



CHAN ZUCKERBERG
Biohub San Francisco

Introduction

September 2024

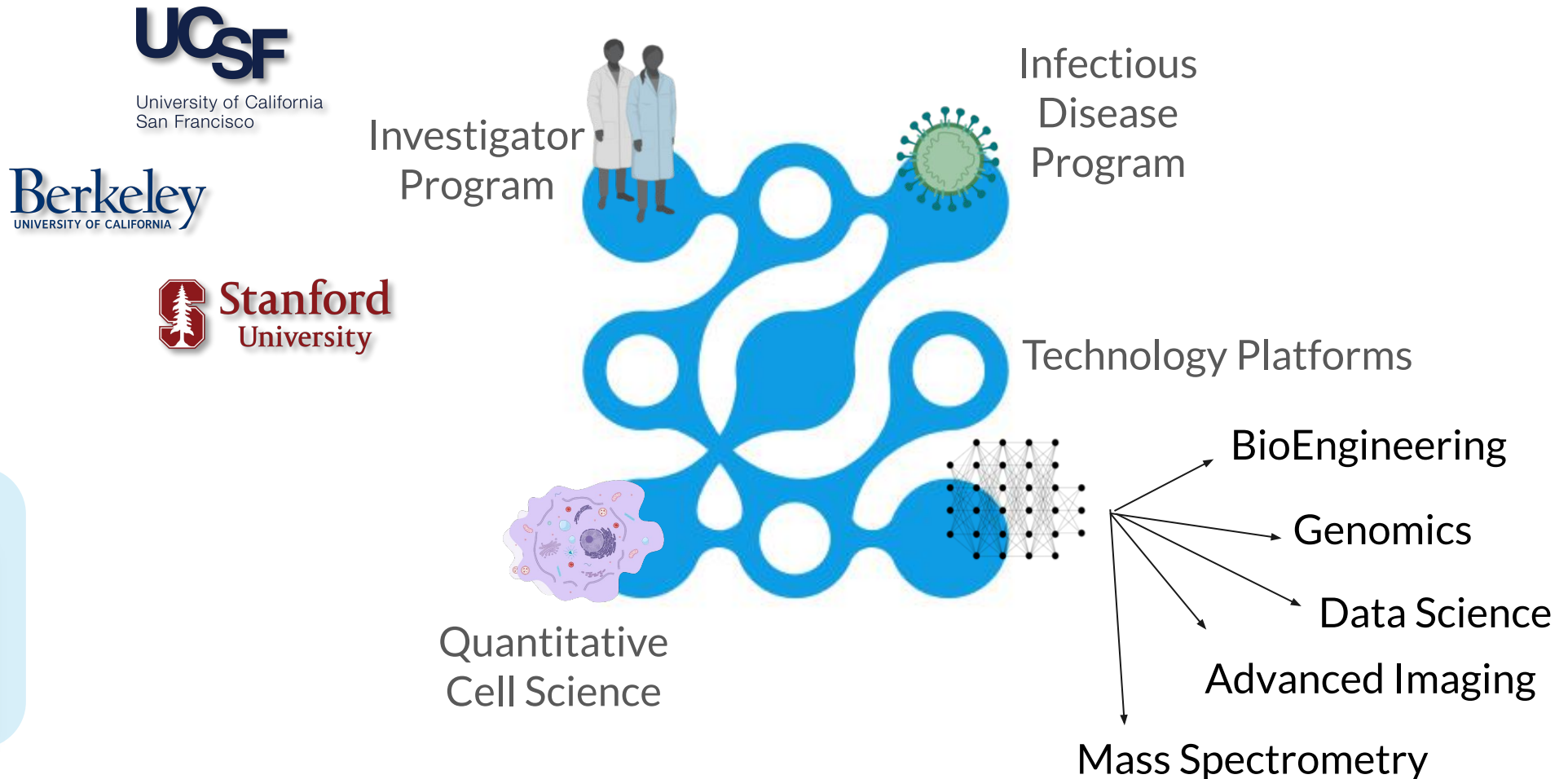
Introduction to CZ Biohub and the Rapid Response Team

Paul Oluniyi, PhD, MSc
Scientist
CZ Biohub SF





Vision: To understand underlying mechanisms of disease and develop new technologies which will lead to actionable diagnostics and effective therapies.



Joe DeRisi



Rapid Response

Mission: To cultivate global equity in basic and translational research for improved surveillance and response to (re)emerging infectious diseases.

Vision: Enable a *truly* global pathogen surveillance network
→by building locally.

Why?

Researchers *everywhere* should be able to respond faster to their infectious disease priorities and make rapid, informed decisions-

→ especially within geographies where the burden of infectious disease is highest.

Infectious causes of disease



Rapid Response

mNGS and genomic epidemiology training

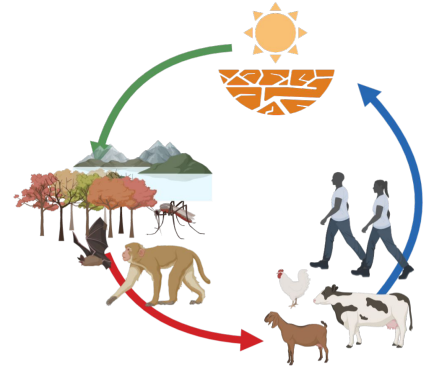


Capacity Building

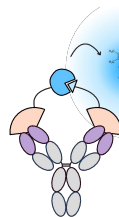
Research

Collaborative studies

UCSF
Stanford
The OSU
Duke
Emory
UPenn Vet



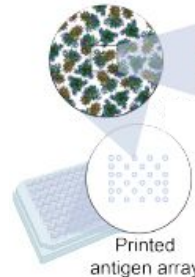
Serology



spLUC Assay

POC

Jim Wells
Rafael Gomez-Sjoberg
Manu Prakash
CHRF Bangladesh

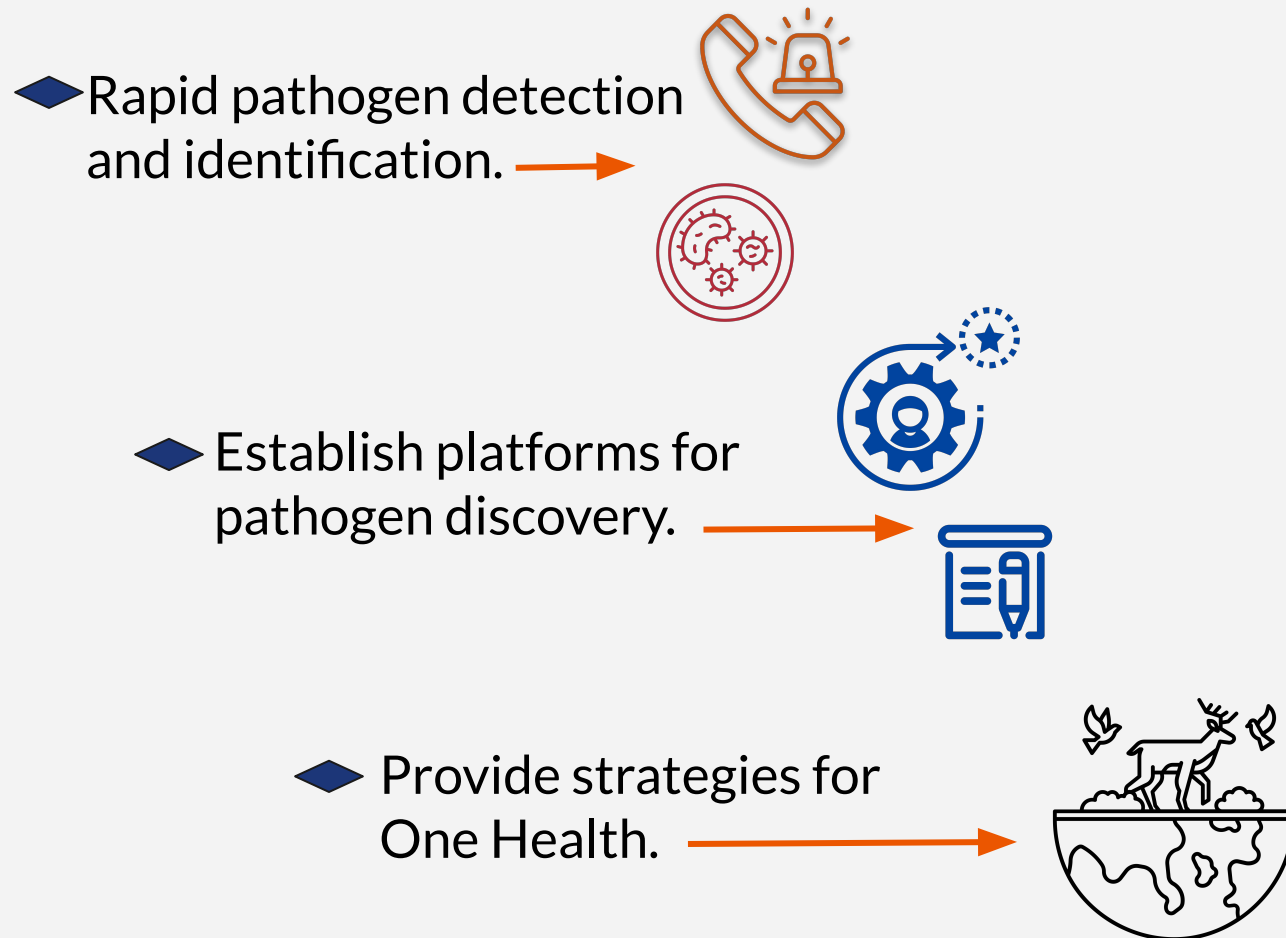


Printed
antigen array

multiSero

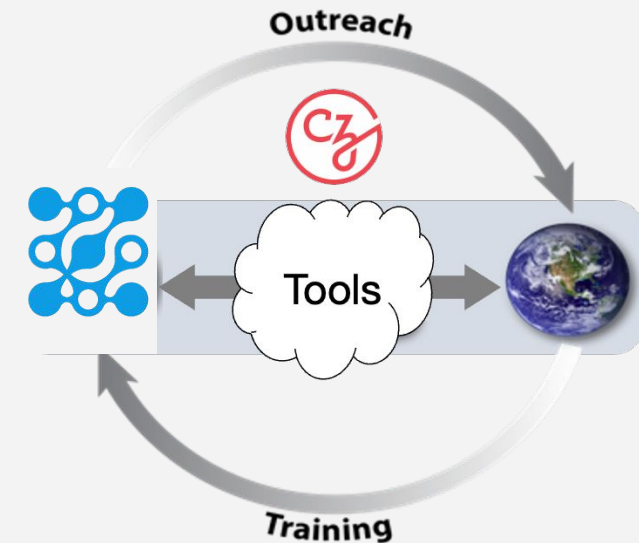
Shalin Mehta
John Pak
Manu Prakash
Cambodia GCE

Rapid Response Approach



Capacity Building:

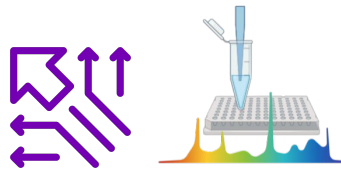
Bottoms-up approach supporting local labs as the initial nodes of the network



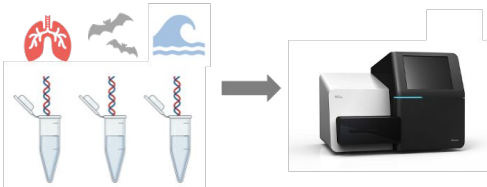
Leveraging *open source* tools and technology to establish foundational local expertise that can serve to strengthen the global network overall.

CZ Biohub and CZI Science Collaboration

CZ Biohub
Rapid Response



Metagenomics empowers surveillance and unbiased pathogen detection.



Comprehensive analysis of all genetic material
in a sample



CZI Science
Infectious Disease



- No code
- Open source
- Cloud-based



Lowers the barrier to analysis of large, complex datasets.



- Real time data generation,
- Informed decision making,
- Actionable impact



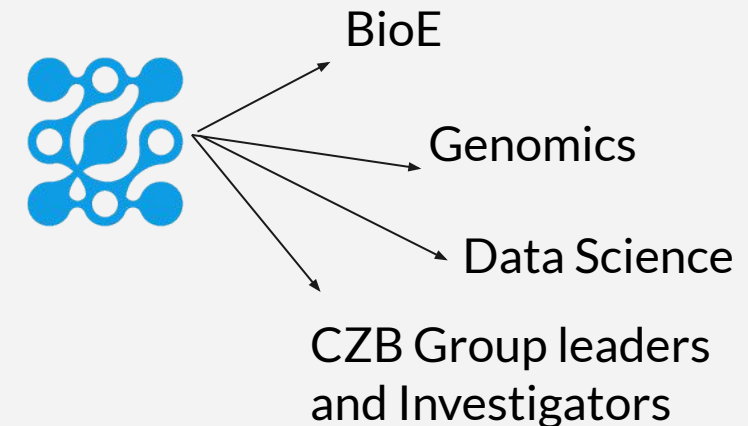
Partnering to create a comprehensive training program in mNGS



On-call mentorship

Applied research, protocol and tool development.

Network development



Capacity building at the local community level

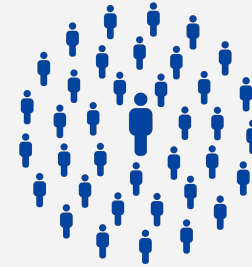
Basic Research



Clinical Research



Public Health Practice



Low-middle income countries and underserved areas

- Universities
- Research foundations & clinics
- Public health laboratories
- Global health organizations (Pasteur, NIH, CDC, etc)

Current collaborating sites



Goals that support sustainability for disease surveillance in LMICs.

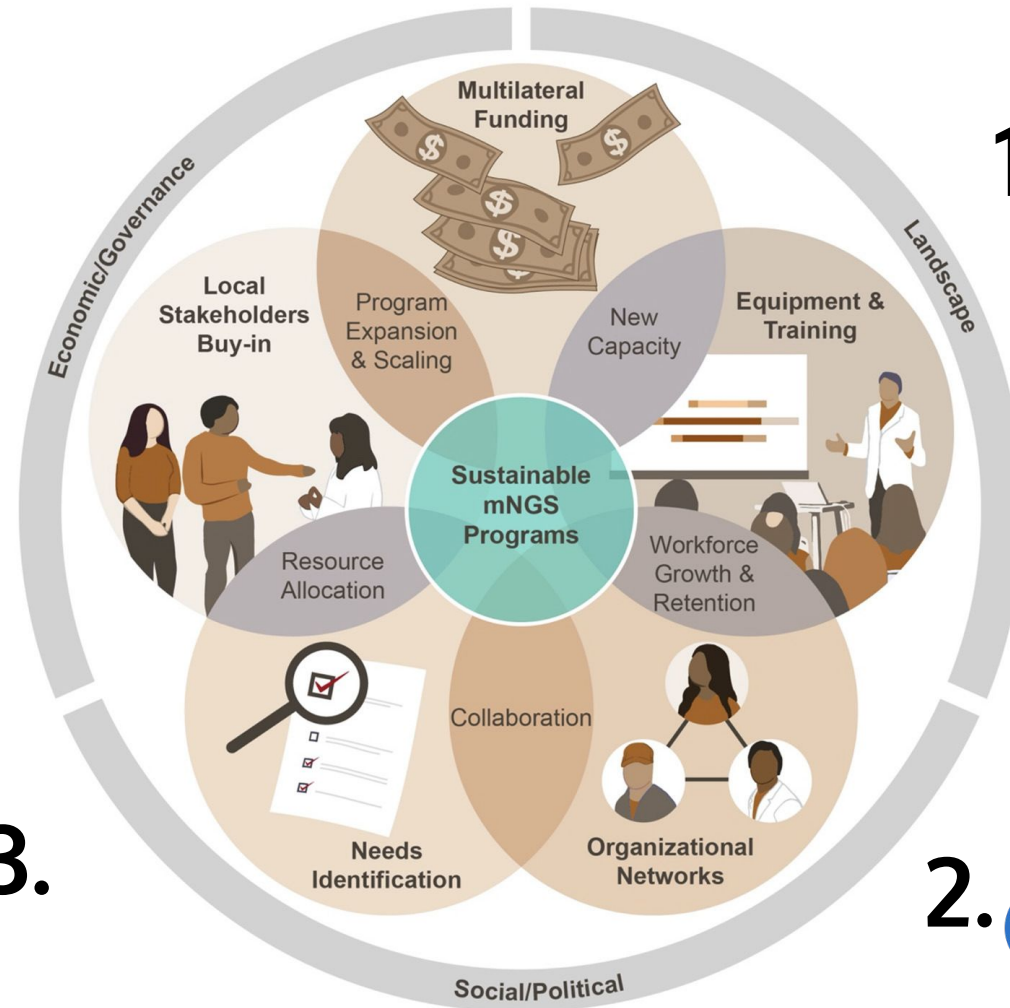
Key collaborators.

- WHO Partners Coordination Group
- WHO Hub
- Africa CDC
- Regional Pathogen Genomics Initiatives

Shared development of tools and assays

- Increased access to relevant technology
- Decentralized research

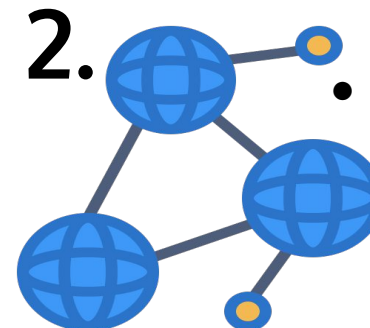
3.



1.

Expansion of workforce development

- Train-the-trainers
- Regional workshop support



2.

Diverse one health network

- Supports interdisciplinary research.
- Increased public/private interaction.
- Coordinated outbreak response.

Meet the Team



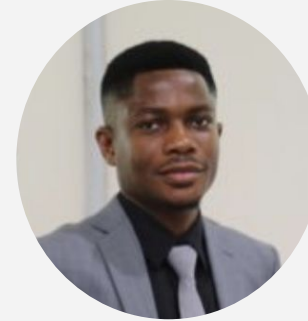
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Fellow



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Senior Biosecurity Fellow



Paul Oluniyi
Scientist



Juliana Gil
Scientist



Genay Pilarowski
Scientist



Gowtham Thakku
Scientist



Andrés Aranda-Díaz
Post-doctoral Fellow



Maira Phelps
Clinical Research Coordinator



Lusajo Mwakibete
Research Associate



Rebecca Gowen
Project Manager

Genomics

Data Science

BioEngineering

Imaging

Amy Kistler

John Pak

Sandy Schmid

Joe DeRisi

CZI ID Team



Thank you for your time