



Cell and Molecular Biology Program

Student Handbook
2011-2012 <http://www.bumc.bu.edu/cmbio>

www.bumc.bu.edu/gms/student-life/gmssso

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Welcome to the Graduate Program

The program accepted its first group of students 13 years ago and today 59 students have received their PhDs and entered industry and academia. Twelve students in the program have won the coveted Henry I. Russek Achievement award and an even greater number have been awarded second place and honorable mention awards. This past year Anna Belkina and Guy Bushkin won the Russek Award. This is a real honor! In addition we have had 3 students win the Science Competition at the Charles River Campus. In addition, we have had one student participate in the competitive NSF program (K-12) where students teach in local school systems and take courses on learning how to teach. Many have attended local, national and international meetings and given presentations. **Most importantly over 90% of the graduates have at least one publication prior to receiving their Ph.D. degree.**

As a member of the program you will be required to take a core set of courses in your first year. At the same time you will be doing research in a number of laboratory rotations in departments that belong to the Program. This will allow you to take advantage of the excellent research environment at Boston University before you commit yourself to a laboratory. The departments include Anatomy & Neurobiology, Biochemistry, Microbiology, Molecular and Cell Biology, Pathology & Laboratory Medicine, Pharmacology and Physiology & Biophysics along with the Programs of Molecular Medicine and Genetics and Genomics.

There will be monthly “get-togethers” for all students. The meetings will provide you with the opportunity to discuss the work that you do in your laboratory rotations or listen to the work of senior graduate students in the CMB program. These meetings will provide you with an excellent opportunity to meet graduate students from participating departments and programs. Your fellow students will be your greatest resource!

We have a student mentoring program. The CMB students have joined a number of departments and programs and reflect different levels of seniority. They are available to answer your questions about the program and life in Boston! Please use them!!!

Finally if you have any questions about any aspect of the Program, please do not hesitate to ask us.

My door is always open!

Welcome to BUSM!

Dr. Trinkaus-Randall
Director, Cell and Molecular Biology Graduate Program

Organizational Structure of CMB

Program Director

Dr. V. Trinkaus-Randall, Biochemistry 8-5099 vickery@bu.edu

Assistant Director

Dr. R. Zoeller Physiology/Biophysics 8-4010 rzoeller@bu.edu

Faculty Advisors

Dr. Jamie McKnight cjmk@bu.edu
Dr. Nader Rahimi nrahimi@bu.edu
Dr. Barbara Schreiber schreibe@bu.edu

Admissions

Dr. V. Trinkaus-Randall (chairperson) - members of the committee represent each department or program

Steering Committee

| | | | |
|---------------------|--------------------------|--------|--|
| V. Trinkaus-Randall | Biochemistry | 8-5099 | vickery@bu.edu |
| R. Zoeller | Physiol and Biophysics | 8-4010 | rzoeller@bu.edu |
| C. Hirschberg, | Molecular and Cell Biol | 4-1040 | chirsch@bu.edu |
| N. Rahimi | Pathology and Lab. Med | 8-5011 | nrahimi@bu.edu |
| B. Schreiber | Biochemistry | 8-5094 | schreibe@bu.edu |
| H. Cohen | Molecular Medicine | 8-7322 | htcohen@bu.edu |
| G. Viglianti | Microbiology and Immunol | 8-7790 | gviglian@bu.edu |
| I. Zhdanova | Anatomy and Neuro | 8-4187 | zhdanova@bu.edu |

Academic Advisors

All students are assigned to an Academic Advisor. Please arrange a meeting in the first weeks of the semester with your advisor. In addition please meet with your advisor during the middle of each rotation in both the first and second semester. Your advisor is there to assist you in finding rotations and to advise you in your classes.

List of first year students in the CMB Program and first lab rotation

| Student | Advisor | Rotation #1 | |
|----------------------|----------------|-----------------------|--|
| Jessica Behring | McKnight | Dr. Christopher Gabel | cvgabel@bu.edu |
| Carly Cederquist | Schreiber | Dr. Valentina Perissi | vperissi@bu.edu |
| John Haserick | McKnight | Dr. John Samuelson | jsamuels@bu.edu |
| Delia Lopez | Rahimi | Dr. Herbert Cohen | htcohen@bu.edu |
| Tram Nguyen | Schreiber | Dr. Katya Ravid | kravid@bu.edu |
| Obi Onochi | Schreiber | Dr. Trinkaus-Randall | vickery@bu.edu |
| Jacquelyn Sikora | Rahimi | Dr. Maria Panchenko | mpanch@bu.edu |
| Alexzander Szymaniak | McKnight | Dr. Xingbin Ai | aix@bu.edu |

Student Mentors

The goal of the student mentor program is to help incoming students in their transition to graduate school. The students represent various years of experience and different departments/programs. Feel free to contact these students with questions regarding classes and life in general as a graduate student at BUSM. Informal and formal get-togethers will be arranged to make your transition easier. Their names and emails are listed below.

| | | |
|------------------|---------------|--|
| Linh Aven | Mol Medicine | lma@bu.edu |
| Heather Cohen | Pathology | hgcohen@bu.edu |
| Joseph Goodliffe | Anatomy/Neuro | joseph.goodliffe@gmail.com |
| Ryan McClure | Microbiology | ryanmcclure83@gmail.com |
| Connie Slocum | Mol Medicine | cslocum@bu.edu |
| Kathleen Tumelty | Biochemistry | ktumelty@bu.edu |
| Amanda Watkins | Mol Medicine | awatkins@bu.edu |

Information for new students

***September 6 Alumni picnic 5PM on the green**

***First pot-luck get-together hosted by Guy and Martin with help from others!**

Date –Thursday September 8

Time: 6:30 PM

83 Browne St. Apt 2

Brookline, MA

Walking distance from BU shuttle stop at BU gym (Agganis)

***Stipend and stipend questions**

–Kayleigh Klegraeffe at kay416@bu.edu or L315

***Classes and other activities**

FIBS FC 701 Protein structure, catalysis and interactions

FIBS FC 702 The Genome

FIBS FC 703 Cell Dynamics and Architecture

GMS CM 761 Critical Thinking –Topics in Cell Biology

GMS CM 764 Presentation Skills

Monthly meetings on Thursday with Rotation talks or Senior Graduate student presentations

Class start dates and location

-FC 701: Tuesday September 6 9:30AM L211/L213

-Critical thinking: Wednesday September 7, 2011 1:30 PM K103

-Presentation Skills Wednesday September 14, 2011 11:30AM L907

-Monthly meetings in L705 at 12PM

Rotations

-Rotations will start on September 8, 2011 and each one will last 7 wks with a 10 minute presentation at the end of each one.

-Please email the faculty member that you have been assigned to for your first rotation and set up an appointment in your first week of classes. Please read the section on rotations for more info.

-Questions? Ask your advisor, Dr. Trinkaus-Randall, Dr. Viglianti or Dr. Zoeller

Monthly meetings

These will be either short presentations about your rotation work or research seminars given by senior graduate students.

The first will be held September 22nd 12:00 PM L705

Ways to learn about the research at BUSM

Interdisciplinary seminars

Special Seminars

Sponsored by the Department of Microbiology in honor of students and faculty who lost their lives in 911

Presents: Brigitta Stockinger

Professor of Immunology at MRC London, UK

September 16, 2011 12N

BU MED Evans Center Aortic Stiffness ARC & Cytoskeleton PPG Presents: Cynthia Reinhart-King, PhD Cornell University, Biomedical Engineering,
The: Role of Extracellular Matrix Stiffening in Endothelial Cell Function
Thursday, October 6th 4:00pm Room 203, Conference Center (ERB), Engineering Research Building (ERB) 44 Cummington Street, Boston University
Refreshments will be served

BU MED Evans Center Aortic Stiffness ARC & Cytoskeleton PPG Presents: Richard Cohen, MD Boston University, School of Medicine, Biology, Boston, MA
Title: Redox Regulation of Vascular Function
Date: October 17, 2011 Time: 12:00 Noon Location: SAR, Room TBA, Boston University, College of Health and Rehabilitation Sciences: Sargent College, 635 Commonwealth Avenue
Refreshments will be served

Interdisciplinary Series Fall 2011 Seminar Theme: Protein Quality Control and Disease Thursday, November 17, 2011

Dr. Randal J. Kaufman, Ph.D.

Professor of Biological Chemistry, Warner-Lambert/Parke-Davis Professor of Medicine
University of Michigan Medical School, Ann Arbor, MI

Seminar Title: "ER stress and oxidative stress synergize to cause cell death"

Wednesday, November 30, 2011

Dr. David Ron, M.D.

Professor of Cellular Pathophysiology and Clinical Biochemistry, Wellcome Trust Principal Research Fellow

University of Cambridge Metabolic Research Laboratories, Cambridge, UK

Seminar Title: "Physiological significance of the Endoplasmic Reticulum Unfolded Protein Response"

Thursday, December 15, 2011

Dr. Ana Maria Cuervo, M.D., Ph.D.

Professor of Developmental and Molecular Biology

Albert Einstein College of Medicine, Bronx, NY

Seminar Title: "Selective Autophagy: Quality Control with a twist"

Graduate student/ postdoc research seminars in departments –

Days and times vary with each department

Attend research days - Evans Day, Biochemistry Student Research Day, and Russek Day

CMB Meetings

Please note that these are required!

Place: L705

Time: Thursdays 12:00-2 PM

Lunch provided

September 22 –Senior Graduate Student Talk and fall lunch for all CMB students.
Tyler Longmire and Jiang Guan

October 6

Get-together. - Ask faculty and student mentors questions that you didn't think about during orientation.

November 3 – note change of location

First Rotation talks by first year students – (10 min talks/person) – all CMB students invited

November 17

Senior Graduate Student Talks:

Annabelle Belkina
Jing Wang

December 8

TBA

January 12

Second Set of Rotation Talks

February 2??

Guy Bushkin

March 8

Third Set of Rotation Talks

April 5

Senior Graduate Student Talk:

Sait Ozturk

Laboratory Rotations

Schedule of rotations

| | |
|--------|---------------------------------|
| First | September 8 – October 28 |
| Second | October 31 – December 15 |
| Third | January 16 – March 2 |
| Fourth | March 5 – April 20 |

As a student in the Cell and Molecular Biology Program, you will be expected to rotate through three to four laboratories during the year. The laboratory rotations will allow you to experience a range of laboratory research environments. Your first rotation has been assigned to you. It may be in an entirely new field or it may not. Since the rotation may be outside your undergraduate experiences this is a great time to learn new technologies and be exposed to new fields.

Please make an appointment to meet with your rotation advisor prior to September 7 so that you can meet him or her.

To find a second rotation it is your responsibility to learn about the faculty research interests at BUSM. Each Department has a website listing faculty and the GMS office also lists faculty and research interests. I have also included a list of faculty that as of August had room in their laboratories.

Goal of Rotations

To experience a number of research areas and to identify a research advisor for your thesis research.

The choice of the mentor will determine the department that you will join. The rotations are a “two way street”. Your goal is to evaluate the work in the lab to see if it intrigues you. The faculty member will monitor your work to see if you will fit into his/her lab environment. Students will be assigned to the first rotation and your advisor will assist you in choosing subsequent rotations.

Remember !!!!!

-It is important to rotate in labs that will be able to take on a doctoral student.

-Rotations are to be taken seriously !!!!

Students are expected to spend 15-20 hrs per week in the rotation labs.

-You must start each rotation on time!!!

-Please try to attend the weekly laboratory meetings as long as your class schedule permits.

-Your experience in the rotation is your opportunity to impress the faculty member and personnel in the laboratory and to find if you like the laboratory!

At the end of the rotation if you liked the laboratory and think that you might want to do your thesis work there please open a dialogue and tell the rotation mentor. They cannot read your mind!

Students should expect to give their data to their lab at the end of the rotation.

-At the completion of the rotation please meet with your mentor and fill out the form that is included in the handbook. Please sit down with your rotation advisor and discuss your work in the rotation. This will help you find your strengths and weaknesses so that you can improve as a student. It needs to be signed by you and the faculty person and handed in to Dr. Trinkaus-Randall at the completion of each rotation.

Presentations at the completion of laboratory rotations

At the completion of each rotation students are expected to give a short presentation (10 minutes) to other students and faculty in the Cell and Molecular Biology Program on the work that was performed during the lab rotations. Students will learn how to present their data in the Presentation Skills course.

During the rotation talks you can learn about the work that is performed in other laboratories and departments. Please invite your laboratory mentor and/or graduate students/lab workers that you worked with for the presentation.

Keep in mind that the rotations will enable you to decide what lab you want to do your thesis work in. Although it seems like an overwhelming task to choose an advisor, we are here to help you to do that. This is a yearlong process in which you will choose a research advisor, as well as a department in which you will do your thesis work.

Feel free to call on any of the members of the Student Advisory Committee or the Steering Committee in any of the departments. There is a representative from each department on the Steering Committee and speaking to these individuals will allow you to get a better sense of the expectations of each department. You can narrow down the list somewhat by checking in the Graduate School Bulletin for the research interests of each of the faculty members on the list, but don't only narrow yourself to areas you've studied in the past. The rotations are a great way to consider new areas of interest or learn a new technology. For example if you have ever wondered what it's like to do NMR, Mass Spec, crystallography, patch clamping, laser tweezing, or confocal microscopy, this is your chance! Finally, call on the investigators

whose research interests you enjoy, and talk to them about their work; in this way, you can narrow your list to the 3 labs that you would like to rotate in.

CMB Rotation Evaluation Form

Student _____

Faculty Member _____ (phone and email)

Rotation Dates _____

What was your goal for the rotation?

Describe the student's overall performance in the laboratory rotation

What were the student's strengths that you observed during the rotation? (The might include technical skills, oral skills in explaining work, analytical skills)

What areas should the student work on to improve?

What techniques did the student learn?

Evaluation of lab presentation at end of during rotation talk.

Would you accept this student into your lab?

Faculty signature _____ Date _____

Student signature _____ Date _____

Students in the CMB Program –

| Student | Mentor | Department | email |
|-----------------------|--|--------------------|--|
| Year VII | | | |
| Kyriakos Papanicolaou | Walsh | Molecular Med | kyriakos@bu.edu |
| Erica Walsh | Xiao | Biochemistry | emwalsh@bu.edu |
| Year VI | | | |
| *Jian Guan | Seldin | Molecular Medicine | jianguan@bu.edu |
| Jing Wang | Bullitt | Phys & Biophys | jing@bu.edu |
| *Tyler Longmire | Kotton | Molecular Medicine | longmire@bu.edu |
| Year V | | | |
| Anna Belkina | Dennis | Molecular Medicine | belkina@bu.edu |
| Gary Bushkin | Sammuelson | Microbiology | bushkin@bu.edu |
| Heather Cohen | Trojanowska | Pathol and Lab Med | hgcohen@bu.edu |
| Allison Mathes | Lafyatis | Molecular Medicine | alk812@bu.edu |
| Martin Minns | T-R | Biochemistry | mminns@bu.edu |
| Sait Ozturk | Thiagalingam | Molecular Medicine | saito@bu.edu |
| Wei Qiu | Shirai/Corkey | Molecular Medicine | qiuwei@bu.edu |
| Amanda Watkins | Rifkin | Molecular Medicine | awatkins@bu.edu |
| Year IV | | | |
| Dana Buckler | Kandror | Biochem | danab@bu.edu |
| Edward Hartsough | Rahimi | Pathol and Lab Med | edhartso@bu.edu |
| Ryan McClure | Genco | Microbiology | mcclur30@bu.edu |
| Nicolae Sandor | Marintchev | Phys & Biophys | nlsandor@bu.edu |
| Dolly Thomas | Mostoslavsky | Molecular Medicine | dollytc@bu.edu |
| Kathleen Tumelty | Layne | Biochemistry | ktumelty@bu.edu |
| Year III | | | |
| Linh Ma Aven | Xingbin Ai | Mol Med | lma@bu.edu |
| Ariana Darcy | Montano | Mol Med | arianad18@gmail.com |
| Brian Fluharty | Harris | Biochemistry | fluharty@bu.edu |
| Sarah Rozelle | Murphy | Mol Med | srozelle@bu.edu |
| Year II | | | |
| Ryan Martin | Ramirez | Mol Med | rdmartin@bu.edu |
| Goodliffe, Joseph | Haydar | Anat/Neuro | jwg@bu.edu |
| Slocum, Connie | Genco | Mol Med | cslocum@bu.edu |
| Year I | | | |
| Jessica Behring | jbehring@bu.edu | | |
| Carly Cederquist | ctcederq@bu.edu | | |
| John Haserick | haserick@bu.edu | | |
| Delia Lopez | delial@bu.edu | | |

Tram Nguyen nguyenbt@bu.edu
Obi Onochi onochie7@bu.edu
Jacquelyn Sikora jsikora@bu.edu
Alexzander Szymaniak szymanad@bu.edu

*Tyler Longmire will be defending on October 11!

*Jiang Guan will be defending in October

Graduates of the Program

| Year of graduation | Department | Mentor | | Position(s) |
|-------------------------------|------------------|------------------|-----|-------------------------------|
| 2000 | | | | |
| Marevi, D. | Pathology | (transfer) | 2 | Analyst Decision Res |
| Trbovich,A. | Pathology | (transfer) | 2 | Res Fellow Surg MGH/HMS |
| 2002 | | | | |
| Kaluxhny, Yulia | Biochemistry | Ravid | 5 | Mat Tek Corp-Sr Sci. |
| Yaar, R. | Biochemistry | Ravid | 4 | MDPhD fellow. Dermatopathol |
| BUSM | | | | |
| Slot, Francis | Biochemistry | Abraham | 4 | MDPhD Res Family Med |
| 2003 | | | | |
| Mendohlson, Rick | Biochemistry | Kukuuzinska | 5 | Sam. Lunenfield Res. U |
| Toronto | | | | |
| Lahiri, S. | Phys/Biophys | Allen | 3.5 | AstraZeneca |
| sushmita.lahiri@aztraneca.com | | | | |
| 2004 | | | | |
| Perlman, D. | Microbiology | Hu | 6.5 | Mass Spec Facility and now |
| at Princeton University | | | | |
| Ratts, R. | Biochemistry | Murphy,J. | 4 | MDPhD Res MedPedsMGH |
| Kartik, AG | Phys/Biophys | Zoeller | 6 | HMS/Brigham + Womens |
| Yong, Xu | Biochemistry | Smith,B. | 4.5 | Nanjing Med U (faculty) |
| 2005 | | | | |
| Shi, Jun | Biochemistry | Kandror | 5 | Novartis |
| Chandromohan, V. | Biochemistry | Sonenshein | 4.5 | Duke (postdoc) |
| Foy, Rebecca | Molecular Med | Cohen,H | 4.5 | BUMC/nephrology/Res assoc |
| 2006 | | | | |
| Yang, LingLing | Biochemistry | Trinkaus-Randall | 5.5 | LSU (postdoc) |
| Szepessy, E. | Cell /Mol. Bio | Sahin-Toth | 4 | Belgium |
| Li, Lin | Biochemistry | Kandror | 4 | Chinese Marketing Firm |
| 2007 | | | | |
| Chau, Anne | Biochemistry | Nugent | | masters |
| Mork, Christina | Microbiology | Faller | 6 | Consumer Genetics (CA) |
| Sedita, Jeff | Pathol | Cardoso | 7 | Health/consultant -> |
| Astrazeneca | | | | |
| O'Callaghan, Cornelia | Biochemistry | Sherman | 4.5 | Applied Biosystems |
| (Spain) | | | | |
| Qiang, Li | Biochemistry | Farmer | 4.5 | Columbia University (postdoc) |
| Icli, Basak | Molecular Med. | Sawyer | 5 | Brigham + Womens |
| (Cardiology) | | | | |
| Qiu, Wei | Biochemistry | Xiao | 5 | Shanghai Med Schl (faculty) |
| and law school | | | | |
| Ying, Jia | Molecular Med | Cohen,R | 4.5 | industry |
| Lin, Paul | Biochemistry | Kirsch | 4 | medical school |
| 2008 | | | | |
| Pirani, Alnoor | Physiol /Biophys | Lehman | 7 | Adelytix/Olympus America |
| Slater, Damien | Genetics / Genom | Vaziri | 6 | postdoctoral position |
| Subramanian, Deepa | Microbiology | Rothstein | 5.5 | India |
| Park, Kristen | Mol Medicine | Bolotina | 4.5 | Harvard U (CBRC) (now |
| Pfizer) | | | | |
| McCann,DJ | Biochemistry | Ravid | 4.5 | Maine Medical Res Ctre Inst |
| (now IDEXX) | | | | |
| St Hillaire, Cindy | Biochemistry | Ravid | 4.5 | NIH/NCI |
| Zhang, Anne | Gen /Genomics | Christman | 5.5 | HMS |
| Ottaviano, Phyllis | Mol Medicine | Loscalzo | 4.5 | HMS (BIDMC) |
| Gao, Fang Ming | Pathology | Thiagalingam | 5 | U Kentucky |

| | | | | | |
|-------------|------------------------|--|--------------|------|------------------------------------|
| | Papageorgis, Panos | Gen / Genomics | Thiagalingam | 5 | BUMC |
| | Du, Wei | Biochemistry | Xiao | 5 | HMS |
| 2009 | Tamayo, Alfred | Molecular Med | Murphy | 4.5 | HMS (Charles Weitz) |
| | alfredtamayo@gmail.com | | | | |
| | Stanvitch, Jerald | Genetics/Gen | Moore | 5.5 | New Jersey Med College |
| | Daley, Kylie | Microbiology | Corley | 7 | Genzyme |
| | Pazin, Dorothy | Genetics/Gen | Albrecht | 5.5 | postdoc HDS (Vicki Rosen) |
| | Chakrabarti, Partha | Biochemistry | Kandror | 4 | Indian Institue of ChemBiol |
| | Gurkar, Aditi | pathology | Vaziri | 3 | BROAD Inst (Sam Lee) |
| | Liu, Lihan | Biochem | Corkey | 6 | BUSM (Corkey) |
| | Kurtagic, Elma | Biochemistry | Nugent | 5 | MIT (Lauffenburger) |
| | and will be moving to | Momenta Pharmaceuticals in Cambridge, MA | | | |
| 2010 | Oswald, Duane | Biochemistry | T-R | 6.5 | Ohio State (Neuro) |
| | Hannafon, Bethany | Mol med | Rosenberg | 5 | Dana Farber/HMS |
| | Staples, Greg | Biochemistry | Zaia | 5 | Agilent |
| | Agarwal, Anupma | Biochemistry | Smith | | masters - |
| Fall 2010 | Farelli, Jeremiah | Physiol/Biophys | Akey | 5.5 | Dr. K. Allen (BU Chemistry Dept) |
| | Florin Craciun | Genetics and Gen | Remick | 7 | BU |
| | Andrew Rankin | Mol Med | Faller | 6 | Boston Biomedical (Norwood) |
| | Kelly Daughtry | Phys/Bio | Allen | 5.5? | Duke U (Christian Raetz) |
| Spring 2011 | Ziyang Wu | Biochemistry | Sonenshein | 5.5 | Tufts |
| | Seidl, Steph | Biochemistry | Schreiber | 5.5 | Cell Signalling Technology |
| | Naiymi, Hicham | Biochemistry | Zaia | 5.5 | Shire Technology |
| | Mike Breen | Biochemistry | Pilch | 8 | Childrens hospital |
| | S. Narasimhan | Pathology | Sherr | 7 | Sherr lab |
| | Liling Zeng | Molecular Med | Cohen | 7 | Cohen lab |
| Fall 2011 | Krawzyk, Sarah | Mol Med | Corkey | 6 | |

ACADEMIC REQUIREMENTS

This guide is intended to provide all graduate students and faculty members within the Cell and Molecular Biology Program with a list of requirements. In addition, students must adhere to the guidelines of the Division of Graduate Medical Sciences at Boston University School of Medicine as well as Boston University at large. Students are advised to consult the appropriate personnel if they have further questions regarding policies concerning graduate study at Boston University.

The program is designed so that all entering students take coursework during the first year to fulfill the requirements of the Cell and Molecular Biology Program, as well as the participating departments within the Division of Graduate Medical Sciences. In addition, students will rotate through 3-4 laboratories during the first year so that they can be exposed to a number of departments and laboratories. The students will then ask to enter a faculty's laboratory and have her/him serve as mentor throughout the remainder of the student's graduate school career. At the end of the first academic year, the student will join a laboratory. Students will become a member of the department of the mentor. At that time, the student will be financially supported by the mentor and respective Department and must fulfill the requirements of that department, as well as the Cell and Molecular Biology Program.

Academic Advisors

All students will be assigned a faculty member as academic advisor when they enter into the program. The advisors are assigned by the Student Advisory Committee. The academic advisor will function as the student's first formal advisor. The role of the academic advisor is to provide assistance and advice on all academic issues. Students, please keep in touch with your advisor throughout the year. He/she will counsel you on academic issues and guide you in your choice of lab rotations throughout the first year. If you have any questions please make sure to ask your advisor. Upon completion of the first year of study, students will choose a mentor who will serve as permanent research advisor for the remainder of his/her graduate school career. All decisions and discussions should be discussed with your advisor in this important decision.

Academic Requirements

The Post bachelor's Ph.D. program requires 64 credits. The M.D./Ph.D. and Postmasters Ph.D. programs require 32 credits. The number of lecture credits will vary with requirements for each department. Each student will need to check the requirements for Cell and Molecular Biology Program students in the department of their choice as the number of required courses differs.

First Year CMB Core Classes

The first-year basic science curriculum for almost all PhD programs and Departments has changed for the 2011-2012 academic year. The new curriculum is set up as one major course that runs the full academic year called Foundations in Biomedical Sciences (FIBS). This innovative and interdisciplinary core course will encompass material that has been traditionally taught in courses of Biochemistry, Cell Biology, Genetics and Genomics, and Molecular Biology. These four major topics will be taught as sequential modules. A fifth module will be available as well with a choice of topics, from development and stem cells, physiology, and metabolism. This should be a particularly exciting student experience across the graduate school at BUSM.

FIBS FC 701 Protein structure, catalysis and interactions

FIBS FC 702 The Genome

FIBS FC 703 Cell Dynamics and Architecture

FIBS FC 704 Cell Communication

GMS CM 761/762 Critical Thinking

GMS CM 764 Presentation Skills

Monthly meetings on Thursday with Rotation talks or Senior Graduate student presentations

Suggested elective classes

GMS BI 777 Techniques in Biochemistry, Cell and Molecular Biology

FIBS 705A Physiology

FIBS 705B Metabolism

FIBS 705C Translation Genomics

FIBS 705D Stem cell and Development

Charles River Campus

Developmental Neuroscience (fall course)

BI 544 Cell Motility and Cytoskeleton

Second Year

In addition, to fulfill the requirements of the Cell and Molecular Biology Program, there is only one 2CR course required in addition to attendance at graduate student talks.

GMS CM 765/766 Imaging and Grant Writing

. Each course is given for half a semester and 2 such courses must be taken to complete the requirement (1 credit/course).

Both of the courses are given in the second semester of the second academic year and after the completion of both courses, the student will be given 2 credits.

The course of graduate study is designed so that the Ph.D. student can complete the required coursework during the first two years of graduate work. In addition to taking all courses required by the department in which the student will complete his/her studies, each student must take the qualifying examination of the chosen

department/program. The qualifying examinations are specific for each department/program and may differ in format. In addition the timing for taking the examination depends on the department/program.

Students who join the laboratory of a faculty member in the Department of Molecular and Cell Biology are requested to meet with their advisor, the Chair of the Department and Dr. Trinkaus-Randall, to develop the course of study. In addition please see the list of requirements below under qualifying exams and thesis committee.

Once students have completed their academic classes the remaining credits will be fulfilled by registering for research credits. Students may take additional courses for credit. The emphasis after the second year, however, should be on research in the laboratory. Students should register for research credits (research credits in Cell and Molecular Biology are GMS CM 952-), until they have taken the required total number of credits required for their degree.

Additional Requirements and Guidelines/Academic Policies

Academic Policies

Academic policies and procedures dictated by the Division of Graduate Medical Sciences are described in the Division of Graduate Medical Sciences Bulletin. All students are required to maintain a minimum cumulative grade point average of B (3.0) or better in their courses. Any student receiving a grade of C or below must repeat the course and must attain a grade of B (not B-) or above in the course. Please note that if students receive 8 credits of a grade(s) of B- or lower, they will be placed on academic probation. Any students placed on academic probation will receive a letter detailing the expectations for remediation and will be re-evaluated at the end of each semester. Students on academic probation are not allowed to take Departmental Qualifying or Thesis Defense examinations. If the grade point average is not rectified in 1 year, the student will be dismissed from the program.

All students are expected to finish the Ph.D. in a timely manner, having made a significant contribution to their field of research. Financial assistance is dependent upon the student remaining in good standing within the CMB program as well as the department/program the student joins after the first year in the program. The Department will only provide financial aid for courses, which fulfill requirements of the candidate's degree program.

All students are required to be registered every semester at Boston University unless they are on an approved leave of absence. **An absence from the lab or from courses for more than 2 weeks per year should be brought to the attention of the Student Affairs Committee and if needed the Executive Committee.** Student stipends will be suspended during any extended leave.

M.D. Ph.D. students are required to have successfully completed a minimum of their first year of BUSM curriculum prior to entering the program. Students may not join if they are not in good standing in the medical school.

Research Training and Dissertation Advisory Committees

Qualifying Examinations

Relax!

Your job in the first year is to do well on your coursework and to find a laboratory in which you will do your thesis work. The examination will follow after that and differs with each department. All students must pass a qualifying examination to qualify as a PhD student. The structure of the examination(s) depends on the individual departments.

Students who join the Department of Molecular and Cell Biology will take a qualifying examination after their second year. The committee is assembled by the Chair of the Program and the Chair of the Department. The Qualifying Exam Committee will include 5 faculty members, including 2 members from the Department of Molecular and Cell Biology and 3 members from the Executive Committee in the Cell and Molecular Biology Program. The examination consists of a written proposal on a field outside the research field of the student and an oral component. It is similar in scope to the examination format for the Department of Microbiology, and the Molecular Medicine Program.

Dissertation Advisory Committee

The role of the Dissertation Advisory Committee is to both advise the student and to assess his/her progress throughout the research component of the Ph.D. program. Ultimately, this Committee will be responsible for determining the acceptability of the Ph.D. candidate's research. Failure to maintain an acceptable research program will result in termination of Ph.D. candidacy.

The Dissertation Advisory Committee is set up by each department and must include 2 members of the Cell and Molecular Biology Program. The committee will consist of 5-6 members, including the research advisor, one other representative of the host department and 3 members of the Cell and Molecular Biology Program faculty. At least 1 member of the committee must be from a department, which is not the host department.

For students in the Department of Molecular and Cell Biology the Committee will be established once the student has passed his/her qualifying examination. The Dissertation Advisory Committee will consist of 5 members. One will be the research advisor. A second member must be a member of the Department. Three additional faculty must be members of the Cell and Molecular Biology Program and be faculty

outside the Department of Molecular and Cell Biology.

The first (research advisor) and second readers of the student's dissertation will be members of the Committee. The Committee Chair must be appointed prior to the first meeting by the student and research advisor. The Chair may be of any rank but must have his/her primary appointment within the Department and must have prior experience serving on thesis committees. The Chair, who should not be the research advisor, will keep written records of the meetings. The Committee Chair cannot be the first or second reader. The Second Reader will be selected by the student and research advisor at the last Committee meeting.

It is the committee's responsibility to provide an objective evaluation of the project as well as to contribute to the research direction. A vital function of the committee is to help focus and limit the scope of the research so that the trainee has a clear concept of the overall design of the dissertation proposal. It is expected that this design will change in response to experimental findings; however, it is critical that the trainee be guided to define scope and quality. Research in the advisors lab will commence in the summer after the first year of courses. Full time research is expected to begin the summer of the second year (after successful completion of all required courses and the qualifying examinations). Failure to maintain an acceptable research program will result in termination of Ph.D. candidacy.

Frequency of meetings

Within 6 months of passing the qualifying examination, the trainee is expected to present a research proposal to a Thesis Advisory Committee that will monitor his/her research progress on a regular basis, meeting at least once a year. One week prior to each meeting, the student will present a written summary of research progress to the committee for review. The Thesis Advisory Committee will meet annually with the student (or more frequently if determined by the Committee). All committee members should be present, however in an emergency a quorum of four members are required to be in attendance. It is mandatory that the first meeting be scheduled no later than a year after completion of the qualifying examinations. At the end of each meeting the student will be excused and the Committee Chair, in consultation with the Committee, will complete a Thesis Advisory Committee meeting report form (at the time of the meeting).

For the first meeting with the committee a formal written research proposal detailing the Background, Objectives, Specific Aims, and Experimental Approaches of the dissertation research should be presented to the Thesis Advisory Committee one week prior to the first meeting. The format of the proposal will vary from Department to Department. The intention of the committee is to offer insight, expertise and if needed, assistance in selecting appropriate avenues of research. The first committee meeting should not be viewed as an examination, but as a think-tank that will increase the likelihood of generating presentable/cohesive data.

Dissertation Committee

The Thesis Advisory Committee will, in most instances, become the Dissertation Committee. Again, the format of the individual departments will be adhered to. If any member of the Dissertation Committee is not a faculty member of the Division of Graduate Medical Sciences at Boston University then a special faculty appointment in the Division must be obtained.

Dissertation

All graduate students within the Program are required to maintain a research program that will eventually lead to the dissertation. An acceptable research program will be judged by the research advisor and the Thesis Advisory Committee.

The following is a guideline for the preparation and defense of the Ph.D. thesis. When the student and advisor decide that the laboratory work is nearly completed, a Thesis Advisory Committee meeting should be held for the presentation of a proposal to finish. The Thesis Advisory Committee will then, in conjunction with the student and advisor, implement a specific plan for the student to curtail laboratory work and begin writing the thesis using the timeline advised below. This will be done in accordance with each department or program.

The student should investigate the guidelines and deadlines for thesis preparation from the Division of Graduate Medical Sciences Office (Room L317). If you have questions please view completed theses that are present in many laboratories. Each student should discuss the expectations for the thesis with their advisor prior to writing the thesis. In particular the student should establish a general system for how drafts are to be submitted and what time frame will be required for review. It is expected that the first reader should be reasonably satisfied with the complete contents of the thesis within approximately 10 weeks from the beginning of the full time writing period. At this point the first reader will approve the submission of the thesis to the second reader. The second reader is expected to review the thesis within approximately 2 weeks. If necessary, at this time, the student and the two readers can plan a meeting to discuss the status of the thesis (particularly when there might be conflicting opinions). Once the thesis has been approved by the first and second readers, the thesis can be distributed to the full committee. The Thesis Dissertation Committee is given 2 weeks to review the thesis prior to the defense. The presentation of the thesis to the committee is not to be taken lightly and should be considered to be a "finished product" by the first reader.

Prior to scheduling a defense date, a dissertation outline must be completed (using the Division cover sheet), approved by the Thesis Advisory Committee, and submitted to the Department and Division office. The dissertation abstract and approval form must be signed by the research advisor, the Graduate Director, and the Chair of the Department, and these materials must be filed by the student in the Department and Division of Graduate Medical Sciences offices at least three weeks

before the defense. Students must obtain written approval of the dissertation by the first and second readers and distribute the final dissertation to the Thesis Advisory Committee at least two weeks prior to the defense. The defense will consist of an oral presentation of the research results open to all, and a separate dissertation defense meeting with the Dissertation Committee, which should immediately follow. Four out of five Dissertation Committee members must agree to pass the student. Once the Dissertation Committee has agreed to pass the student, he/she must submit a final copy of the thesis to the Department and the Division offices.

Below is a brief list of the sequence of events leading to the granting of the Ph.D. Almost all forms are available in the Division of Graduate Medical Sciences Office.

- Submit an outline, approved by the Thesis Advisory Committee, using the Division cover sheet to the Department and the Division.
- Submit an abstract, approved by the Advisor, Director of Graduate Studies for your department and the Chair to the Department and the Division at least 3 weeks prior to the defense.
- Submit a first and second reader approval form at least 2 weeks prior to the defense. (The first and second readers must approve the complete version of the thesis prior to scheduling the defense).
- Having completed the above, the defense may be scheduled. Please make sure you are advised of all specific departmental requirements.
- The Schedule of Exam form must be approved and submitted to the Department and the Division at least 2 weeks prior to the defense.
- A complete copy of the thesis must be given to each member of the Dissertation Committee at least 2 weeks prior to the defense.
- 4 out of 5 committee members must agree to pass the student.
- A final copy of the thesis must be submitted to the Department (1 copy) and the Division (2 copies on specific grade paper as described by Division staff).

On the page below is a form that can be used to document committee meetings. Each department may have their own form.

THESIS ADVISORY COMMITTEE MEETING REPORT FORM

Name of Student: _____

Meeting number: _____ Date: _____

Ph.D. Start Date: _____ Research Start Date: _____

Committee members present (identify chair):

Essential points presented by student:

Committee recommendations:

Committee concerns:

Student concerns:

Committee's overall impression of progress:

Date recommended for next meeting:

This form was filled in by _____
(date) (committee chair signature)

This completed form was discussed with _____
(student signature) (date)

CMB Faculty

Faculty belong to many departments and have many different interests. If you are interested in a person please go first to pubmed and read some of their articles and then contact the faculty person and set up a meeting to speak with them.

Carmela Abraham, PhD

Amyloid and inflammation in the brain during normal aging and Alzheimers disease

Xingbin Ai, PhD

Matrix dependent mechanisms that regulate extracellular signalling during embryogenesis and regeneration, functions of heparan sulfate editing enzymes (Sulfs) in the skeletal and nervous system

Christopher Akey, PhD

Structural biology of channels and chaperones

Kenneth Albrecht, PhD

Mechanism of human sex reversal and adrenal dysmorphogenesis, gonad development

Salomon Amar, DMD., PhD

Molecular and cellular events associated with inflammatory processes; emphasis is placed on the cytokine control of gene expression with potential applications into various animal models.

Gene Blatt, PhD

autism

J. Krzysztof Blusztajn, PhD

Acetylcholine synthesis and release; signal transduction by lipid messengers

Steve Borken, MD

Nephrology

Esther Bullitt, PhD

Protein structure and function by electron microscopy

Wellington Cardoso, MD.,PhD

Mechanisms that regulate lung development

Herbert Cohen, MD

Molecular basis of renal cancer, renal cystic disease and renal development

Richard A. Cohen, MD

Nitric oxide regulation of vascular cells, oxidative stress and atherosclerosis

Wilson Colucci, MD

Mechanisms that mediate myocardial remodeling and failure

John H. Connor, PhD

Determining how viruses interact with infected cell hosts, mechanisms controlling switch to viral translation, use of VSV in targeting destruction of tumor cells

Lawreen H. Connors, PhD

Role of protein structure in mechanisms of systemic forms of amyloidosis

Barbara Corkey, PhD

Metabolic regulation of signal transduction, calcium handling and fatty acyl CoA in pancreatic beta cells and fat cells

R.B. Corley, PhD

Chair of Microbiology

M. Carter Cornwall, PhD

Visual transduction and light adaptation in rods and cones of the vertebrate retina

Catherine E. Costello, PhD

Biopolymer studies based on development and application of mass spectral studies; glycobiology

Gerald Denis, PhD

Non-Hodgkin's lymphoma, Function of the BRD2 gene in normal and diseased B cells

Isabelle Dominguez, PhD

To characterize the mechanism of Wnt signaling in development and cancer. We are studying the function, regulation and mechanism of action of two components of the Wnt pathway: the serine-threonine kinases CK2 and GSK3beta.

Douglas Faller, MD., PhD

Molecular and cellular biology of virus and oncogene-transformed cells and tumors

Stephen Farmer, PhD

Tissue specific gene expression; role of matrix interactions and cell morphology transcriptional regulation

Lynsay Farrer, PhD

Bioinformatics approach to genetic risk factors for several familial neurodegenerative and other chronic diseases

Rachel Fearn, PhD

Molecular biology of human respiratory syncytial virus, control of virus gene expression and genome replication

Christopher Gabel, PhD

Signaling and neurobiology - development and application of femtosecond laser surgery and optical neurophysiology to the study of the nervous system of the nematode worm *C. elegans*.

Caroline Genco, PhD

Characterization of bacterial virulence factors produced by mucosal pathogens

Terrell Gibbs, PhD

Modulators of amino acid receptor function in the brain

Haiyan Gong, MD, PhD

Glaucoma and extracellular matrix

Rahm Gummuluru, PhD

Virus-host interactions in HIV-1 pathogenesis

Olga Gursky, PhD

Folding structure and stability of apolipoproteins

James A. Hamilton, PhD

Lipid/protein interactions and lipid/membrane dynamics

David Harris, MD, PhD

My laboratory investigates the molecular and cellular mechanisms underlying human and animal prion diseases. Our work has two broad objectives. First, we wish to understand how the cellular form of the prion protein (Pr^{PC}) is converted into the infectious form (Pr^{Sc}). Encompassed in this objective are efforts to elucidate the cellular localization and trafficking of both Pr^{PC} and Pr^{Sc}, the nature of their association with cell membranes, as well as the molecular features of the conversion process itself. Second, we want to understand how prions kill nerve cells.

Tarik Haydar, PhD

The Haydar lab uses cellular and molecular techniques to study mammalian forebrain development, specifically focusing on the neural stem cells and precursors in the neocortex and hippocampus. The lab also investigates the cellular and genetic mechanisms of developmental disorders including those underlying mental retardation in Down syndrome.

James Head, PhD

Regulatory role of high affinity intracellular calcium binding proteins

Andrew Henderson, PhD

Interested in investigating how cellular signals regulate HIV transcription and replication

Alan Herbert, MBChB, PhD

Gene discovery, genome wide screen to type high density of single nucleotide polymorphisms in families, identifying novel classes of coRNAs and their impact on alternative splicing of RNA

Carlos Hirschberg, PhD

Novel regulation of posttranslational modifications in mammals and yeast

Michael Hollick, MD., PhD

Physiology and molecular biology of skin and bone, vitamin D and peptide hormones

Kevin Jarrell, PhD

Molecular mechanisms of RNA splicing and catalysis

Matthew Jones,

Our research is focused on how AU-rich element binding proteins and microRNAs target cytokine mRNAs to control inflammation in integrated animal models of acute bacterial pneumonia.

Konstantin Kandror, PhD

Regulated vesicle traffic in different eukaryotic cells

Kathrin Kirsch, PhD

Molecular mechanisms important for tumor initiation and progression with interest on adapter proteins

Darrell Kotton, MD

Stem cell biology and gene therapy, embryonic lung development and repair

Neil Kowall, MD

Mechanisms of cell death in the central nervous system

Maria Kukurizinska, PhD

Protein N-glycosylation in growth and development

Shinichiro Kurosawa, MD.PhD

New therapeutics and novel diagnostics for patients using in vitro approaches, and exploring model systems, Sepsis, Inflammation, Thrombosis and Hemostasis.

Robert Lafyatis, M.D.

Regulation of sclerosis, member of Scleroderma Program

Matthew Layne, PhD

Transcriptional control of genes upregulated in vascular smooth muscle cells and fibroblasts in cardiovascular and pulmonary disease

William J. Lehman, PhD

Structural studies on actin filament function

Adam Lerner, MD

Apoptosis in lymphoid malignancies and role of adhesion-associated proteins in breast cancer anti-estrogen resistance

David E. Levin, PhD.

The Levin lab uses yeast as a model system for the molecular genetic dissection of stress signaling pathways. We are interested in the mechanisms by which fungal cells maintain the structural integrity of their cell walls in response to osmotic stress and other challenges. Our work is directed at the identification of potential anti-fungal drug targets in pathogenic species.

Chair Molecular Cell Biology BUSM Dental School

Weining Lu, PhD

The long-term goal of our research is to understand the molecular basis of congenital anomalies of the kidney and urinary tract (CAKUT). CAKUT is a family of diseases with a diverse anatomical spectrum, including kidney anomalies (e.g. renal dysplasia, duplex kidney, multicystic kidney, hydronephrosis), and ureteric anomalies (e.g. vesicoureteral reflux, megaureter, ureterovesical and ureteropelvic junction obstruction).

Zhijun Luo, Ph.D.

Regulation and function of Raf kinase and AMP-activated protein kinase, both of which have been implicated in cancer and other diseases

Assen Marintchev, PhD

Our work is focused on studying the architecture of the translation initiation complexes, the molecular mechanisms of key steps in the process, and their regulation. The long-term goal is to build a detailed mechanistic and quantitative model of translation initiation as a whole, and learn how to rationally manipulate the system for the purposes of cancer therapy and treatment of metabolic disorders. Two areas of particular interest are the coordination between start codon selection and ribosomal subunit joining and the regeneration of the eIF2-GTP:Met-tRNA_i complex.

Jay Mizgerd, ScD

Innate immunity, lung infections, transcriptional and post-transcriptional regulation of cytokines

C. James McKnight, PhD

Protein structure/function and folding using NMR

Monty Montano, PhD

Dr. Montano's laboratory is broadly interested in HIV pathogenomics, immune and muscle cell interactions and the effects of aging on these processes. Research initiatives in the Montano laboratory include 1) analysis of the interaction between host immune factors (e.g., macrophages) and muscle stem cell remodeling during normal muscle remodeling and in muscle wasting disease, 2) the molecular phenotyping of candidate genes in aging and 3) the identification of prognostic serum biomarkers for anabolic response.

Jeffrey R. Moore, PhD

Cytoskeletal dynamics and motor proteins

Gustavo Mostoslavsky, MD.,PhD

Stem cell biology and gene therapy; embryonic stem cell modeling of intestinal differentiation

George J. Murphy, PhD

Stem cells - hematopoiesis, megakaryocyte development, stem cell biology, and gene and cell-based therapies

Caryn Navarro, PhD

When members of the dynein complex (molecular motors) are mutated, loss of function of the dynein associated protein Lissencephaly 1 (Lis-1), leads to neurodegenerative disease due to a lack of neuronal migration. Lis-1 is important for RNA localization, cell division and nuclear migration in the Drosophila ovary, and neuronal migration in the mammalian nervous system. My goal is to understand the mechanisms of dynein directed molecular transport and how intracellular transport is affected by mutations in piRNA (piwi-interacting) pathway components.

Barbara Nikolajczyk, PhD

Activation of immunologically critical genes in context of chromatin, regulation of IL-1 beta gene transcription, inflammation in type 2 diabetes,

Matthew Nugent, PhD

Cell proliferation, growth factor-receptor interactions, proteoglycans, extracellular matrix

Maria Panchenko, PhD

Our broad long term goal is to determine how chromatin and factor modifications regulate DNA metabolism in normal and disease state.

Valentina Perissi, PhD

Transcriptional Regulation

Paul Pilch, PhD

Membrane trafficking and cell biology of insulin action

Nader Rahimi, PhD

Receptor tyrosine kinase regulation of angiogenesis and signal transduction

Maria Ramiriz, PhD

To identify the molecular mechanisms that drive the formation of different lineages of lung epithelial cells during development

Katya Ravid, PhD

Genetic and signaling mechanisms regulating blood cell development; vascular biology

Daniel G. Remick, MD

Inflammatory response; soluble mediators of inflammation, role of inflammatory response on tissue/organ injury and death

Ian Rifkin, MD

Association of autoantibodies to nucleic acids as potential activators of innate immunity, systemic lupus erythematosus

Douglas Rosene, PhD

Neurobiological basis of normal learning and memory in normal brain and in neurodegenerative diseases

Sayon Roy, PhD

Diabetic retinopathy, regulation of extracellular matrix

Neil Ruderman, PhD, D.Phil

Insulin action, gene expression and diacylglycerol protein kinase C in skeletal muscle

Shelley Russek, PhD

Gene expression in neurons, tissue specific promoters as targets for therapeutic

targets

Miklos Sahin-Toth, MD., PhD

Proteases and their inhibitors in the pathogenesis of pancreatitis/crystallography of mutated trypsinogens

David Salant, MD

Glomerular epithelial biology, proteomic analysis of components that constitute the glomerular filtration barrier

John C. Samuelson, MD., PhD

Pathogenesis and evolution of parasites that cause disease

Barbara Schreiber, PhD

Atherosclerosis and aortic smooth muscle cells, effect of atherogenic lipoproteins on proliferation and biosynthesis of collagens and apolipoproteins

John H. Schwartz, MD

Targeting of proteins in epithelial transport, renal tubular acidosis affect proton pump assembly and trafficking in inner medullary collecting duct cells

Barbara Seaton, PhD

Structure/function using x-ray crystallography and other biophysical/biochemical technologies

David Seldin, MD., PhD

Oncogenes and tumorigenesis as modeled in transgenic mice

Dir. of Amyloid Program

Jacqueline Sharon, PhD

Generation and use of polyclonal antibody libraries for therapeutics and diagnostics

Michael Sherman, PhD

Molecular mechanisms underlying role of heat shock protein Hsp72 in prevention of cell death

David Sherr, PhD Mechanisms through which environmental chemicals suppress immune apoptosis, molecular signaling leading to carcinogenic and spontaneous breast cancers

Barbara Smith, PhD

Changes in gene expression of connective tissue components associated with transformation and differentiation

Jean-Jacques Soghomonian, PhD

Neuroanatomy of the basal ganglia, neurobiological basis of motor control, sensorimotor and learning

Deborah Stearns-Kurosawa, PhD

Sepsis and pathophysiology of anthrax

Karen Symes, PhD

Role of cell-cell interaction in embryonic development

Andrew Taylor

Neuroimmunology and immune privilege

Sam Thiagalingam, PhD

Smad signaling and cancer metastasis; role of p53 in genome stability; genetic susceptibility and molecular markers of lung cancer

Phillip Trackman, PhD

Gene regulation of extracellular matrix diseases

Vickery Trinkaus-Randall, PhD

Regulation of receptors in cell migration and wound repair
Role of metalloproteases (MMPS) and heparin sulfate on Amyloid and its fibril formation,

Maria Trojanowska, PhD.

Program in Inflammatory Disorders: Characterization of animal models of fibrosis in the context of scleroderma. Our lab focuses on signaling events that lead to an overproduction of collagen and other extracellular matrix proteins.

Bob Varelas, PhD

To understand the molecular mechanisms underlying the relay of information between a cell and its surroundings/neighbors.

Gregory A. Viglianti, PhD

Molecular biology of HIV-1; role of virus-host cell interactions in pathogenesis

Kenneth Walsh, PhD

Signalling and transcriptional-regulatory mechanisms that control normal and pathological tissue growth in the cardiovascular system

Benjamin Wolozin, MD., PhD

Pathophysiology of neurodegenerative diseases;Alzheimers and Parkinsons, genetic models in cell culture

Zhi-Xiong Jim Xiao, PhD

Tumor suppressor genes in cell cycle, proliferation and differentiation

Qian Yu, PhD

Tyrosine phosphorylation, cell signaling, apoptosis and metastasis

Joseph Zaia, PhD

Structure and function of proteoglycans and glycosaminoglycans using mass spectrometry as a primary tool

Irina V. Zhdanova, MD., PhD

Role of endogenous factors secreted into the cerebrospinal fluid and/or blood circulation in sleep regulation; interested in the effects of these factors on sleep, cognitive performance and drug abuse

Vassilis I. Zannis, PhD

Mechanisms of transcriptional regulation of apolipoprotein genes in vivo and in vitro, transgenic mice, adenovirus-mediated gene transfer

R. Andrew Zoeller, PhD

Somatic cell genetics to define roles of lipids in stroke, myocardial infarction and neurodegenerative diseases

*Dr. Allen has moved to the Charles River Campus in the Department of Chemistry.

A list of previous minicourses

These are 1 credit courses that generally last 6 weeks and meet once per week for 2 hrs. They may be theory or practice based. All second year students are required to take the mini-courses in their second year. This is merely a list of past courses to give you a feeling of the diversity of the courses. They are given in the spring semester.

1997

V. Trinkaus-Randall

Cell Biology of Wound Healing

Barbara Seaton

Proteins: Form and Function

James Head

Karen Allen

1998 (Spring)

Peter Brecher

Mechanism of Angiotensin II Action

Mary Walsh

Biophysical Techniques in Cell and Molecular Biology

1998 (Fall)

Michael Holick

Translational Medicine: The Skin Connection

1999 (Spring)

David Larson

Gap Junctions: Connexins in Health and Disease

Jim Xiao

Cell Cycle and Cancer

1999(Fall)

Robert Moreland

Signalling and crosstalk in G-protein coupled receptors

2000 (Spring)

Andrew Zoeller

Somatic Cell Genetics

2000(Fall)

Nader Rahimi

Cellular Signal Transduction and Angiogenesis

2001 (Spring)

Carlos Hirschberg

The Fungal Cell Wall: Signaling, Differentiaion and

Pathogenicity

2001 (Fall)

Esther Bullitt

Electron Microscopy and Image Processing as tools for understanding Cellular Assemblies

2002 (Spring)

Sam Thiagalingam

Cancer Genomics

2002 (Fall)

Vickery Trinkaus-Randall

Imaging of Cells- Theory and Practice Thursday s 2-4 PM

starting October 24

2003 (Spring)

Joseph Ozer

Transcriptional Regulation

2004 (Spring)

Vickery Trinkaus-Randall

Imaging of Cells- Theory and Practice

Ron Corley

Transcription Regulation

2005 (Spring)

Vickery Trinkaus-Randall

Imaging of Cells: Theory and Practice

Kenneth Albrecht

A Mouse Embryonic Cell Model

2006 (Spring)

Vickery Trinkaus-Randall

Imaging of Cells: Theory and Practice

Jefferey Moore

Molecular Motors

2007 (Spring)

Vickery Trinkaus-Randall Imaging of Cells: Theory and Practice

Trinkaus-Randall and Schreiber Proposal Writing

2008 (Spring)

Vickery Trinkaus-Randall Imaging of Cells: Theory and Practice and Proposal Writing

2009 (Spring)

Vickery Trinkaus-Randall Imaging of Cells: Theory and Practice and Proposal Writing

2010

Trinkaus-Randall Imaging of Cells: Theory and Practice and Proposal Writing

