

# THE CELL

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Molecular Biology and Cell Biology  
Northwestern University - Evanston, IL

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JANUARY 2002

## Upcoming Events

### BMBCB Departmental Seminars

Thursdays at noon,  
Technological Institute,  
Winter Quarter: Room L211  
2145 Sheridan Rd.  
Evanston Campus

Thursday, January 10

John Blenis, PhD  
Harvard Medical School

“Signal Transduction by Tyrosine Kinases and Ras: How Do ERK and RSK Do It?”

### CMIER Seminars in Biology and Chemistry

Seminars are at 4:00 PM at Children's Research Center  
2430 N. Halsted St.  
Wolfson Audit. (Conf. Rm. A)  
Chicago

Thursday, January 17

Karen Downs, PhD  
Associate Professor  
University of Wisconsin Madison, Medical School

“From Multipotency to Differentiation: Mechanisms of Vasculogenesis in the Murine Allantois”

Thursday, January 31

Corinne M. Silva, PhD  
Assistant Professor

University of Virginia Health System  
“Role of the STAT5 Transcription Factor in Breast Tumors that Overexpress the EFG Receptor”

### BioSurvival Skills

Workshop from 9:00 - 11:30 am  
Cook Hall (formerly Materials and Life Sciences Building), Room 3118 A/B  
Evanston Campus

Saturday, January 19

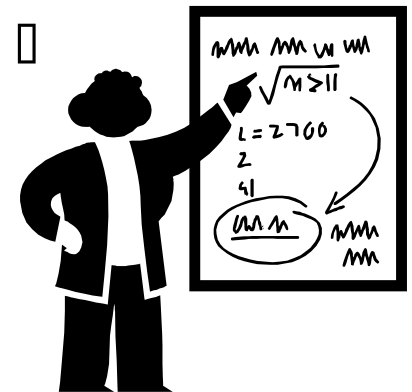
“Finding and Landing the Right Job: Job Hunting, Self-marketing, Interviewing Skills, and Job Negotiation”

## IBiS Winter Recruitment 2002

This year the Interdepartmental Biological Sciences Program (IBiS) will be having two major recruiting weekends on Friday & Saturday, February 22-23 and March 8-9. Approximately 20-30 students are expected on each of the two weekends. The IBiS recruitment weekends are intended to introduce potential students to the finer points of the graduate program, as well as invite them to experience the camaraderie among faculty and students.

Each weekend will kick off on Friday at 9:00 a.m., with breakfast in Cook Hall 3118 and an introduction to the IBiS Program. The students will then be divided into two groups and will be attending either: interviews and/or orientation.

During lunch the students will be divided into groups of four to discuss different research areas. Following lunch, the students will continue with more interviews and/or campus tours. At 3:30 p.m. all faculty, postdoctoral fellows, and graduate students are invited to a Reception/Poster Session in Annenberg Hall G02. Then at 7:00 p.m. we will be holding dinner at the Holiday Inn Evanston; all faculty, graduate students, and postdocs are welcome to attend.



Saturday, February 23rd and March 9th will start off with breakfast, followed by a minisymposium session. At 12:30 p.m. there will be a pizza party, which all current graduate students are welcome to attend.

During the next several weeks, IBiS faculty, staff and students will be called upon to assist with various aspects of the weekend. Please join us in welcoming our visitors to the IBiS recruitment weekends. Thank you in advance for your much needed participation.

### Contents

**Regular Features**  
Feature Story p. 1  
Upcoming Events, p. 1  
New People, p. 2  
Publications, p. 2  
Employment, p. 5-7  
Featured Lab, p. 8

# NEW PEOPLE

**Please extend a warm welcome to these individuals who have recently joined our department:**



**Koulm Guillaumie** will be a visiting pre-doctoral fellow in the Morimoto lab. Koulm is visiting from the Ecole Normale Supérieure in Paris.

**Sri Bandhakavi** will be a new postdoctoral fellow in the Morimoto lab. He recently obtained his PhD from the University of Georgia, Department of Biochemistry and Molecular Biology.

**Charu Ramakrishnan** is a new laboratory technician in the Mayo lab.

**Joshi Binita** is a new laboratory technician in the Jardetzky lab.

## New Publications

**Kroft, T.L.**, Patterson, J., Yoon, J.W., Doglio, L., Walterhouse, D.O., Iannacone, P.M. and **Goldberg, E.** (2001) GLI1 localization in the germinal epithelial cells alternates between cytoplasm and nucleus: Upregulation in transgenic mice blocks spermatogenesis in pachytene. *Biol. of Reprod.* 64:1662-1671.

**Goldberg, E.**, VandeBerg, J.L., Mahony, M. and Doncel, G.F. (2001) Immune response of male baboons to testis-specific LDH-C4. *Contraception* 64:93-98.



## Spotlight Event



### BioSurvival Skills

**Finding and Landing the Right Job: Job Hunting, Self-marketing, Interviewing Skills, and Job Negotiation**

Presented by:

**Dr. Richard Augspurger**, Drake Beam Morin, Inc., Sr. Consultant

Dr. Richard Augspurger received his PhD from Northwestern University is now an Executive Coach/ Career Management Professional at Drake Beam Morin, Inc. (DBM), a world leader in outplacement and related consulting services. At DBM, he assists clients in selecting careers that fit their ambitions, skills, and lifestyle preferences. He also helps them sharpen their job hunting skills - resume writing, initiating contact with potential employers, interviewing, and negotiating.

**DATE: Saturday, January 19**

**TIME: 9:00 - 11:30 am**

**LOCATION: Cook Hall (formerly known as Materials and Life Sciences Building), Room 3118 A/B**

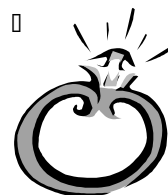
*Light breakfast will be served*

\*\*\*\*You must register if you plan to attend \*\*\*\*

Contact Suzanne Olds at 7-2369 or s-olds@northwestern.edu

BioSurvival Skills is sponsored by IBiS, NUIN, IGP, and BME

<http://www.northwestern.edu/neurobiology/BioOpps/BioOpps.html>



Congratulations to **Julie Ruffatti** in the MacDonald lab on her recent engagement!

Congratulations to **Professor Neil Welker** on his recent marriage!





## Time Sheet Policy Due Date Reminder

Effective January 1, 2002, time sheets that are ***not*** submitted ***on time*** to the business office, as posted, will require a written letter from the supervisor requesting an exception to the posted deadline. In order to receive payment on time, after submitting a late time sheet. You will also require your supervisor to provide a discretionary account to pay for a special \$45.00 processing fee to payroll, or you will be paid on an adjustment run that is generally one week past the regular pay date.

## Notice to Visa Holders

To receive important up-to-date information on visa information and INS regulations please subscribe below:

If you are not a DEPARTMENTS listserv subscriber and wish to subscribe, please send an email to [listserv@listserv.it.northwestern.edu](mailto:listserv@listserv.it.northwestern.edu). Leave the subject line blank! In the body of the message, write **SUBSCRIBE DEPARTMENTS first name last name**.

*Please direct any feedback regarding this or any other DEPARTMENTS listserv message to:*

Tony Dreyfuss  
International Office  
Program Assistant  
[a-dreyfuss@northwestern.edu](mailto:a-dreyfuss@northwestern.edu)  
847-491-5613

## BMBCB and NBP Calendar Year 2001

**Please submit to department accounting office by 5:00 P.M. on due date.**

### Bi-Weekly Time Sheets Due Date Schedule

Work Period	Due Date	Pay Date
Dec. 23 - Jan 05	January 3, 2002	January 11, 2002
Jan 6 - Jan 19	January 17, 2002	January 25, 2002
Jan 20 - Feb 02	January 31, 2002	February 8, 2002
Feb 3 - Feb 16	February 14, 2002	February 22, 2002
Feb 17 - March 02	February 28, 2002	March 8, 2002
Mar 3 - Mar 16	March 14, 2002	March 22, 2002
Mar 17 - Mar 30	March 28, 2002	April 5, 2002
Mar 31 - Apr 13	April 11, 2002	April 19, 2002
Apr 14 - Apr 27	April 25, 2002	May 3, 2002
Apr 28 - May 11	May 9, 2002	May 17, 2002
May 12 - May 25	<b>***May 20, 2002</b>	May 31, 2002
May 26 - June 8	June 6, 2002	June 14, 2002
June 9 - June 22	June 20, 2002	June 28, 2002
June 23 - July 6	July 2, 2002	July 12, 2002
July 7 - July 20	July 18, 2002	July 26, 2002
July 21 - Aug 3	August 1, 2002	August 9, 2002
Aug 4 - Aug 17	August 15, 2002	August 23, 2002
Aug 18 - Aug 31	<b>***August 26, 2002</b>	September 6, 2002
Sept 1 - Sept 14	September 12, 2002	September 20, 2002
Sept 15 - Sept 28	September 26, 2002	October 4, 2002
Sept 29 - Oct 12	October 10, 2002	October 18, 2002
Oct 13 - Oct 26	October 24, 2002	November 1, 2002
Oct 27 - Nov 9	November 7, 2002	November 15, 2002
Nov 10 - Nov 23	<b>***November 18, 2002</b>	November 27, 2002
Nov 24 - Dec 7	December 5, 2002	December 13, 2002
Dec 8 - Dec 21	<b>***December 16, 2002</b>	December 27, 2002
Dec 22 - Jan 4	January 2, 2003	January 10, 2003

**\*\*PLEASE NOTE EARLY CUT-OFF DATES DUE TO HOLIDAYS OR EARLY PAYDATES\*\***

### Temp and Work Study Time Sheets Due Date Schedule

Work Period	Due Date	Pay Date
Dec 16 - Dec 29	**December 21, 2001	January 11, 2002
Dec 30 - Jan 12	January 10, 2002	January 25, 2002
Jan 13 - Jan 26	January 24, 2002	February 8, 2002
Jan 27-Feb 9	February 7, 2002	February 22, 2002
Feb 10 - Feb 23	February 21, 2002	March 8, 2002
Feb 24 - Mar 9	March 7, 2002	March 22, 2002
Mar 10 - Mar 23	March 21, 2002	April 5, 2002
Mar 24 - April 6	April 4, 2002	April 19, 2002
April 7 - April 20	April 18, 2002	May 3, 2002
April 21 - May 4	May 2, 2002	May 17, 2002
May 5 - May 18	**May 13, 2002	May 31, 2002
May 19 - June 1	May 30, 2002	June 14, 2002
June 2 - June 15	June 13, 2002	June 28, 2002
June 16 - June 29	**June 24, 2002	July 12, 2002
June 30 - July 13	July 11, 2002	July 26, 2002
July 14 - July 27	July 25, 2002	August 9, 2002
July 28 - Aug 10	August 7, 2002	August 23, 2002
Aug 11 - Aug 24	**August 19, 2002	September 6, 2002
Aug 25 - Sept 7	September 5, 2002	September 20, 2002
Sept 8 - Sept 21	September 19, 2002	October 4, 2002
Sept 22 - Oct 5	October 3, 2002	October 18, 2002
Oct 6 - Oct 19	October 17, 2002	November 1, 2002
Oct 20 - Nov 2	October 31, 2002	November 15, 2002
Nov 3 - Nov 16	November 11, 2002	November 27, 2002
Nov 17 - Nov 30	November 28, 2002	December 13, 2002
Dec 1 - Dec 14	**December 9, 2002	December 27, 2002
Dec 15 - Dec 28	**December 20, 2002	January 10, 2003

**\*\*PLEASE NOTE EARLY CUT-OFF DATES DUE TO HOLIDAYS OR EARLY PAYDATES\*\***

## Borries Demeler: Analytical Ultracentrifugation: Data Analysis with UltraScan

On February 7 and 8 the Keck Biophysics Facility & the Department of Biochemistry, Molecular Biology and Cell Biology (BMBCB) will present a two day lecture with guest speaker, Borries Demeler, PhD. Dr. Demeler is from the University of Texas Health Science Center in San Antonio and has developed a linux-based software, UltraScan, which analyses analytical ultracentrifugation data. This technology is not only very powerful but also strikingly convenient. Lecture attendants will take away an understanding of analytical ultracentrifugation and how to apply it to their research. Additionally, participants will better understand what information can be learned and obtained from hydrodynamic experiments and, equally importantly, what cannot. Participants can practice on and utilize this software by downloading it onto their computer or by obtaining a user account on the Keck server, where the software is already installed.



### Lecture Agenda

#### Thursday, February 7<sup>th</sup> Theoretical session:

Introduction to transport processes:

- \* flow in the analytical ultracentrifugation cell
- \* sedimentation velocity experiments
- \* sedimentation equilibrium experiments
- \* dynamic light scattering
- \* experimental design

**Analysis of experimental data (in which computer simulations will be used to demonstrate important concepts):**

- \* model-independent analysis (AUC velocity, equilibrium)
- \* nonlinear least squares curvefitting to model
- \* model functions for AUC equilibrium, velocity and DLS experiments
- \* global analysis and statistical analysis

#### Friday, February 8<sup>th</sup> Software practice session:

In this session, users will learn how to use the UltraScan software package. Demonstrations include:

- \* assisting the design of sedimentation experiments using simulation
- \* editing of experimental data
- \* analysis of sedimentation velocity and equilibrium data
- \* Monte Carlo analysis
- \* Utilities



**This is a free event, however the number of participants is limited and sign-up is on a first come, first serve basis. Sign up by emailing your name/title/position, institution/department/supervisor, telephone number/Email and whether or not you will need a parking permit for Evanston campus to: Kate Spiegel (k-spiegel@northwestern.edu by Friday, January 25<sup>th</sup>, 2002.**

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at Northwestern University.

Editor: Laura C. Red Eagle

Please send all comments, questions and submissions to:  
The Cell, Northwestern University, Hogan Hall 2-100,  
2153 North Campus Drive, Evanston, IL 60208-3500  
847.491.5068, l-redeagle@northwestern.edu

# Employment Opportunities

**A list of available and desired jobs and other opportunities relevant to the Department of Biochemistry, Molecular Biology and Cell Biology. Full descriptions and requirements of positions can be found in the "Job Opportunities" file in Hogan 2-108 or online at: [www.biochem.northwestern.edu/career-dev.htm](http://www.biochem.northwestern.edu/career-dev.htm), select "Job Resource."**

## Biochemistry Visiting Professor

**Where:** Kalamazoo College - Kalamazoo, MI

**Brief Description:** Biochemistry to teach one course and associated laboratory for the spring 2002 term (April 1, 2002-June 12? 2002). Graduate degree in biochemistry or closely related field required. Qualified applicants must have aptitude for and interest in undergraduate teaching.

To ease preparation and to maintain consistency with other sections of this course offered throughout the year, the visiting professor will teach from the same textbook and use a similar syllabus and laboratory manual as the other courses. Kalamazoo College is a highly selective, nationally known, undergraduate liberal arts college.

Completed applications will be reviewed until the (unofficial acceptable), a detailed statement of teaching philosophy and goals, and two letters of recommendation (EOE) to:

Greg Slough, Chair  
Department of Chemistry,  
Kalamazoo College  
1200 Academy Street  
Kalamazoo, MI 49006-3295

## Medical Microbiology

**Where:** Miami University, Oxford OH

**Brief Description:** Miami University invites applications for a tenure-track position on its campus in undergraduate courses in medical microbiology for nursing students and epidemiology, establish and maintain an active research program and participate in university and community service. The specific area of research specialty is open; however, candidates with interests that complement research expertise within the department or the Hamilton biological science faculty (aquatic/terrestrial ecology) are particularly encouraged to students, located 16 miles from the main campus in Oxford, Ohio. Microbiology Faculty on the Hamilton Campus are full member of the Department of Microbiology, which is composed of 12 faculty, over 25 Ph.D/M.S. students, and approximately 300 majors. State-of-the-art facilities for molecular and microbiological research are located on the Oxford Campus. Start funds are available. EEO

Send curriculum vitae, statement of teaching and research interests, and arrange for three letters of recommendation to be sent to:

■ Dr. Robert H. Findlay  
■ Department of Microbiology  
■ Miami University  
■ Oxford, OH 45056

■ For more information:

■ Telephone: 513-529-5422

■ E-mail: [rfindlay@miavx1.muohio.edu](mailto:rfindlay@miavx1.muohio.edu)

■ Websites: [www.muohio.edu/~MBICWIS](http://www.muohio.edu/~MBICWIS)

## Conservation Biologist

■ **Where:** University of Alabama - Tuscaloosa, AL

■ **Brief Description:** The Department of Biological Sciences at The University of Alabama invites applications for a tenure-track, Assistant Professor position in Conservation Biology to begin August 16, 2002. The Department of Biological Sciences has an excellent and growing Aquatic Biology faculty whose collective strength is in freshwater ecosystem processes, ecology of freshwater flora, fauna, and microbes, as well as in vascular plant, fish, invertebrate and microbial systematics. We are seeking an individual interested in collaboration: with departmental faculty and with our growing interdisciplinary research groups, such as the Center for Freshwater Studies and its NSF IGERT Ph.D. program in freshwater sciences. We are particularly interested in attracting applicants whose research interests complement our existing research strengths and programmatic themes linking Aquatic Biodiversity and Ecosystem Studies. This position is one of four being filled as part of a competitive University Enhancement of the Aquatic Biology Graduate Program that also includes: the Bishop Professorship in Freshwater Biology and faculty positions in Fish Systematics and Aquatic Vertebrate Ecology. In addition, seven new Ph. D. fellowships are available through this program.

■ **Qualifications and Responsibilities-** Candidates must have a Ph. D. and post-doctoral experience, a strong Conservation Biology research background, effective communication skills, and a strong interest in graduate/undergraduate teaching. The appointee will be expected to develop an active, externally funded research program and to contribute to interdisciplinary graduate training through programs such as NSF-IGERT in

JANUARY 2002

Freshwater Sciences and University Graduate Enhancement in Aquatic Biology. Teaching will include graduate and undergraduate courses in the area of specialty as well as participation in core undergraduate offerings. Application Procedure- Each application should include curriculum vitae, a letter of application detailing research goals and teaching philosophy, three letters of reference, and a selection of reprints of the candidate's published original research in Conservation Biology. EEO Send applications to:

Conservation Biologist Search Committee

c/o Camille Crim, Department of Biological Sciences  
Box 870344,  
University of Alabama,  
Tuscaloosa, AL 35487-0344.

For more information visit our web site at <http://www.as.ua.edu/biolonv> or contact Dr. G. Milton Ward, [mward@bsc.as.ua.edu](mailto:mward@bsc.as.ua.edu).

### Biological Physics

**Where:** Carnegie Mellon University

**Brief Description:** The Department of Physics at Carnegie Mellon University invites applications for a position in biological physics. This search is the first in a departmental initiative in biological physics and can be at the senior level. We seek an outstanding researcher of proven scientific and leadership ability. Candidates should bring a vigorous research program with a strong experimental component in any area of specialization within biological physics, and must be able to lead the growth of a biological physics group. Carnegie Mellon values strong interdisciplinary interactions, so preference will be given to candidates likely to interact synergistically with others at CMU (see [www.cmu.edu](http://www.cmu.edu)).

Interested individuals should send a resume to:

Biological Physics Search Committee  
Department of Physics  
Carnegie Mellon University  
Pittsburgh, PA 15213  
EEO/AA

### Cancer Biology

**Where:** Biochemistry and Molecular Biology and the Feist-Weiller Cancer Center, Shreveport, LA

**Brief Description:** Applications are invited for a tenure-track faculty position at the rank of Assistant or Associate Professor. Applicants should have a doctoral degree, postdoctoral research experience in molecular approaches to cancer biology, and a commitment to excellence in both teaching and research. Faculty members are expected to develop strong, externally

funded research programs, teach both medical and graduate students, and contribute to a program within the Cancer Center. The Department and Center will assist with technical support and start-up funds. Special consideration will be given to individuals in proteomics/mass spectrometry or with research interests complementing those of the Department (chromatin structure and rearrangements, transcriptional and translational regulation, protein chemistry, enzymology, physical biochemistry, protein degradation by ubiquitinylation, gene expression during development, oncogenesis, signal transduction via kinases and phosphatases, regulation of cell growth and division, nutrition and free radicals, glucose transport.) and Center (cancer prevention, viral oncology, hematologic malignancies, and aerodigestive, prostate, and breast cancers). A strong clinical research unit and shared major instrumentation in the Center facilitates translational research. More information can be found on the Departmental (<http://www.softdisk.com/sites/bchem/>) and Center websites (<http://www.cancrcenter.lsumc.edu>).

Please send curriculum vitae, a brief statement of current and future research interests, and the names of three referees to:

Robert E. Rhoads, Ph.D., Professor and Head  
Department of Biochemistry and Molecular Biology  
Louisiana State University Health Sciences Center  
1501 Kings Highway  
Shreveport, LA 71130-3932

### Postdoctoral Positions

Development of rapid whole cell green fluorescent protein-based biosensors for amino acid bioavailability  
Salary: Negotiable, based on previous experience  
Description: A Texas Advanced Technology Program funded postdoctoral position is available at Texas A&M University. Primary research responsibilities for this position will be to develop a whole-cell fluorescent-based sensor specific for amino acid bioavailability by genetically modifying *Escherichia coli*. Specific research will involve use of green fluorescent protein and luminescent biotechnology to create whole cell biosensors for amino acids. Successful development of these biosensors will open the door for application of rapid methods to quantify other nutrients and lead to environmentally-friendly, cost effective nutritional management.

Contact for more details:

Dr. Steven C. Ricke  
101 Kleberg

JANUARY 2002

2472 Texas A&M University  
College Station TX 77843-2472  
TEL: 979-862-1528  
FAX: 979-845-1921  
Email: sricke@poultry.tamu.edu

**Postdoctoral Position**  
**Functional Screening of Salmonella Genome for Virulence Genes**

**Where:** Texas A&M University - College Station TX  
**Brief Description:** A USDA-NRI funded postdoctoral position is available at Texas A&M University. Primary research responsibilities for this position will be to conduct studies to investigate the genetics of virulence and pathogenesis function associated with foodborne *Salmonella* spp. The main goal of this project is to use a novel approach for screening the genome of *Salmonella typhimurium* for the virulence genes that are required for survival within live host animals. This approach will also be used to conduct a genome-wide comparison of the virulence genes for in vivo survival between different host animals or tissues. It is expected that these studies will provide insights into the molecular mechanisms governing the pathogenesis for foodborne *S. typhimurium* and also have practical food safety applications for the development of vaccine, antimicrobial agents, and preventive strategies.  
Contact for more details:

Dr. Steven C. Ricke  
101 Kleberg  
2472 Texas A&M University  
College Station TX 77843-2472  
TEL: 979-862-1528  
FAX: 979-845-1921  
Email: sricke@poultry.tamu.edu

**Education Coordinator**

**Where:** Museum of Science and Industry - Chicago, IL  
**Brief Description:** This individual will report to the K-12 programs manager. Primary responsibilities are coordination of the Museum's Learning Lab programs and content development, delivery and implementation of the Museum's off-site parental involvement program. Learning Lab duties include scheduling, training and supervision of facilitator staff, facilitation of Learning Labs, maintenance of labs and supplies and other duties to effectively manage the program.

Responsibilities for the parental involvement program consist of program content development and implementation, supervising and training program staff

and volunteers and building and maintaining relationships with parents, students and school administrators.

Other responsibilities may include the development and coordination of teacher professional development workshops, educational materials and resources and participation and involvement with all of the Museum's educational programs.

A Bachelor's degree in science and/or education, plus experience teaching in an informal and/or formal education environment is required. Background in and comfort level with science concepts a must. Excellent verbal and written communication skills are required, as is the ability to work on multiple projects and meet deadlines. Candidates must also exhibit enthusiasm, flexibility and openness to new ideas.

For information, please contact  
Alyson Naimoli  
Educator/Education Division  
Museum of Science and Industry  
57th Street & Lake Shore Drive  
Chicago, IL 60637  
(773) 684-9844, Ext. 2273  
FAX (773) 684-1591  
[www.msichicago.org](http://www.msichicago.org)

**Positions Wanted**

In June, 2002, I will gain Ph.D. in Biophysics in Health Science Center, Peking University. The research I am dedicated in is about the biophysical changes in leukemia cell lines (K562 and MEL) induced by tumor suppressor gene transfer (p16 and p53). To fulfill this project requires sound knowledge of molecular biology, biophysics and biomechanics. I am familiar with the methods of biophysics. Two years work in the lab of tumor molecular biology made me grasp the techniques of molecular biology and tumor cell biology. My background of mathematics allows me to do the measurement and computation of biomechanics. A part of my work has been published in J. Biomechanics, 2001, 34(11):1501-1509. If you need any further information, please feel free to connect to me.

Yao Weijuan

ywj@mail.bjmu.edu.cn  
Hemorheology Center  
Department of Biophysics  
School of Basic Medical Sciences  
Peking University, Health Science Center  
Beijing, 100083, China.

# Lab Feature



## Jonathan Widom

### Postdoctoral Fellow

Tim Cloutier

### Graduate Students

Lingyi Chen

Tracy Chin

Megan Hall

Gu Li

Joanna Miller

Kicki Thastrom

### Laboratory Technician

Linda Elias

### Undergraduate Students

Doreen Lee

Gabriela Vargas

### High School Student

Jennifer Chaplin

## Structure and Function of Chromosomes; Biophysical Chemistry of Proteins and Nucleic Acids

The long term goal of our research is to develop a concrete mechanistic understanding of gene regulation. We seek to understand how specific proteins and protein assemblies, acting in accord with the laws of physical chemistry, recognize and gain access to their DNA target sites in chromatin; and, conversely, we seek to understand how the nucleosomal organization of chromatin and higher order chromatin folding modulate the action these proteins and assemblies. We are attacking these questions from several different directions, including, among others: biophysical studies of purified proteins and reconstituted chromatin fragments *in vitro*; physical/mechanistic studies of gene regulation in living cells; and studies of the mechanism and biological consequences of DNA sequence-directed nucleosome positioning. Finally, in the course of these latter studies we have made new discoveries and begun asking new questions concerning the sequence-dependence to the structural and mechanical properties of DNA itself.

### *Selected References*

Anderson, J.D. & Widom, J. (2000), "Sequence- and Position-dependence of the Equilibrium Accessibility of Nucleosomal DNA Target Sites", J. Mol. Biol., 296: 979-987.

Richmond, T.J. and Widom, J. (2000), "Nucleosome and Chromatin Structure", Chapter 1 in Chromatin Structure and Gene Expression, Second edition, Workman, J.L. and Elgin, S.C., eds., Oxford University Press, Oxford, UK, 328pp.

Widom, J. (2001), "Role of DNA Sequence in Nucleosome Stability and Dynamics", Q. Rev. Biophys., in press.

THE CELL

## **NORTHWESTERN UNIVERSITY DEPARTMENT OF BIOCHEMISTRY, MOLECULAR BIOLOGY & CELL BIOLOGY**

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**E-mail:** bmbcb@northwestern.edu

**World Wide Web:** <http://www.biochem.northwestern.edu>