



NEWS FROM THE SCIENTIFIC DIRECTOR, NIEHS

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TRAINING AND MENTORING

The NIEHS Trainees Assembly (NTA) has compiled a list of responsibilities for trainees and mentors to provide the necessary support and resources to enable NIEHS trainees to foster and to promote their own careers. The following is a listing of trainee responsibilities (T) and research supervisor responsibilities (S).

Promote:

- (T) present work at both local and national meetings
- (S) support/encourage trainees to present their work at both local and national meetings
- (T) follow-up with professional contacts initiated by yourself or others
- (S) introduce trainees to colleagues
- (T) take advantage of opportunities that arise for giving seminars/talks
- (S) promote and encourage trainees to take advantage of opportunities that arise for giving seminars/talks
- (T) be proactive in seeking opportunities for experience and advancement,
- (S) consider trainees as co-authors for invited book reviews, review articles, etc.
- (T) volunteer in science related opportunities (professional organizations, meeting planning, etc.)
- (S) play an active role in trainee's interviewing process
- (S) make calls to appropriate individuals

Educate:

- (T, S) participate in and encourage participation in FRONTLINE Seminars
- (T, S) participate in and suggest topics for FRONTLINE Forum
- (T, S) series designed to stimulate interaction between trainees and principal investigators

- (T, S) opportunity for principal investigators to share their knowledge and experience with trainees
- (T) seek opportunities to review papers
- (S) encourage trainees to give/participate in FRONTLINE Seminars
- (T) participate in career development seminars/activities
- (S) provide opportunities for trainees to review papers
- (T) be willing to ask questions and to seek help/information from someone other than your research supervisor
- (S) encourage trainees to participate in career development seminars/activities
- (S) be willing to refer trainees to someone else for help/information

Evaluate:

- (T) maintain open communication with research supervisor regarding the feasibility of career goals and options
- (S) maintain open communication with trainees regarding career goals and options
- (T) be realistic about goals to become an independent scientific investigator
- (S) offer frank and candid assessment of trainee's potential to become an independent scientific investigator or offer other suggestions and possibilities
- (T) creatively consider career opportunities and options
- (T) formulate one-year and five-year career plans

Research Support:

- (T) initiate scientific discussions within lab meeting and/or on an individual basis
- (S) involve trainees in scientific discussions within lab meeting and/or on an individual basis
- (T) be aware of and utilize available resources
- (S) inform trainees of available resources
- (T, S) individuals with certain knowledge or expertise
- (T, S) core facilities
- (T, S) availability of transgenic mice
- (T) knowledge of human resource support availability
- (S) provide knowledge of human resource support availability
- (T, S) knowledge of ombudsman
- (T) maintain appropriate interaction between trainee and technical support staff
- (S) establish and verify appropriate interaction between trainee and technical support staff
- (T) develop supervisory skills through taking a lead role in your research group and/or training stay-in-school or summer students
- (S) offer opportunity for trainees to develop supervisory skills through training stay-in-school or summer students
- (S) involve trainees in establishing successful collaborations

PROFILE OF TENURE TRACK SCIENTIST

Yuji Mishina,
Laboratory of Reproductive and Developmental Toxicology

Dr. Mishina will head a research group in Molecular Developmental Biology in the Laboratory of Reproductive and Developmental Toxicology that will work on the characterization of signal transduction pathways important in mammalian development. His research focuses on the role of bone morphogenic proteins (BMPs) and BMP receptors in murine development. Dr. Mishina's research linked BMP2/4 signaling to a critical inductive role in mesoderm formation during gastrulation. His current research focuses on using BMP2/4 knockout mice and the BMP-receptor knockout mice to characterize BMP signaling pathways and associated downstream targets and gene responses. He will extend these studies to produce tissue specific BMP-receptor knockouts in chondrocytes and bone tissue. Dr. Mishina will use these various transgenic and knockout mouse lines to do comparative studies on Mullerian-inhibiting substance and BMP signaling pathways to determine their respective roles in mammalian development and to evaluate the activity of environmental chemicals in perturbing BMP signaling that results in developmental toxicity and teratogenesis.

Mishina, Y., Rey, R., Finegold, M.J., Matzuk, M.M., Josso, N., Cate, R.L., and Behringer, R.R. (1996) Genetic analysis of the Mullerian-inhibiting substance signal transduction pathway in mammalian sexual differentiation. *Genes Devel.* 10:2577-2587.

Mishina, Y., Suzuki, A., Ueno, N., and Behringer, R.R. (1995) Bmpr encodes a type I bone morphogenetic protein receptor that is essential for gastrulation during mouse embryogenesis. *Genes Devel.* 9:3027-3037.

SCIENCE EDUCATION PROGRAM

On April 27 the NIEHS and NCSU College of Forest Resources held the eighth Annual Environmental Careers Symposium which was attended by over 200 local high school students and teachers. Erica Quick, Hillside senior and four time science award winner at the state level, was voted the most popular speaker by symposium participants. One of Erica's state awards was based on the project she conducted during last year's Summers of Discovery Program while working in Dr. Michael Waalkes' laboratory. She will be returning to Dr. Waalkes' lab again this summer. Of the over 60 essays submitted in this year's contest, the first place winner's account of the 1987 extinction of the dusky seaside sparrow touched everyone in the audience. A highlight of the lunchtime break was NIEHS' own Mr. Environmental Wizard, Dr. Leroy Worth, who regaled students by revealing the chemistry underlying the effectiveness of diet soft drinks and the standard "breathalyzer" test.

The 1999 version of the Summers of Discovery Program is nearing the end of the selection period, with a record number of 800 applications available for selection. For the first year we have targeted participation of individuals with disabilities for the Summers of Discovery Program.

NIEHS has been notified that our BEST Program featuring our Hillside Molecular Biology Research and Training Center is a semifinalist in the 1999 Ford Foundation Innovations Awards Competition. The NIEHS entry, which is one of the 100 remaining contestants of the over 1600 applicants, is the only

semifinalist from NIH, one of four from DHHS, and one of two from the state of North Carolina. Fifteen of the finalists will receive a \$20,000 prize and ten will receive a \$100,000 prize.

AWARDS AND HONORS FOR DIR SCIENTISTS

The Secretary's Asthma Initiative Working Group of which Dr. Darryl Zeldin, LPP, is a member, has been selected to receive the Secretary's Award for Distinguished Service. This award will be presented at the DHHS 1999 Annual Honor Awards Ceremony on May 13, 1999. Congratulations to Dr. Zeldin.

Dr. Michelle Bennett (Laboratory of Molecular Carcinogenesis) received a travel award from the American Association for Cancer Research.

Ms. Jennifer Brad, (Laboratory of Molecular Carcinogenesis) had a winning presentation entitled "The Effects of DNA Damaging Agents on Cell Strains and Cell Lines Expressing Varying Degrees of BRCA1 Protein" at the Eighth Annual NC State University Undergraduate Research Symposium, April, 1999.

Ms. Sharon D. Bryant (Laboratory of Computational Biology and Risk Analysis) has been awarded a Japan Society for the Promotion of Science Fellowship to study the CD spectra of specific helical forming analogues of the delta opioid peptides deltorphins B and C in the Department of Medicinal Chemistry, Faculty of Pharmaceutical Science, Kobe Gakuin University, Kobe, Japan; Professor Y. Okada, sponsor, for 60 days (August-October 1999).

Dr. Rajendra S. Chhabra (Toxicology Operations Branch) was invited to speak at TestSmart: A humane and efficient Approach to SIDS Data, April 26-27, 1999, Fairfax, VA. He has also been invited to speak at the 3rd World Conference on Alternatives and Animal Use in the Life Sciences, Bologna, Italy, August 29 to September 2, 1999; and has been appointed a WHO Temporary Advisor to 5th Final Review Meeting for Concise International Chemical Documents, Stockholm, May 25-28, 1999.

Dr. Robert Chapin (Laboratory of Toxicology) has been awarded a Colgate-Palmolive Visiting Professorship at San Diego State University by the Society of Toxicology and has been named to the Endocrine Disruptor Screening and Testing Advisory Committee, of the EPA to make recommendations to the Agency on how to respond to the Congressional mandate to test every chemical in commerce for estrogenic activity.

Dr. John Cidlowski (Chief, Laboratory of Signal Transduction) has been appointed to the Organizing Committee of the International Congress on Endocrinology and named plenary speaker of the October, 1999 annual meeting of the French Endocrine Society.

Dr. Darlene Dixon (Laboratory of Experimental Pathology) has been selected to serve a three-year term (1999-2001) on the Continuing Education Committee of the Society of Toxicology.

Dr. Jan Drake (Chief, Laboratory of Molecular Genetics) has been elected to the Executive Board of International Genetics Federation and has been invited to speak at the Isaac Newton Institute for Mathematical Sciences meeting on Viral Evolution in Cambridge, England.

Dr. Diane Forsythe (Chief, Comparative Medicine Branch) was elected to the Board of Directors of the American College of Laboratory Animal Medicine (ACLAM) in April.

Dr. Elaine Hoffman (Biostatistics Branch) received both the Margolin Award for Best Dissertation in the Department of Biostatistics, University of North Carolina-Chapel Hill, and the Greenberg Dissertation

Award for Best Dissertation in the University of North Carolina School of Public Health for research performed while at the NIEHS.

Dr. James Huff (Office of the Scientific Director) has been selected the US representative on the International Scientific Work Group for the ARPA Emilia-Romagna region of Italy for evaluating projects concerning environmental health protection in collaboration with the Fondazione Ramazzini and was appointed to the scientific committee for the European Journal of Oncology.

Dr. Ronald P. Mason (Laboratory of Pharmacology and Chemistry) was appointed to the Advisory Board of the National Biomedical EPR Center at the Medical College of Wisconsin.

Dr. James Putney (Laboratory of Signal Transduction) is the keynote speaker at the 1999 Gordon Research Conference on Calcium Signaling (Henniker, NH, Aug. 8-13).

Dr. Paul Nettesheim (Chief, Laboratory of Pulmonary Pathobiology) will receive the first Alex Silberberg Memorial Award established by the International Group for the Study of Mucus, Cilia and Mucociliary Interactions, June 1999.

Dr. Dale Sandler (Deputy Chief, Epidemiology Branch) has been elected to membership in the American Epidemiological Society. Membership in the American Epidemiological Society is by invitation.

Dr. Rodney Shackelford (Laboratory of Experimental Carcinogenesis and Mutagenesis) received a Young Investigators Travel Award at the 1999 national meeting of the American Association for Cancer Research.

Dr. Stephen Shears (Laboratory of Signal Transduction) has been appointed as Deputy Chairman of the Editorial Board of the Biochemical Journal and as Co-organizer and Co-chair of an International Symposium on "Inositide and Inositol Phosphate Signaling" to be included in the 1999 meeting of the German Biochemical Society, to be held September 1999 in Hamburg, Germany.

Dr. Christina Teng (Laboratory of Reproductive and Developmental Toxicology) has been invited to be the keynote speaker of the Lactoferrin gene and recombinant proteins section of the Fourth International Conference on Lactoferrin: Structure, Function and Applications being held May 18-22, in Sapporo, Japan.

Dr. Kenneth Tomer (Laboratory of Structural Biology) has been appointed to the editorial board of the Journal of the American Society for Mass Spectrometry, invited to speak at the 1999 Field and Franklin Award Symposium at the American Chemical Society National Meeting in March, as well as at the Eastern Analytical Conference, November, 1998.

Dr. Clarice Weinberg (Chief, Biostatistics Branch) has been named statistical editor of the American Journal of Epidemiology.

Dr. Allen Wilcox (Chief, Epidemiology Branch) has been appointed to be an editor (for Reproductive Epidemiology) of the American Journal of Epidemiology.

Dr. Leroy Worth, (Laboratory of Molecular Genetics) was appointed to NIH Diversity Council, January, 1999.

Dr. Jerry Yakel (Laboratory of Signal Traduction) has been appointed to the Working Group to develop the implementation plan for the NIH Academy.

Dr. Darryl Zeldin (Laboratory of Pulmonary Pathobiology) has been appointed to the HUD Advisory Committee on Development of a Healthy Homes Initiative, the DHHS Secretary's Asthma Task Force, and the ACAAI/American Lung Association Advisory Committee on Development of a School-based Asthma and Allergy Screening Initiative.

DIR ENVIRONMENTAL GENOME PROJECT UPDATE

The Environmental Genome Project of DIR is actively engaged in searching for single nucleotide polymorphisms (SNP's) by resequencing known genes in a population of seventy-two normal individuals. Gene selection has been made from a list of nominations by DIR researchers as probable candidates of being sensitive to environmental agents. The first gene to be completed is from the P450 family of drug metabolizing genes; CYP2J2. This gene is suspected of being involved in Asthma, and is the research of Dr. Darryl Zeldin in the Laboratory of Pulmonary Pathobiology. Results from the 75 DNA's show three amino acid substitutions, which are located on the protein near the putative substrate recognition sites, alpha helicies, and beta structures, respectively.

Dr. Zeldin will collaborate with the DIR Modeling Laboratory to study the structure of the enzyme in order to determine whether any of these three variants are likely to result in altered activity or substrate specificity. Also, it may be possible to determine the frequency of these variations in the population at-large or in selected diseased populations.

GOVERNMENT ETHICS

Two recent court cases on the restrictions on the acceptance of gifts by executive branch employees has left some confusion. We were notified that these criminal cases have NO legal effect on the administrative rules gifts contained in the Standards of Ethical Conduct for Employees of the Executive Branch found in C. F. R. part 2635 subpart B. These gift rules implement fundamental principles of public service, namely that Federal officials and employees should not use their public office for their own personal gain or give the appearance that they are not carrying out their official duties with complete impartiality.

VISITING PROGRAM: O-1 – VISA APPLICATION PROCEDURES

At a recent Scientific Director's meeting, Fogarty reported recent difficulties in getting U.S. Immigration and Naturalization Service (INS) approval for O-1 visa applications. Applicants must be scientists of extraordinary ability, who are among the small percentage at the very top of their field and who have received sustained national or international acclaim, and letters of recommendation must support this.

TECHNOLOGY TRANSFER CONFLICT OF INTEREST GUIDELINES

A series of changes have been incorporated into the draft PHS Technology Transfer Conflict of Interest Guidelines. (1) The Office of Government Ethics (OGE) has clarified that diversified mutual funds are exempt from the conflict of interest provisions. (2) The definition of Financial Interest now includes stock options (whether in publicly traded or non-publicly traded companies), as well as stocks. Scientists

receiving royalty payments for a government-owned patent would be permitted to continue work related to the patent when it has been licensed to a CRADA partner. (3) A scientist can participate in a CRADA or other official duty activity and hold a maximum of \$5000 worth (aggregate total of stocks owned by scientist, spouse and minor children) of publicly traded stock in that company, unless an agency official determines that such holdings are a substantial conflict of interest because of the specific circumstances. The exact procedures for dealing with stock that accumulates a value in excess of \$5000 are under discussion. (4) A scientist can engage in an outside activity with a company holding a license for the scientist's invention provided that the activity is unrelated to the invention and there are no other conflicts of interest. The Scientific Directors voiced their approval for the modifications and suggested that some information on any limitations regarding pre-CRADA negotiations be provided to them.

ENVIRONMENTAL GENOME PROJECT AND ENVIRONMENTAL GENOMICS FACULTY

This new faculty was created following a recommendation from the DIR retreat to help keep interested researchers up-to-date with both intramural and extramural developments in the EGP and with the broader area of Environmental Genomics. After an initial organizational meeting the faculty has helped to host two seminars: a presentation by the Oak Ridge National Laboratory on their development of a genomic database of environmentally responsive genes (see <http://www.bdc.ornl.gov/egp> logon Username: egpus Password: reseq) and a presentation by Dr. Paul VanHummelen, from Lawrence Livermore National Lab, on Expression Analysis Using cDNA Microarrays.

The next meeting of the EGPEG Faculty will be Monday, May 24 at 3:30 p.m. in Room 101C where Dr. Jim Selkirk and Dr. Jose Velazquez will give updates on the intramural and extramural activities of the EGP.

Anyone wishing to join the EGPEG Faculty mailing list, or who would like to present at a faculty meeting should contact Dr. Jack Taylor.