

# C A M B News from the

## Cell and Molecular Biology Graduate Group

### Admissions Up Date

Everyone's hard work has paid off CAMB's incoming class next fall will have 38 PhD students. The largest ever!

We want to welcome the following students who will be starting in June:

*Gina DeNicola,*  
Pennsylvania State University

*Peter Godlewski,*  
University of Notre Dame

*Eric Lazear,*  
Pennsylvania State University

*Katrina McGeehan,*  
Saint Joseph's University

*Christine Reid,*  
University of California, Santa  
Barbara

*Kristin Sinclair,*  
Willamette University, Oregon

*Jennifer Skirkanich,*  
SUNY, Stony Brook

### 2003 Recipients of the Saul Winegrad Award

Nathan Gaddis, *Ph.D.*  
*Investigation of the Role of VIF in the HIV-1 Life Cycle*  
Advisor: Dr. Mike Malim

David Kapfhamer, *Ph.D.*  
*Mutations in RAB3A Alter Circadian Period and Homeostatic Response to Sleep Loss in the Mouse*  
Advisor: Dr. Maja Bucan

Yiping He, *Ph.D.*  
*Dissecting Oncogenic Signaling by BCR/ABL and Notch*  
Advisor: Dr. Warren Pear

### CAMB Retreat

The annual retreat will be held this year at University of Pennsylvania Museum of Archaeology and Anthropology on October 9<sup>th</sup>, 2003



**Keynote Speaker:** *Dr. Elaine Fuchs* is interested in understanding the molecular mechanisms underlying development and differentiation of the mammalian skin epidermis and its appendages, and how these processes go awry in various human diseases of the skin, including genetic diseases and skin cancer. She utilizes mammalian epidermal stem cell culture and gene-knockout technology as model systems.

### The CAMB Annual Retreat will be October 9<sup>th</sup>, 2003

Dr. Fuchs is a Professor of Mammalian Cell Biology and Development at the Rockefeller University. She received her B.S. degree in chemistry from the University of Illinois and her Ph.D. degree in biochemistry from Princeton University. Her postdoctoral research was done with Howard Green at the Massachusetts Institute of Technology, where she began her interest in epidermal biology. Dr. Fuchs is known for her unconventional use of "reverse genetics," typically beginning with a protein and working her way to the underlying basis of a human genetic disorder. She has served as president of the American Society of Cell Biology and was the recent recipient of the Richard Lounsbery Award, the Cartwright Award, and the Cruikshank Award. She is a member of the American Academy of Arts and Sciences, the National Academy of Sciences, the Institute of Medicine of the National Academy of Sciences, and the Council of the National Academy of Sciences.

*If you are interested in volunteering to help with the retreat please contact Emily Damanskis, [edd2@mail.med.upenn.edu](mailto:edd2@mail.med.upenn.edu)*

## Fall Courses

### *BIOM 600: Cell Biology*

This course covers basic biochemistry and surveys topics of cell biology including: cell structure, compartmentalization and trafficking, signal transduction, cytoskeleton, membranes and membrane transport. K. Foskett, M, W, F (10:30 -12:00) discussion group F 9-10 or 1-2

### *CAMB 605: Cell and Molecular Biology First Year Seminar*

The seminar focuses on current and classic papers related to research topics of interest to the faculty of CAMB. Students learn to read and critically evaluate the scientific literature and get training in preparing scientific presentations. Multiple sections are taught by three faculty members from different programs within the Graduate Group. D. Epstein, T (1-4)

### *CAMB 512: Cancer Genetics and Biology*

The course will involve lectures and readings of important papers on cancer genetics, cancer cell growth, metastasis, angiogenesis and experimental therapeutics. W. Pear, A. Thomas-Tikhonenko, M. Carroll, M,F (1-2:30)

### *CAMB 532: Integrative Physiology -- Molecules To Disease*

This course aims to show how knowledge of cellular and molecular mechanisms can be integrated in an understanding of function at the tissue, organ and organism levels. It will begin with a description of the building blocks of a generic organ, a very brief survey of the major organ systems and their interrelationships, and an introduction to some of the specific techniques that will be discussed later. The bulk of the course, rather than attempting to be comprehensive, will explore selected topics in the areas of skeletal muscle, the heart and blood vessels, epithelial transport (kidney and GI tract) and endocrinology in moderate depth. It will use natural and experimental molecular defects and their phenotypes to illustrate integrated function. As well as forming the basis for the study of integrative physiology, it is intended for students of cellular and molecular biology and genetic engineering who will need to appreciate the roles of specific systems and molecules at higher levels of organization. M. Pring, M, W, F (3:30 - 5)

### *CAMB 539: Prokaryotic Molecular Genetics*

This lecture-based course will illustrate the power of genetics and molecular biology approaches in addressing a wide range of questions. This newly designed course will include in-depth coverage of specific topics in the following areas: bacterial pathogenesis, prokaryotic organisms as models for understanding universal processes, and areas of cell

biology and immunology that use prokaryotes as tools. The course includes discussion of primary research papers and is suited for Ph.D. students interested in an independent research career in the biological sciences. The course is open to first-year graduate students but if the student has no previous exposure to genetics or molecular biology, the instructor should be consulted first. M. Yuk T, TH (10:30 -12)

### *CAMB 597: Developmental Neuroscience*

This course provides a comprehensive introduction to the development of the central and peripheral nervous systems. Topics covered in the course include neurogenesis, cell fate determination, neurite outgrowth, synapse formation, activity dependent changes in connectivity, trophic interactions, programmed cell death, and regeneration of neural connections. Where appropriate, examples are drawn from both vertebrate and invertebrate systems. Each week there are two lectures and a small group discussion in which one or two important papers are analyzed in detail. J. Golden M, W, F (11-12)

## Students who have received PhD's this year

Brouha, Brook L.  
 Chen, Jennifer C.J.  
 Connolly, Sarah A.  
 DeAngelis, Robert A.  
 Dvorin, Jeffrey D  
 Foulds, Kathryn E.  
 Gaddis, Nathan C.  
 Harris, Marian H.  
 He, Yiping  
 Kapfhamer, David J.  
 Li, Gang  
 Lin, George  
 Maus, Marcela V.  
 McDonald III, Earl R.  
 Mitchell, Kyran O.  
 Netter, Robert C.  
 O'Brien, Christopher D.  
 Pericone, Christopher D.  
 Quinlan, Margot E.  
 Ramachandran, Rageshree  
 Rao, Prakash K.  
 Tanzi, Giancarlo O.  
 Tomescu, Oana  
 Unger, Meredith A.  
 Whiteman, Eileen L.  
 Yin, Melinda R.

## Students Win HHMI Predoctoral Fellowships

Michele Hickey and Natalie Bezman, CAMB first year students, both were awarded predoctoral fellowships from the Howard Hughes Medical Institute (HHMI). They were two of only 49 fellowships awarded nationally

## Students Members of the CAMB Executive Committee

Starting in July, there will be student representatives to the CAMB Executive Committee. Initially two students who volunteered, Kyle Mansfield and Michael Keeley will serve on the committee. Kyle for two years and Michael one. In the future we hope that there will be sufficient interest to fill these positions by election

## Admission Weekends 2004

It sure feels like we just finished up our last admissions season. But the next one is just around the corner.

The 2004 admission weekends will be:

January 22<sup>nd</sup>-24<sup>th</sup>

February 5<sup>th</sup> – 7<sup>th</sup>

February 26<sup>th</sup> – 28<sup>th</sup>

Put these dates on your calendar

## Fall Courses cont..

### *CAMB 601: Advanced Virology Seminar*

This seminar course deals with important concepts in viral-host interactions. Students will present seminars with the guidance of faculty members. R. Harty J. Bergelson M (3-5)

### *CAMB 608: Seminar in Regulation of Eukaryotic Gene Expression*

An advanced seminar course emphasizing the molecular biology and molecular genetics of transcription in eukaryotes. Based on current literature, the presentations and discussions will familiarize the student with present day technology and developing principles. Prerequisites: CAMB 539 and 555 and permission of instructors. T. Kadesch T (3 -5)

### *CAMB 610: Molecular Basis of Gene Therapy*

This is a team-taught, survey course that focuses on the basic science relevant to achieving efficient and effective gene transfer in animal models and humans for the treatment of disease. The course includes a unit devoted to a variety of vectors useful for gene transfer, with the remainder of the course devoted to the study of current gene therapy approaches using specific diseases as models. Prior background in biochemistry, cell biology, and molecular biology is essential. Aspects of organ system anatomy and physiology, virology and immunology that are relevant to the course material are included in the course. Because of the rapid movement in this field, specific topics vary somewhat from year to year. The course is designed for second year graduate students, however first year students may take the course with the course director's approval. Lecture format with discussion hours interspersed. There will be a take-home examination at the end of each of the three sections, each focusing on the material covered in that section. J. Wilson M W F (9-10)

### *CAMB 620: Molecular Mechanisms of Development*

The goal of this seminar is to foster discussion about general strategies used by cells and organisms to solve fundamental problems in development. This is not a survey course in Developmental Biology. Rather, we focus on an overarching theme or two over the semester, enabling us to define the issues central to each theme, and explore the attempts to uncover solutions using different model systems. Primary research papers are assigned for discussion each week, and all students are expected to contribute thoughtfully and energetically to the discussion. Fall 2003 Theme: *Stem Cells*: "Mystery, Potential, and Dilemma" We think of our bodies as groups of terminally differentiated cells that collectively carry out the needs for each of our tissues and organs. In an expanding number of tissues, multipotent or even pluripotent cells have been found to generate these terminally differentiated cell types. These are the stem cells, which have unique properties of self-renewal and longevity. This semester, we will explore these fascinating cells: what are they, how do they self-renew, what is their potential, both developmentally and medically. Finally, given their tremendous potential, we would like to touch on how one navigates the ethical dilemmas they pose. S. DiNardo T (10-12)

## Recent Papers from Students

*Students were asked for their recent publications,  
it publications were missed or you would like to be included in the next newsletter  
please email Meagan Schofer, mschofer@mail.med.upenn.edu*

Brouha B, Schustak J, Badge RM, Lutz-Prigge S, Farley AH, Moran JV, Kazazian HH Jr.  
Hot L1s account for the bulk of retrotransposition in the human population.  
Proc Natl Acad Sci U S A 2003 Apr 29;100(9):5280-5

Connolly SA, Landsburg DJ, Carfi A, Wiley DC, Eisenberg RJ, Cohen GH.  
2003. Structure-based mutagenesis of Herpes Simplex Virus Glycoprotein D defines three critical regions at the gD-HveA/HVEM binding interface.  
J. Virol. Accepted for publication.

Connolly SA, Landsburg DJ, Carfi A, Wiley DC, Eisenberg RJ, Cohen GH.  
Structure-based analysis of the herpes simplex virus glycoprotein D binding site present on herpesvirus entry mediator HveA (HVEM).  
J Virol 2002 Nov;76(21):10894-904

Gitler AD, Zhu Y, Ismat FA, Lu MM, Yamauchi Y, Parada LF, Epstein JA.  
Nf1 has an essential role in endothelial cells.  
Nat Genet 2003 Jan;33(1):75-9

Gladden AB, Diehl JA.  
The cyclin D1-dependent kinase associates with the pre-replication complex and modulates RB.MCM7 binding.  
J Biol Chem 2003 Mar 14;278(11):9754-60

Howard RM, Sundaram MV.  
C. elegans EOR-1/PLZF and EOR-2 positively regulate Ras and Wnt signaling and function redundantly with LIN-25 and the SUR-2 Mediator component.  
Genes Dev 2002 Jul 15;16(14):1815-27

Leatherman JL, Jongens TA.  
Transcriptional silencing and translational control: key features of early germline development.  
Bioessays 2003 Apr;25(4):326-35

Leatherman JL, Levin L, Boero J, Jongens TA.  
germ cell-less acts to repress transcription during the establishment of the Drosophila germ cell lineage.  
Curr Biol 2002 Oct 1;12(19):1681-5

Licata JM, Simpson-Holley M, Wright NT, Han Z, Paragas J, and Harty RN.  
Overlapping motifs (PTAP and PPEY) within the Ebola virus VP40 protein function independently as late budding domains: involvement of host proteins TSG101 and VPS-4.  
J Virol. 2003 Feb;77(3):1812-9.

Moody SE, Sarkisian CJ, Hahn KT, Gunther EJ, Pickup S, Dugan KD, Innocent N, Cardiff RD, Schnall MD, Chodosh LA.  
Conditional activation of Neu in the mammary epithelium of transgenic mice results in reversible pulmonary metastasis.  
Cancer Cell 2002 Dec;2(6):451-61

O'Brien CD, Lim P, Sun J, Albelda SM.  
PECAM-1-dependent neutrophil transmigration is independent of monolayer PECAM-1 signaling or localization.  
Blood 2003 Apr 1;101(7):2816-25

## Recent Papers from Students cont..

Pericone CD, Bae D, Shchepetov M, McCool T, Weiser JN.

Short-sequence tandem and nontandem DNA repeats and endogenous hydrogen peroxide production contribute to genetic instability of *Streptococcus pneumoniae*.

J Bacteriol 2002 Aug;184(16):4392-9

Shedlock DJ, Shen H.

Requirement for CD4 T cell help in generating functional CD8 T cell memory.

Science 2003 Apr 11;300(5617):337-9

Shedlock DJ, Whitmire JK, Tan J, MacDonald AS, Ahmed R, Shen H.

Role of CD4 T cell help and costimulation in CD8 T cell responses during *Listeria monocytogenes* infection.

J Immunol 2003 Feb 15;170(4):2053-63

Toby GG, Gherraby W, Coleman TR, Golemis EA.

A novel RING finger protein, human enhancer of invasion 10, alters mitotic progression through regulation of cyclin B levels.

Mol Cell Biol 2003 Mar;23(6):2109-22

## August Graduation Deadlines

*May 23<sup>rd</sup>*

- Final date to apply for Ph.D. and MS degrees in the BGS Office, 240 John Morgan Building.

*June 9<sup>th</sup>*

- Final date to apply with late fee of \$25 for degrees.

*June 30<sup>th</sup>*

- Graduate Office (Suite 322A, 3401 Walnut Street) will begin to accept dissertations and theses daily from: 10:00 AM – 11:45 AM and 2:00 PM – 4:00 PM. *Appointments are necessary.* To make an appointment, please call the receptionist at 215-898-7444.

*July 25<sup>th</sup>*

- Final date for faculty reports on acceptance of dissertations (Form 152), Master's examinations and research requirements, satisfaction of all degree requirements, and payment of all money owed the University.
- Final date for deposit of Master's theses and doctoral dissertations.

*August 8<sup>th</sup>*

- Degree awarded.

## Announcements from Students

*From Mike Keeley:* Many of your classmates have launched an effort to form a new student government for BGS students. This is a rare opportunity to get involved in building an organization from the ground up. Maybe you think that a BGS government should fund events that already occur, such as social events, camping trips, or ski trips in order to build a stronger community among our disperse population. Many other programs on this campus have surprisingly large budgets for these types of activities. Or, maybe you think a BGS government could take political action with regard to issues such as health care, gym fees, unionization, or taxes. Whether you have a cause or you just want a chance to network with BGS students and students in other government organizations please get involved because there is a lot of work to be done and we need your effort as well as your input. Pay attention to email announcements to find out about the next meeting, or contact Sam Murphy [smurphy@mail.med.upenn.edu](mailto:smurphy@mail.med.upenn.edu) or me [keeley@mail.med.upenn.edu](mailto:keeley@mail.med.upenn.edu) to find out how you can help.

## Future Newsletters

*We are planning on putting out a Fall Newsletter. If you have announcements that you would like to include, please contact Meagan Schofer, [mschofer@mail.med.upenn.edu](mailto:mschofer@mail.med.upenn.edu)*