

# Welcome to Macro Methods!

<http://fraserlab.com/methods/>

# Macro Methods team\*

## INSTRUCTORS



Jaime



Aashish



Stephen

## TEACHING ASSISTANTS



Maru



Aji



Bryan

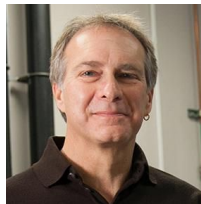
## FEATURING LECTURERS:



Michael  
Thompson



Klim Verba



Dave Agard



Yifan Cheng



David Bulkley

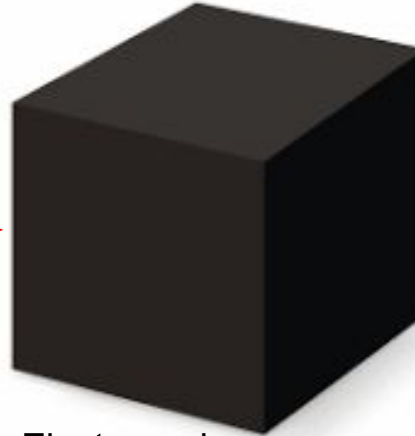
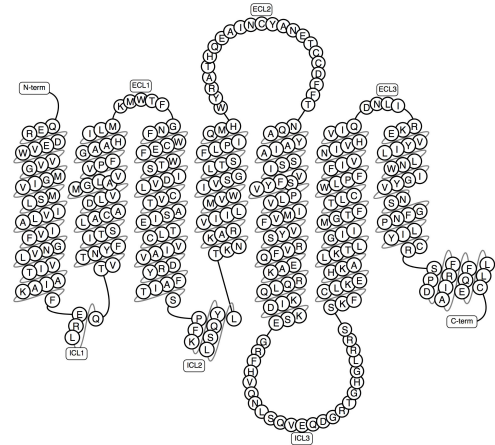


Ryan Tibble

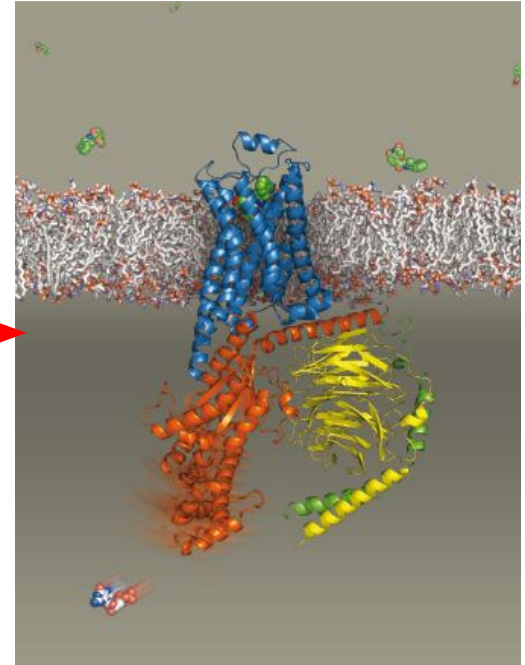


Bob Stroud

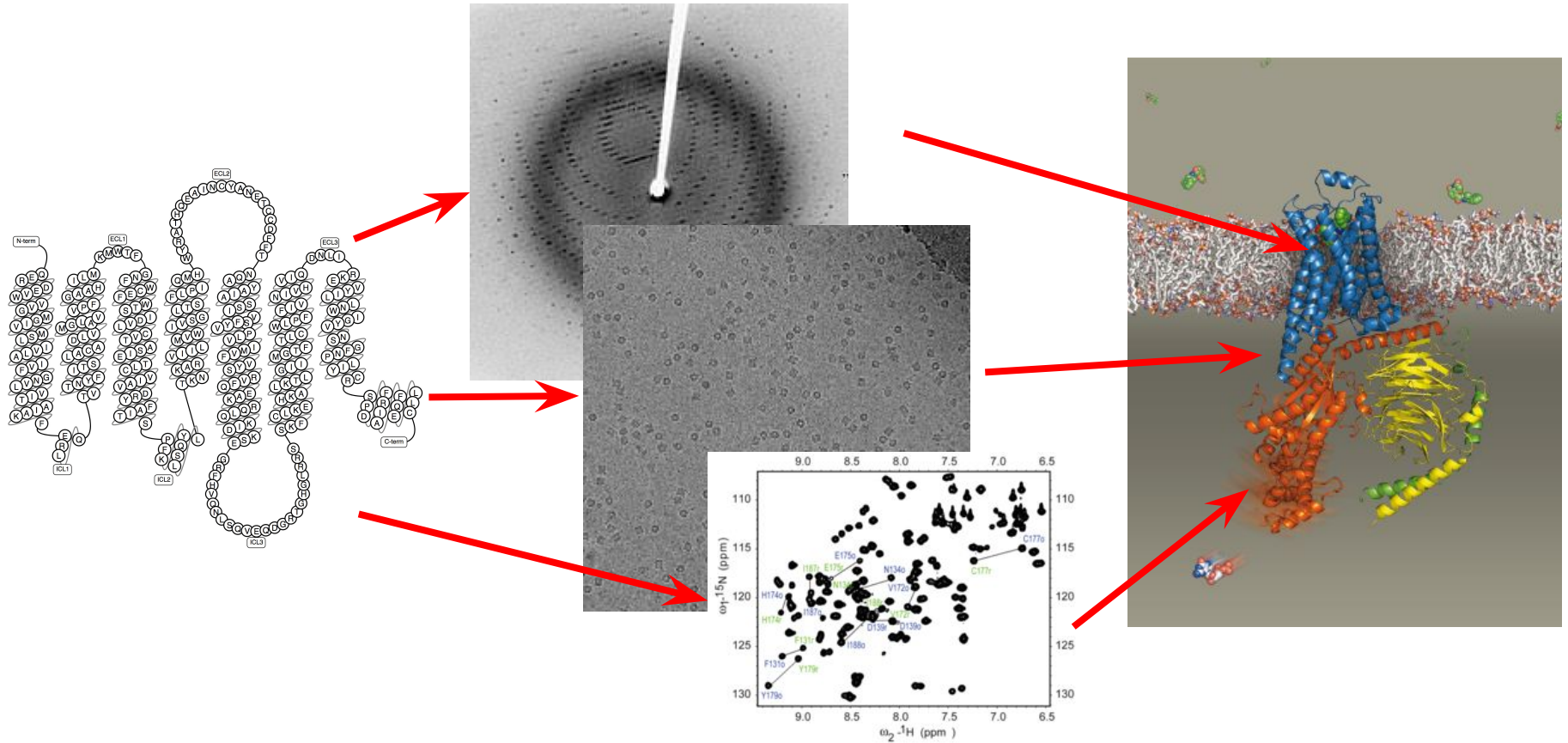
# Goal: understand the black boxes of biophysics



Electron microscopy  
X-ray Crystallography  
Nuclear magnetic resonance



# Goal: understand the black boxes of biophysics



# Structure of Macro Methods

Electron Microscopy



X-ray Crystallography



NMR spectroscopy



**Collect DATA!**  
(1 week)



**Learn theory**  
**Process DATA!**  
(1 week)

# Student groups



**Barbara  
Low:**

Wenqi Shen  
Muziyue Wu  
Nicholas Young  
Adamo Mancino



**Rosalind  
Franklin:**

Jordan Kleinman  
Jacqueline Weaver  
Zachary Gale-Day  
Hersh Bhargava



**Dorothy  
Hodgkin:**

Sophie Kong  
Erin Isaza  
Minh Tran  
Connor Galvin



**Ada  
Yonath:**

Elizabeth Sisko  
Chad Altobelli  
Wilson Nieves  
Vasquez  
Matthew Smith



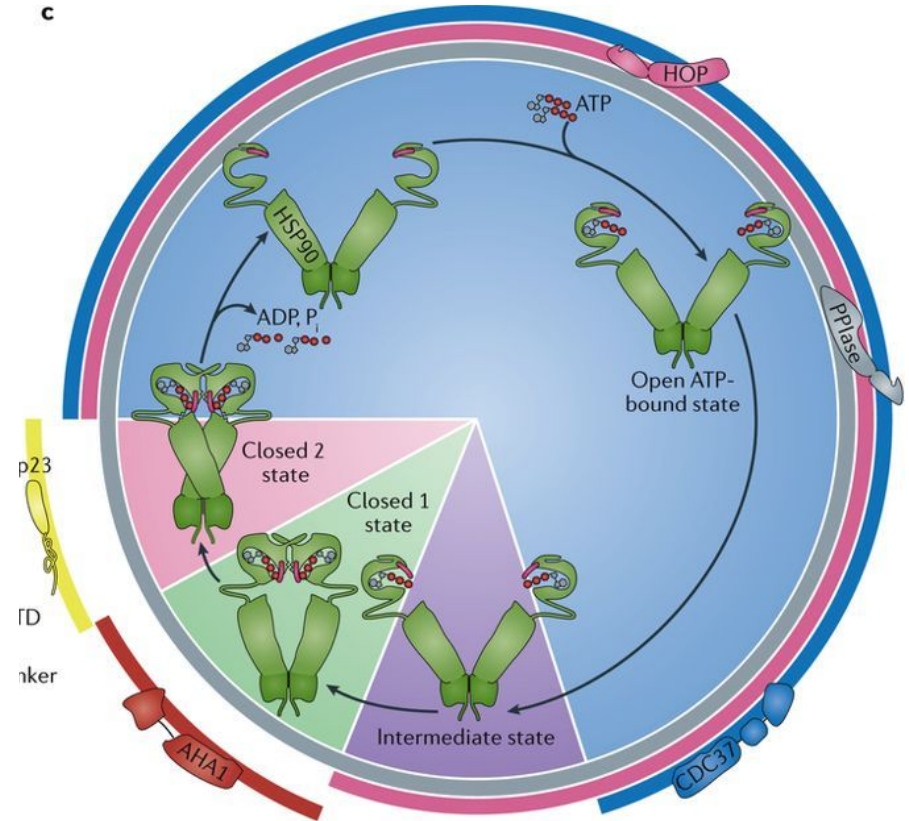
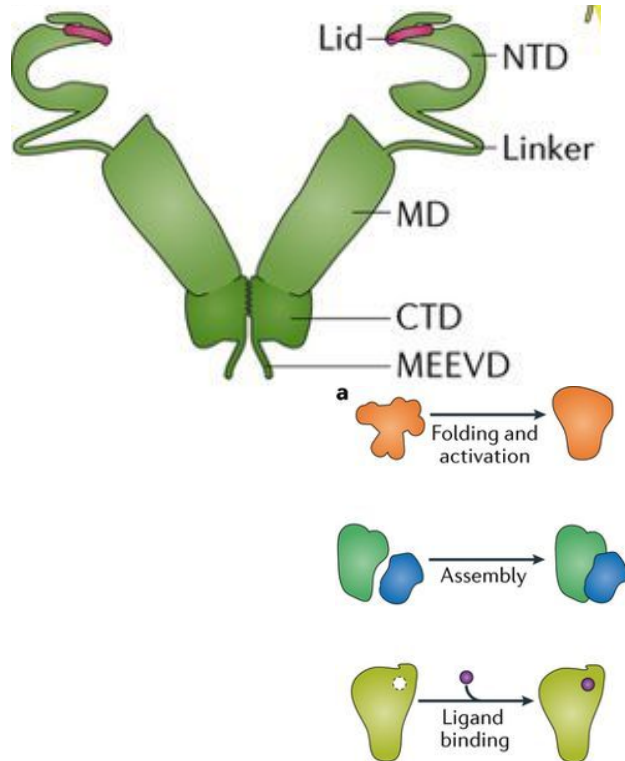
**Pamela  
Bjorkman:**

Audrey Kishishita  
Regan Volk  
Leandrew Dailey  
Marcell Zimanyi



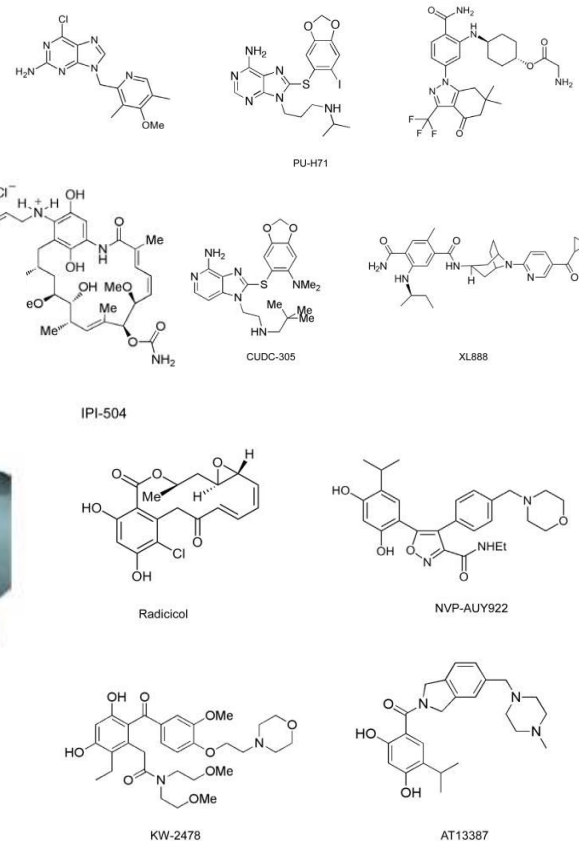
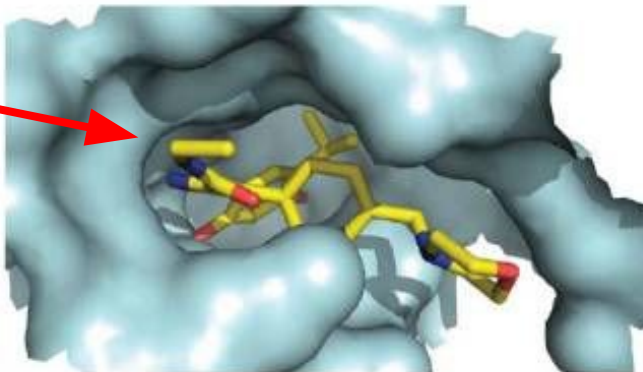
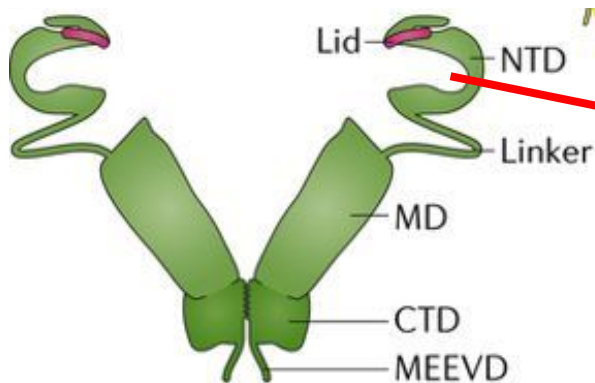
# Experiential learning requires a model system

## HSP90



# A druggable site in HSP90

## HSP90



### Learning objectives:

What can you learn from each method?

How did you get to these results?

How confident are you in these results?

Do the different methods agree?

How can we integrate results from different methods for a holistic picture?

What can we learn about driving forces and kinetics of the HSP90 cycle?



# Final presentation - mark calendars now!

## **Monday December 16, 2019**

20 minutes per group (15 min presentation, 5 min questions)

Presenting to Jaime, Aashish, Stephen, TAs and one external examiner

Style: variable, and largely depends on how you want to organize/what you learned. No “right” way to do it. This is by design!

# Lawrence Berkeley National Laboratory

Need to register to go the beamline at LBNL on 11/7 and 11/8 **ASAP**

Go to <https://alshub.als.lbl.gov/home/> and register. Date of first experiment is 11/7/2019

After getting a LBL#, you will need to do training ALS 1001, EHS 0470, ALS 1007

We will use beamline 8.3.1. For funding, say either NIH or Other

Type of work: Participating Research Team

Will conduct non-proprietary work

PI: Manglik