

3rd Annual Interdisciplinary Quantitative Biology **BOOT CAMP**

DRUG DISCOVERY AND DEVELOPMENT

PROGRAM

January 4–15, 2016

Center for Integrative Proteomics Research

Rutgers University • Busch Campus

174 Frelinghuysen Rd

Piscataway, NJ 08854-8076

iqb.rutgers.edu/bootcamp



Institute for Quantitative
Biomedicine at Rutgers

Graduate Program in
Quantitative Biomedicine



Center for Integrative
PROTEOMICS
Research

RUTGERS
THE STATE UNIVERSITY
OF NEW JERSEY

Interdisciplinary Quantitative Biology Boot Camp Drug Discovery and Development

The Center for Integrative Proteomics Research, home to the Institute for Quantitative Biomedicine, and the Graduate Program in Computational Biology and Molecular Biophysics (soon to be renamed the Graduate Program in Quantitative Biomedicine), are delighted to be hosting the Third Annual Rutgers Interdisciplinary Quantitative Biology Boot Camp in Drug Discovery and Design. Boot Camp is designed to augment education for quantitative and biological scientists. Our overarching goal is to introduce students of all ages to the value of integrating biology and medicine with mathematics, physics, chemistry, computer science, statistics and biostatistics, and engineering.

The immersive two-week Boot Camp will provide broad introductory exposure to the language, culture, and experimental/theoretical underpinnings of molecular biology, macromolecular biochemistry/biophysics, structural biology, computational biology, systems biology, and bioinformatics.

Instruction will take the form of lectures on the A-to-Z of drug discovery and development as well as a broad range of collaborative hands-on workshops for simulating the qualities of the small molecules under study as well as their interactions with target molecules and the more complex hosts and populations within which they operate. There will also be career development activities, tours of some of Rutgers' state-of-the-art facilities for interrogating biological phenomena, student-driven topics-of-the-day, fun activities for relaxing, and two end-of-week networking opportunities.

The final afternoon of the Boot Camp will be devoted to a student-led simulation of a so-called briefing package and an Oncologic Drugs Advisory Committee (ODAC) meeting, key prerequisites for getting FDA approval. This event will involve a cooperative synthesis of the material covered in the two-week program.

The Boot Camp would not have been possible without tireless efforts of more than sixty contributors from across Rutgers and from our partners at Merck, Bristol-Meyers Squibb, Colgate-Palmolive, Novartis, the Novartis Institutes for Biomedical Research, the Cambridge Crystallographic Data Centre, Fox Rothchild LLP, and Landing Expert Career Coaching.

Special thanks go out to Luz Fajardo, Kenneth Dalenberg, Bernie Cariaga, Jonathan Hackett, and Don Corrette of the Center for Integrative Proteomics Research as well as students Krupa Shah, Maria Qadri, Kathryn Drzewiecki, Chris Wakim, Domonick Panzera, Grant Bilker, Sophia Tan, and Ryan Woltz.

Note:

All sessions will be held in
PROTEOMICS, ROOM 120
 unless designated otherwise



Laptop computers are required for sessions designated with this icon

Monday, January 4th, 2016

MORNING

9:00 AM	Welcome and Orientation Gail Ferstandig Arnold, IQB
9:10 AM	Nexus of Academe and Drug Discovery and Development Christopher Molloy, ORED
9:30 AM	What is Cancer? Shridar Ganesan, CINJ
10:30 AM	<i>Coffee/Tea Served</i>
10:50 AM	What is a Drug? What is Discovery? What is Development? David Kimball, ORED
11:40 AM	What is Precision Medicine? Robert DiPaola, CINJ

AFTERNOON

12:30 PM	<i>Lunch Served – Proteomics First Floor Lobby</i>
1:30 PM	Career Byte: Branching Out: Meeting Colleagues Maria Qadri, BME
2:30 PM	NewCo Organization Stephen K. Burley/Gail Ferstandig Arnold, IQB <ul style="list-style-type: none"> • Review of Boot Camp program and goals • Organizing participants into NewCo
3:30 PM	Target Exploration Workshop Michael Fitzgerald, Colgate-Palmolive <ul style="list-style-type: none"> • Is the EGF/EGFR signaling pathway a sensible target for treating cancer? Coffee/Tea available throughout afternoon
4:30 PM	Dinner Served - <i>Proteomics First Floor Lobby</i> Trivia for Scientists

Tuesday, January 5th, 2016

MORNING

9:00 AM	NewCo Report Participants
9:15 AM	Signaling Pathways Central to Cell Growth and EGF/EGFR Steven Zheng, CINJ
10:00 AM	Initiating a Protein Kinase Drug Discovery Program I Peter Young, Biotech Executive and Consultant
10:45 AM	Coffee/Tea Served
11:05 AM	Initiating a Protein Kinase Drug Discovery Program II Peter Young, Biotech Executive and Consultant



11:50 AM *Lunch (independent)*

AFTERNOON

12:40 PM	 Career Byte: Mapping Out Opportunities Ahead Toi Tyson, Rutgers Career Office; Michael Fitzgerald/Hallie Strotman/Camille Zenobia, Colgate-Palmolive
1:10 PM	NewCo Meeting Stephen K. Burley/Gail Ferstandig Arnold, IQB
1:40 PM	 EGFR Molecular Visualization Workshop Shuchismita Dutta/Luigi DiCostanzo, RCSB PDB
3:10 PM	Coffee/Tea Served
3:30 PM	 Amber Workshop: Simulating EGFR Breathing and Potential for Drug Binding, Part I David Case/Darrin York/Jason Swails/Hai Nguyen, CCB/Proteomics



Wednesday, January 6th, 2016

MORNING

9:00 AM	NewCo Report Participants
9:05 AM	What is Medicinal Chemistry? David Kimball, ORED
9:50 AM	Kinase Inhibitor Lead Discovery John Tokarski, BMS
10:35 AM	Coffee/Tea Served
10:55 AM	 Cambridge Crystallographic Data Centre Amy Sarjeant, CCDC
11:25 AM	 Medicinal Chemistry Workshop Orientation John Westbrook, RCSB PDB

12:10 PM *Lunch (independent)*

AFTERNOON

1:00 PM	 Career Byte: • Organization: A Way to Brand Yourself as Someone who is Responsible and Balanced Emily Arnold, RU School of Social Work • Rutgers iJOBS Janet Alder, NCB, GASA, RWJMS
1:30 PM	NewCo Meeting Stephen K. Burley/Gail Ferstandig Arnold, IQB
2:00 PM	 In silico Medicinal Chemistry Workshop David Augeri, Translational Sciences; Lawrence Williams, CCB; Shashidhar Rao, Proteomics; John Westbrook, RCSB PDB Coffee/Tea available throughout afternoon

4:00 PM Dinner Served - *Proteomics Lobby*
Boot Camp Machinations

Thursday, January 7th, 2016

MORNING

9:00 AM	NewCo Report Participants
9:05 AM	ADME (Absorption/Distribution/Metabolism/Excretion) Imad Hanna, Novartis
10:05 AM	Coffee/Tea Served
10:35 AM	Small Molecule Pharmacokinetics (PK) Ry Forseth, Novartis
11:35 AM	Small Molecule Pharmacodynamics (PD) Christina Won, Novartis

12:15 PM *Lunch (independent)*

AFTERNOON

1:15 PM	Career Byte: Securing an Industrial Position: A Hiring Manager's Perspective Joseph Duffy, Merck
1:45 PM	 PK/PD Modeling Workshop Ry Forseth/Christina Won, Novartis Coffee/Tea available throughout afternoon
3:30 PM	NewCo Meeting Stephen K. Burley/Gail Ferstandig Arnold, IQB


Friday, January 8th, 2016

MORNING

9:00 AM	NewCo Report Participants
9:05 AM	Ethics Considerations/Informed Consent/Institutional Review Boards Eric Singer, CINJ
10:05 AM	Coffee/Tea Served
10:25 AM	The Why, When, What of Toxicology Testing in Drug Discovery and Development Sudheer Beedanagari, Bristol-Myers Squibb
11:25 AM	Selecting the Oncology Drug Candidate Louis Lombardo, Bristol-Meyers Squibb

12:25 PM *Lunch (independent)*



AFTERNOON

1:30 PM	Career Byte: • Making a Winning CV Mike Kiledjian, CBN • GradFund Teresa DelCorso Ellmann, GSNB
2:00 PM	NewCo Meeting Stephen K. Burley/Gail Ferstandig Arnold, IQB
2:30 PM	 Tumor Genome Profiling Workshop Chang Chan/Saurabh Laddha, CINJ Coffee/Tea available throughout afternoon

4:30 PM **Networking Event;** Dinner Served - *Proteomics Lobby*

WEEK 2 • January 11 - 15, 2016

Monday, January 11th, 2016

MORNING	9:00 AM	NewCo Report Participants
	9:15 AM	An Academia/Pharma Partnership that Led to Three Marketed Drugs for Treating HIV Infection Eddy Arnold, CABM/CCB/Proteomics
	10:10 AM	Coffee/Tea Served
	10:30 AM	Patenting the Drug Candidate Vincent Smeraglia, ORC/Peter Butch, Esq., Fox Rothschild
	11:30 AM	NewCo Meeting Stephen K. Burley/Gail Ferstandig Arnold, IQB
AFTERNOON	12:00 PM	<i>Lunch (independent)</i>
	1:00 PM	Career Byte: Giving an Engaging Presentation or Pitch Jerome Kukor, GSNB
	1:30 PM	 Tumor Transcriptome Profiling Workshop Chang Chan/Saurabh Laddha, CINJ
	3:15 PM	Coffee/Tea Served
	3:35 PM	 Amber Workshop: Simulating EGFR Breathing and Potential for Drug Binding, Part II David Case/Darrin York/Jason Swails/Hai Nguyen, CCB/Proteomics
	4:30 PM	PB & J and Popcorn - Proteomics Lobby ; ODAC Movie/Think Tank Forum

Tuesday, January 12th, 2016

MORNING	9:00 AM	NewCo Report Participants
	9:05 AM	Preparing the Investigational New Drug Application (IND) Stephen K. Burley, Proteomics/IQB
	9:30 AM	Design and Conduct of Phase 1/2 Clinical Trials Julie Reynes, Novartis
	10:30 AM	Coffee/Tea Served
	11:00 AM	Design and Conduct of Phase 3 Clinical Trials Julie Reynes, Novartis
AFTERNOON	11:30 AM	Preparing the New Drug Application (NDA) Stephen K. Burley, Proteomics/IQB
	12:00 PM	<i>Lunch (independent)</i>
	1:00 PM	Career Byte: The Interview: You Are Onstage Alex Freund, Landing Expert Career Coaching
	2:00 PM	Coffee/Tea Served
	2:30 PM	NewCo Meeting Stephen K. Burley/Gail Ferstandig Arnold, IQB
6	3:00 PM	Kinase Inhibitor Resistance Steven Zheng, CINJ
	4:00 PM	 Tumor Proteome Profiling Workshop Justin Drake, CINJ

MORNING

9:00 AM	NewCo Report Participants
9:15 AM	Statistical Analysis Workshop: Analysis of Tumor Profiling Data Steve Buyske, HGINJ
10:30 AM	Assemble in front of Proteomics for walk to tours: <ul style="list-style-type: none">• Keck Center for Collaborative Neuroscience Patricia Morton, Spinal Cord Injury Project (offered at 10:45 AM only)• Applications of Quantitative Biology to Environmental Health Panos Georgopoulos, EOHSI• RD12: A Look behind the Scenes at Advanced Computing Moustafa AbdelBaky, ECE

10:45 AM **Tour 1**
11:45 AM **Tour 2**

OPTIONS

Tour 1 Tour 2

- | | | |
|----------------|---|-------|
| 1. Keck Center | → | EOHSI |
| 2. Keck Center | → | RD12 |
| 3. EOHSI | → | RD12 |
| 4. RD12 | → | EOHSI |

AFTERNOON

1:00 PM	<i>Lunch (independent)</i>
2:00 PM	Career Byte: Using Social Media to Your Advantage Ina Nikolaeva, MMG
2:30 PM	NewCo Meeting Stephen K. Burley/Gail Ferstandig Arnold, IQB
3:30 PM	Preparation for Briefing Package/Oncologic Drugs Advisory Committee Simulation Coffee/Tea available throughout afternoon
5:00 PM	Downtown Meeting Meet in Proteomics Lobby

Thursday, January 14th, 2016

MORNING

9:00 AM

NewCo Report Participants

9:15 AM

Assemble in **front of Proteomics** for walk to tours:

- **RUCDR Infinite Biologics: A Full Service Biorepository for the 21st Century** Michael Sheldon, RUCDR;
- **Bioimaging** Carol Gardner/Jessica Cervelli, Pharmacy

9:30 AM

Tour 1

10:30 AM

Tour 2**OPTIONS**Tour 1Tour 2

1. RUCDR → Bioimaging
2. Bioimaging → RUCDR

AFTERNOON

11:40 AM

ORED Internship Program Tatiana Litvin-Vechnyak, OTC

12:40 PM

Lunch (independent)

1:30 PM

 **Career Byte: Finding Jobs and Collaborators Using LinkedIn**
Itzamarie Chevere-Torres, Genetics

2:00 PM

Preparation for Briefing Package/Oncologic Drugs Advisory Committee Simulation

Coffee/Tea available throughout afternoon

Friday, January 15th, 2016

MORNING

9:00 AM

Finalization of Presentation for the Briefing Package/Oncologic Drugs Advisory Committee Simulation

Coffee/Tea available throughout morning

12:00 PM

Lunch Served - Eat in 9 career groupings, Proteomics Lobby

1:00 PM

Main Event: Briefing Package/Oncologic Drugs Advisory Committee Simulation

2:30 PM

Coffee/Tea Served

AFTERNOON

3:00 PM

Networking/Career Fair/"Speed Dating" Style Meet and Greets
Dinner Served with Special Dessert - *Proteomics Lobby*

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RUTGERS BUSCH CAMPUS MAP

Center for Integrative Proteomics Research (Proteomics)

Parking with valid Faculty/Staff Permit

Parking with valid Student Permit

Bus Stop

