

# Welcome to Macro Methods!

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

# Macro Methods Team



Jaime



John



Cynthia



Ryan



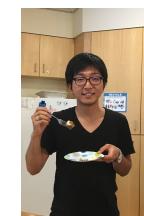
Dan



David



Andrew



Kazu



Mike



Daniel

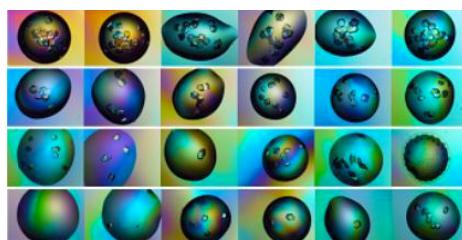
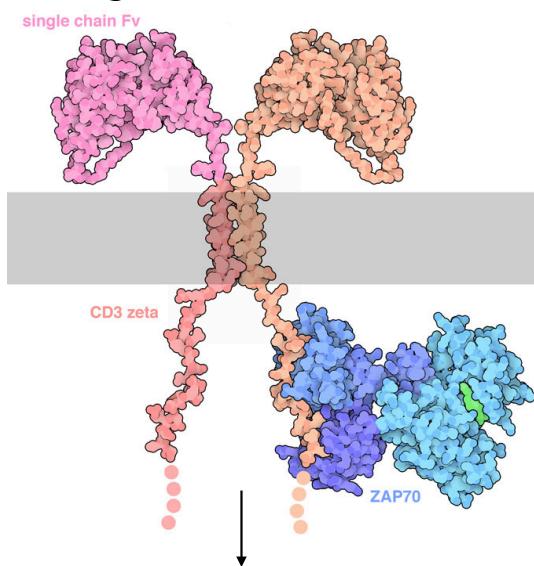
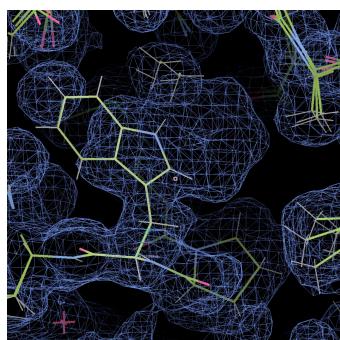
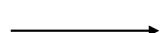
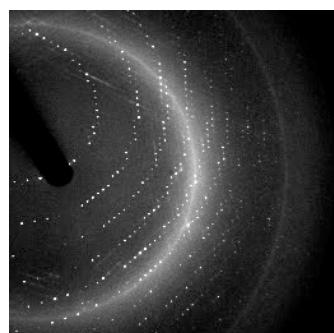


Eugene

**Plus lectures from:**  
**Bob Stroud, James Holton,**  
**Andrej Sali, Tom Goddard,**  
**Aashish Manglik, and Yifan Cheng!**

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# The problem: understand the black boxes for NMR, X-ray, EM



ATOM	1	N	VAL	A	2	-19.742	-2.254	-19.976	1.00	54.44
ATOM	2	CA	VAL	A	2	-19.867	-2.152	-18.529	1.00	54.48
ATOM	3	C	VAL	A	2	-19.073	-0.927	-18.101	1.00	41.86
ATOM	4	O	VAL	A	2	-19.367	0.178	-18.554	1.00	47.57
ATOM	5	CB	VAL	A	2	-19.341	-3.411	-17.836	1.00	68.76

N  
C  
C  
O  
C

# Structure of Macro Methods

- **Data collection  
(hands on) - weeks 1-2**

- **X-ray:** Christopher John Pascal Mathy, Yessica Gomez, Colton Bracken, Conner Bardine, Adam Cotton, Paul Klauser, Lakshmi Miller-Vedam
- **NMR** Group A: Viktoriya Berdan, Adam Catching, Neha Prasad, Jack Stevenson  
Group B: Nicole Wenzell, Eric Gonzalez, Cody Thomas Krivacic
- **EM:** Kyle Lopez, Erik Navarro, Paige Solomon, Kelly Montgomery, Jenna Pellegrino, Megan Moore, Julian Harris

**Methods Presentations:** 12 minutes each

**EM:** Erik Navarro and Paige Solomon  
**X-ray:** Christopher Mathy and Yessica Gomez  
**NMR:** Adam Catching and Neha Prasad

- **Analysis  
(lectures and data processing tutorials) - weeks 3-6**

1. Erik Navarro, Paige Solomon, Adam Catching, Neha Prasad, Christopher John cal Mathy
2. Kelly Montgomery, Jack Stevenson, Yessica Gomez, Colton Bracken
3. Jenna Pellegrino, Nicole Wenzell, Conner Bardine, Adam Cotton
4. Kyle Lopez, Viktoriya Berdan, Eric Gonzalez, Paul Klauser
5. Megan Moore, Julian Harris, Cody Thomas Krivacic, Lakshmi Miller-Vedam

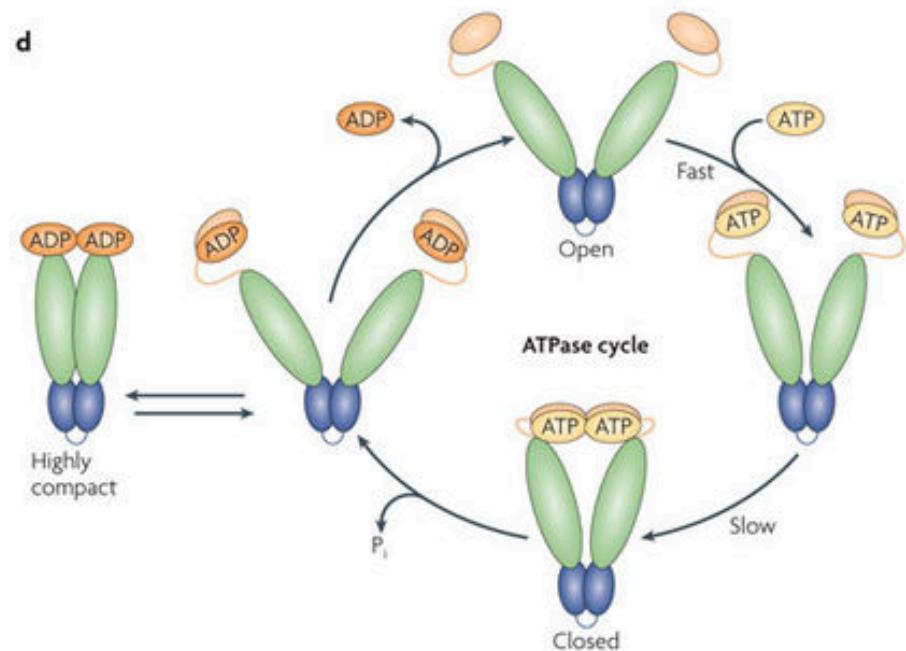
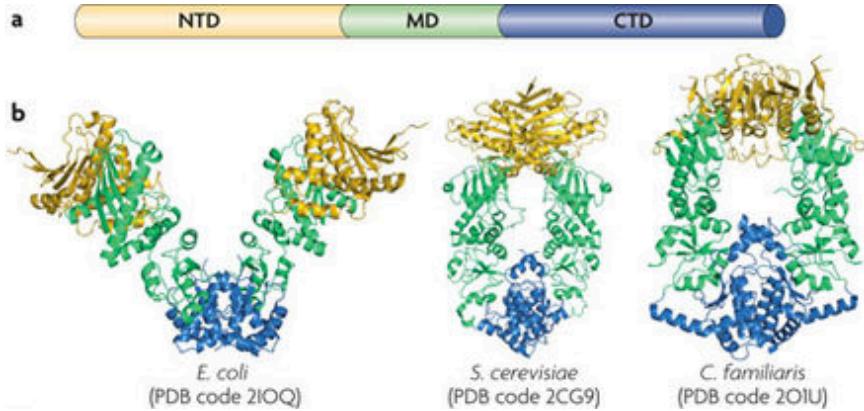
**Journal Club Presentations:** 6 min/3 slides

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# FINAL PRESENTATIONS

- **Monday December 18th**
- 20 minutes per group  
+ 5-10 min questions
- Presenting to JSF, JG, DS, TAs,  
and one external examiner  
(e.g. Agard, Stroud, Cheng, Manglik)

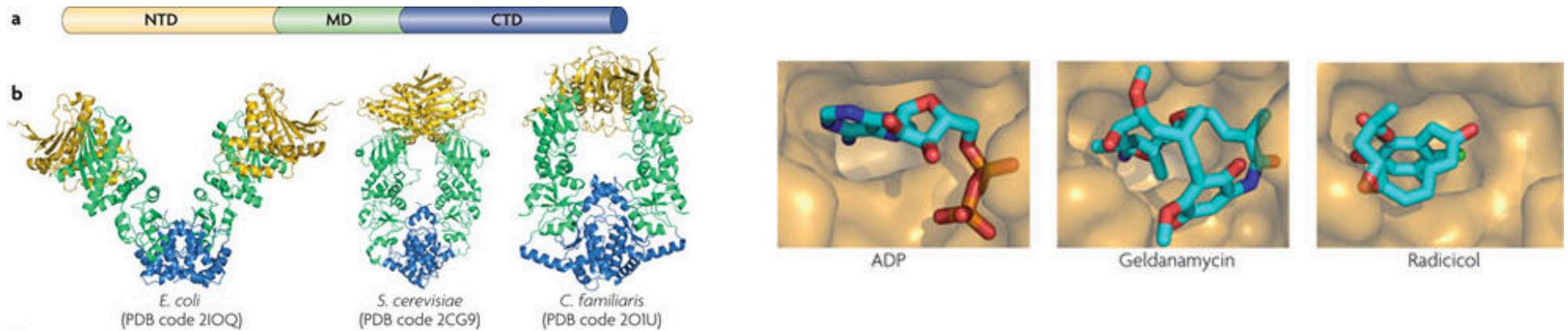
# HSP90 is a multidomain protein



Nature Reviews | Molecular Cell Biology

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# The N-terminus of HSP90 is “druggable”



- What did you find with each method? How did you get to your results? How did you assess the confidence in your results?
- What is the agreement between different methods?
- What can we learn about driving forces and kinetics of small molecule binding and the HSP90 functional cycle?
- How do we integrate different methods to emphasize strengths and overcome weaknesses?

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