can promote the sharing of ideas and tools developed in individual labs

• **Supporting education and training**
  New concept of embedded researchers
The “C” is a multi-faceted representation of CoLabs: as a logomark; as an interconnected space of shared labs; as an open “ring of collaboration” that will mirror the eventual rejuvenation and space concept at Parnassus.
Jocelyn Chapman, MD is keen to understand the immune diversity of gynecological tumors that she is obtaining in the clinic. Like many clinician-scientists, she does not have her own lab with the capacity to undertake this work. Instead, she is able to contribute tumor and blood specimens and a clinical research coordinator FTE to CoLabs.

Step 1. Jocelyn works with ImmunoX to define pilot project of 12 ovarian samples in the pipeline. BIOS works with Jocelyn to identify, consent, and acquire tissue & blood from patients.

Step 2. BIOS transfers tissue & blood to D2B technician. D2B technician takes a tissue slice for H&E/IF and dissociates the rest; the technician also isolates PBMCs from blood.

Step 3. D2B technician works with PFCC personnel to reserve FACS, sort tumor/immune cells for multi-omic analyses, and runs several stain panels to understand the immune composition.

Step 4. BIDC personnel receives tissue slices from D2B technician and uses multiplexed IF imaging techniques and quantification methods to understand spatial interplay of tumor/immune cells.

Step 5. Genomics personnel receives sorted tumor/immune cells from D2B technician and isolates RNA & DNA for transcriptomic & genomic sequencing of tumor/immune compartments.

Step 6. Bioinformaticians receive, curate, and store all data (including clinical) in the UCSF Data Library, and work with Jocelyn to develop analytical tools to mine the ovarian tumor dataset. Data is “freed” to all UCSF investigators after set determined time.
Established Entities to Be Incorporated Into CoLabs

Parnassus Flow Cytometry Core
>100 PI's, ~$1.6M/year (recharge)

Biological Imaging Development Center
>50 PI's, ~$750K/year (subscription)

Functional Genomics Core Facility
>50 PI's, ~$1.1M/year (recharge, grants)

ImmunoProfiler
~25 PI's, ~$15M (industry)

UCSF Immunoprofiler

UCSF Institute for Human Genetics

IHG Genomics Core

Selected services

COLABS AT PARNASSUS
Net Impact on Researchers

Improve services for existing users of Parnassus cores

- PFCC (Flow Cytometry) >100 PIs
- BIDC (Imaging) 51 PIs, 19 departments
- CTSI CRS Sample Processing Core 59 PIs
- IHG Core Single Cell RNA-seq ~50 PIs
- Parnassus Center for Advanced Technology ~15 PIs
- Immunoprofiler Flow/Sequencing and Allied Projects ~25 PIs

Provide on-site access to key services now only available elsewhere

- Nikon Imaging Center in Genentech Hall 191 PIs, ~15% at Parnassus
- Center for Advanced Technology in Genentech Hall 150 PIs, ~15% at Parnassus
- Transgenic Core at Gladstone ~35 UCSF PIs, >50% at Parnassus
- Functional Genomics Core in Rock Hall 55 PIs, 49% at Parnassus
- Clinical Immunology Lab at ZSFG

Unlock access to powerful emerging technologies for existing and new users

- Data sciences for storage and analysis of large datasets (including genomics)
- New imaging and single cell analysis methods
- Advanced gene editing (CRISPR and beyond)
- Massively parallel functional assays
Financing

- **Start-up costs**
  - Construction, new personnel and equipment
  - Funds identified through campus, philanthropy, EVCP strategic opportunities

- **Operating costs**
  - ~$10M annual operating budget
  - Recharge, subscription, & grants will cover most costs
  - Institutional support (~$850K/year) to support innovation and administration
    - EVCP strategic funds will cover institutional support for first 5 years
**Current status**

**Phase 1 will open in temporary space on MSB-8 in 2019**

- Start Data Science CoLab, support first CoProjects
- ~4500 sf (plus adjacent existing flow core space)

**Space planning for phase 2**

- Selected HDR as design firm
- 30+ participants in 3 workshops spanning 7 full days in November and December 2018
- Key goals
  - High impact/visibility, welcoming, promote collaboration, flexibility, efficiency
  - Finalizing space program for 23K asf (2 tower floors)
- Includes wet lab, equipment rooms, tissue culture and other lab support, desktop research, teaching lab, conference/huddle, interaction space, admin, lactation room
- Anticipated head count: 79
- Design phase will follow *(images at right are test fits and not final designs)*