

ORWH-SUPPORTED CAREER DEVELOPMENT PROGRAMS FY2006

A major part of the ORWH mandate is to develop opportunities and support for the recruitment, retention, re-entry, and advancement of women in biomedical careers. To accomplish these goals, ORWH held a public hearing and major career development workshop in 1992. Based upon the Report from this meeting, ORWH initiated a number of programs to nurture the participation and advancement of women in biomedical careers in order to ensure that interest and priorities in women's health remain at the forefront of our nation's research agenda. ORWH has developed strategies and programs to implement the recommendations made at this workshop and to address career issues, barriers, and concerns of women and minorities in science. These programs include support for mentored research training in areas related to women's health; support for biomedical scientists who have interrupted careers in research in order to fulfill family obligations to re-start their research careers; outreach to young girls and women who have an interest in pursuing careers in biomedical science; and collaboration with professional societies to encourage their support of the career advancement of women scientists. The Building Interdisciplinary Research Careers in Women's Health (BIRCWH) is under a separate report.

**Denniz Zolnoun, M.D., M.P.H., former BIRCWH Scholar at U NC
K23-HD053631-01**

Refining Diagnostic Criteria of a Pain Disorder: Vulvar Vestibulitis Syndrome

Vulvar vestibulitis syndrome (VVS), the most common type of chronic vulvovaginal pain, impairs the psychological, physical, and reproductive health of nearly 1 in 10 women at some point in their lifetime. The etiology of VVS is poorly understood.

Dr. Zolnoun is a well-trained clinician who completed a Clinical Fellowship in Advanced Laparoscopy and Pelvic Pain at the University of North Carolina at Chapel Hill and has a master's in public health epidemiology at UNC. Her long-term career goal is to study the pathogenesis of VVS and how different pathophysiologic mechanisms influence heterogeneity among various subgroups of women with this disorder. She plans to apply the meticulous methods of her clinical and epidemiology training to the basic study of VVS. This candidate has greatly expanded her knowledge of pain research and assessment methodology, and had the opportunity to conduct pilot studies supporting the proposed conceptual model for VVS while in the ORWH/Building Interdisciplinary Research Careers in Women's Health (BIRCWH) Program.

This research focus is in desperate need of talented researchers. The reviewers comment that the well conceived research plan is feasible, complements Dr. Zolnoun's previous training, and will add significantly to the literature on vulvar pain disorders. This award would provide a junior investigator with vital protected time to work closely with a team of mentors to facilitate and strengthen a foundation leading to a successful research career.

The budget is adequate for the PI's effort, training and research project. The proposed project has not been modified from the original application. This application touches on several of the

ORWH research priorities including education and career development of women in science, interdisciplinary research, diseases and conditions that affect women, and disease initiation focusing on prevention and treatment strategies.

This impressive junior investigator has the background that will allow her to complete the research project and advanced career development plan within the five-year time line. The Transition Award will provide an outstanding opportunity for Dr. Zolnoun to continue describing the disorder of VVS, and identify the underlying pathophysiological mechanisms that produce this condition. In so doing, this will allow a promising physician scientist to strengthen her research objectives in preparation for a productive career as an independent researcher

Keywords: career development and training, patient oriented research, clinical studies

REAP Award. Multi-year Funding: NICHD will provide funding for the out-years.

ORWH Research Priorities: (1) Overarching Themes for Research on Women's Health: Interdisciplinary Research; (2) Areas of Interest in Women's Health: Diseases and Conditions that Affect Women; (3) Special Emphasis Areas: Prevention and Treatment

OFFICE OF SCIENCE EDUCATION

For several years, ORWH and the Office of Science Education (OSE) have provided educational resources for pre-college students and others who are interested in science and health careers. The partnership sponsored two programs in fiscal year 2006. All videos are to be produced in DVD format in FY 2006.

A key component to judging educator interest in the ORWH/OSE programs is "traffic" on the OSE URL <http://science.education.nih.gov/women>. During this fiscal year, there were 932,700 successful hits to the URL. Of those hits, 23,535 were "unique hits", or an increase of over 11 percent from the previous year. Overwhelmingly, site visitors were from the United States; however, over 5 percent were from international email addresses (up 1 percent from fiscal year 2005). The popularity of the two programs makes it evident that they are filling an important need for material about careers for women in science.

Women are Scientists Video and Poster Series: *Colorful, informative videos and posters for middle-school students that feature women scientists. The series is designed to stimulate the interest of girls in science at a time when they are making decisions about the course choices that may affect their career options later. In the middle-school years, many girls are discouraged from pursuing advanced levels of study in math and science. This series is intended to make them aware of the many interesting and rewarding careers in the medical sciences and the educational requirements necessary to pursue them.*

Highlights: The *Women are Scientists* video series continues to be popular among students and educators. Because of the volume of requests for these videos, the supply of the first three video

kits has been exhausted, including the first reprinting of these kits. (A few are being held for emergency purposes.)

In fiscal year 2006, a total of 2,346 video kits were distributed. The bulk of these were *Women Scientists with Disabilities*; 2,327 of these kits were distributed, or a 6 percent increase over fiscal year 2005. Kits for the other three videos were distributed by special request only and included 7 *Women are Pathologists*, 6 *Women are Researchers*, and 6 *Women are Surgeons*. The reported usage included requests from middle and high school teachers, home school teachers, and libraries and for outreach activities and career counseling.

The OSE, with concurrence by ORWH, is in the final stages of reproducing the first three videos in DVD format. A cardboard wallet has been designed as a self mailer and the artwork approved. The master DVDs were revised several times, adding a splash page, chapters, and narrative text in addition to closed captioning. These significant changes involved additional funds, provided by OSE, and multiple reviews of the draft DVDs. The DVDs have been approved and 10,000 of each with their wallets are in final production.

The fifth video, *Women in Dental Research*, is in the final stage of development. All filming has been completed. The two major events that must occur before the video can be finished are: 1) an agreement between the NIH's and the celebrity's (Mika Boorem) attorneys on wording of the consent form so it can be signed, and 2) the approval of Dr. Vivian Pinn, ORWH Director, of the final cut of the video.

After the above approvals are obtained, the video's director will proceed to balance the music and sound and make any last minute changes that are requested. A splash page with video chapters has been added, so viewers can selection sections of the video. Narrative text has been added along with closed captions. The supplementary part of the video has been separated and will have a variety of websites that students can view for additional information on careers. The main portion of the video has been kept under 25 minutes, as was suggested by the middle teacher who provided feedback on the video after his classes had viewed it.

All artwork for the packaging, including the labels for the DVD and the poster, are complete. When the consent form is signed, the video is approved, and the final master DVD is complete, the printing and packaging can be completed.

All five videos are scheduled to be available via the internet. Any costs associated with completing this part of the project including annual archival costs will be borne by the OSE.

Women in Science Poster Series: *A series of free posters, with a companion website, aimed primarily at middle-school girls. The series emphasizes that science and medical research offer many different career paths, all of which are excellent opportunities for women. They feature careers in neuroscience, heart disease, and cancer research.*

Highlights: Posters are distributed primarily at the science teacher conferences attended by OSE staff and by mail through a request form on the OSE website. The posters have been especially popular at teacher conferences, where there is a dearth of materials that focus on women in science. In fiscal year 2006, 1,674 copies of each poster were distributed to teachers, State

departments of education, and local school systems; this was about a 10 percent increase over fiscal year 2005.

Based on the number of each poster left in stock, it appears that orders can be filled through next spring before the current supply is depleted. The OSE has initiated action for a third printing of the posters at its own expense.

ORWH/Office of Loan Repayment, OIR

The OLRS, Office of Intramural Research (OIR) is responsible for the development and management of the Undergraduate Scholarship Program for Individuals from Disadvantaged Backgrounds (UGSP). The UGSP provides scholarships to undergraduate students who have been competitively selected from a nation-wide pool of candidates. The OLRS awards an average of 15 scholarships each year. The ORWH has been very supportive of supporting female UGSP scholars since FY01. In FY06, ORWH supported six UGSP scholars – four new scholars, one in her second year of the program, and one in her third year of the program. The following is a summary report on the ORWH-sponsored Scholars.

Kelly R. Daigle, a senior majoring in biological sciences and biochemistry at North Carolina State University, received a second year of scholarship support through the UGSP. In the summers of 2005 and 2006, Kelly trained under Dr. Andrew Singleton in the National Institute on Aging's Laboratory of Neurogenetics. In 2005 she presented a poster at the NIH Poster Day titled, "Identification and Validation of the Transcriptional Responses Controlled by DJ-1," and in 2006 her poster was titled, "Toxicity of Parkinson's-Associated Chemicals on Neuronal Cells Following Induction of PINK1." Upon graduation Kelly plans to pursue an M.D./Ph.D. in neuroscience.

Yessenia M. Ibarra graduated in May 2006 from San Diego State University with a degree in cell and molecular biology. This summer at the NIH, she trained with Dr. Zu-Hang Sheng, Head, Synaptic Function Unit, National Institute of Neurological Disorders and Stroke. Her project, which she presented at the NIH Poster Day, was titled, "Molecular Characterization of Intracellular Trafficking of Plasma Membrane Syntaxins." This fall Yessenia began her Ph.D. in neuroscience at Harvard University with funding from the National Science Foundation. She plans to focus her research on acute spinal cord injury.

Gi'Eira Shaque Jones is a junior majoring in biology at Elizabeth City State University in North Carolina. Her project at the NIH this summer focused on developing retroviral gene therapy to correct genetic mutations that cause immunological disorders such as Wiskott-Aldrich Syndrome (WAS), and her poster at the NIH Poster Day was titled, "Development of New Gene Transfer Vector for Gene Therapy of Wiskott-Aldrich Syndrome." She conducted her research under the mentorship of Dr. Fabio Candotti, head of the Disorders of Immunity Section in the National Human Genome Research Institute. Gi'Eira is receiving additional scholarship support this year and plans to pursue a Ph.D. in genetics after graduation.

Hillery Claire Metz graduated from the University of Idaho in May 2006 with a double major in biology and microbiology. She conducted research this summer under the mentorship of Dr. Susan Wray of the Cellular and Developmental Neurobiology Section, National Institute of Neurological Disorders and Stroke. Using time-lapse video microscopy, she studied the migration of GnRH-1 neurons, which are essential for reproductive function in vertebrates. She presented a poster at the NIH Poster Day, and her project was titled, “Dynamics of GnRH-1 Neuronal Migration: The Role of Anosmin.” Hillery is continuing to train in Dr. Wray’s laboratory this year and then plans to pursue a Ph.D. in neurobiology.

Patrina Ann Pellett graduated from Pacific Lutheran University in Tacoma, Washington, in May 2006 with a double major in biology and chemistry. This summer she was mentored by Dr. Kenneth Kirk in the Laboratory of Bioorganic Chemistry, National Institute of Diabetes and Digestive and Kidney Diseases. She is studying capsaicins, a compound in hot chili pepper, and hopes that knowledge of its unique properties can be utilized to make topical pain relief creams. She presented a poster at the NIH Poster Day titled, “The Synthesis of Ring Fluorinated Capsaicins.” Patrina will continue training in Dr. Kirk’s laboratory this year and then plans to pursue a graduate degree in environmental chemistry.

Giselle Román Hernández received a third year of UGSP support to pursue her bachelor’s degree in chemical engineering from the University of Puerto Rico at Mayaguez. During the summer of 2004, she studied the expression and function of EGF receptors in human derived glial cell lines, as well as in cells differentiated towards a neuronal phenotype. She trained in both Dr. Alfred Johnson’s laboratory in the National Cancer Institute and Dr. Eugene Major’s laboratory in the National Institute of Neurological Disorders and Stroke and presented a poster at the NIH Poster Day titled, “Epidermal Growth Factor Receptor Expression during Neural Cell Differentiation.” She also presented a poster at the 2004 Annual Biomedical Conference for Minority Students in Dallas, Texas. Giselle returned to Dr. Johnson’s laboratory in the summers of 2005 and 2006 and presented additional posters both years with the same title. She graduated this spring and is now pursuing a Ph.D. in biological sciences at MIT.

The support of these undergraduate students by the ORWH has allowed them to focus on their studies and receive excellent research training and skill enhancement activities at the NIH. These students exemplify measurable development in their biomedical research careers, evidenced, in part, through their academic achievements and research accomplishments. The continued support of the ORWH has allowed the UGSP to select additional excellent students who receive training in the NIH intramural program. These students are superb representatives of the ORWH and the UGSP.

ORWH/OFFICE of INTRAMURAL RESEARCH and TRAINING

The ORWH provided the Office of Education, now the Office of Intramural Training and Education, with funding to support a series of programs for postdoctoral fellows and postbaccalaureate trainees. Additionally, the ORWH-FAES-NIH High School Student Summer Program, the Fellows Award for Research Education (FARE) Program, and the NIH- Israel Program for Israeli Predoctoral Biomedical Researchers were supported by ORWH.

Postdoctoral Fellow Programs

For Postdoctoral Fellows, these programs included (1) the Survival Skills Workshops, five half-day workshops that were presented by Dr. Michael Zigmond and Beth Fisher of the University of Pittsburgh and addressed the topics of resume writing, job interviewing, negotiating a job offer, grant writing, and establishing a laboratory; (2) a career series consisting of panels of experts in career fields for which a biomedical research background is essential, including biodefense, teaching, patents, and technology transfer. The speakers for the career series were all former NIH fellows, who are particularly effective with the fellows and can offer them up-to-date information and networking for the jobs; (3) courses on Speaking and Writing about Science, each a 4-5 week course offered three times per year; (4) an Advanced Course: Speaking about Science, offered twice last year, offered a forum for in-depth, individualized assistance to each participant; (5) the Job Fair 2005, held annually in conjunction with the NIH Research Festival, which brought in companies that have jobs available - more than 800 fellows participated; (6) the Improved Language Skills course, offered to first year Visiting Fellows, to enable them to improve their English skills, necessary for future professional development, which has proved so popular that we offered it twice. The curriculum covered scientific vocabulary, diction, articulation, verbal pace, and general guidelines for speaking before a group.

Postbaccalaureate Trainee Programs

For Postbaccalaureate trainees, the programs offered included (1) Career Enhancement Seminars designed to assist postbaccalaureate trainees as they prepare for careers in research, which include sessions on speaking about science, tips on scientific poster presentations, preparation for the MCAT and GRE tests, and the Myers-Briggs personality inventory; (2) the fifth annual Poster Day for NIH postbaccalaureate trainees, held early in May, that showcased a record total of 254 trainees, representing a wide range of institutes and centers, who presented their research accomplishments to the NIH scientific community; (3) the Premed Advising Workshop for postbaccalaureate trainees who plan to apply for admission to medical school, given by Paula Ashby, Assistant Director of Academic Services, University of Maryland Baltimore County, and Dr. Lee Ann Michelson, Assistant Director, Office of Career Services, Harvard University.

ORWH-FAES-NIH High School Student Summer Program

In the summer of 2006, the program had 24 new high school students and 13 returning students. There were 20 women and 17 men, including 24 minorities (7 African-Americans and 1 Hispanic man) and 1 hearing impaired student, coming from both public and private schools in Maryland, Virginia, and the District of Columbia. The summer started with an informational meeting on June 21 at which the students learned the history of the program, heard about the structure of the NIH, the Intramural Research Program, and ORWH, and received guidance on how to make research presentations. Each week from June 28 until August 2 the students met as a group for a lunch-time session at which 6-8 of them made presentations on their research to each other. Included in the audience were their preceptors, a few of the high school teachers in the HHMI-NIH Summer Teachers' Program, some of the advisors for the program (all members of the NIH scientific staff), and either Dr. Michael Gottesman, Deputy Director for Intramural Research or his Assistant Director, Dr. Joan Schwartz. The presence of these NIH senior scientific staff ensured a lively discussion of each presentation, and put each research project into a broader biomedical context. All the students also presented posters at the NIH Summer Student Poster Presentations day, August 3. They thus learned not only how to carry out a research

project, how to ask important questions and how to design experiments to answer those questions, but also how to communicate their results to other scientists.

Fellows Award for Research Education (FARE)

The FARE program was established by the NIH Fellows Committee in 1994 as a mechanism for promoting and recognizing research excellence in the intramural program. All graduate students and postdoctoral fellows with less than five years total research experience at the NIH are encouraged to submit abstracts to the FARE competition. The abstracts are evaluated anonymously by study sections composed of tenure-track and tenured NIH investigators, prior FARE winners, and other fellows, on the basis of scientific merit, originality, experimental design, and overall quality. The first authors of the top twenty-five percent of the abstracts in each study section are recognized as FARE winners. Each receives a \$1000 travel award to be used for presenting his/her work at a scientific meeting during the fiscal year. The ORWH contributed \$50,000 in FY2006 to support the Fellows Award for Research Education Program. There were 262 awardees made.

NIH- Israel Program for Israeli Predoctoral Biomedical Researchers

The program exposes pre-doctoral Israeli students at the Sackler Medical Faculty at Tel Aviv University (TAU) to the leading research programs in women's health at the NIH in cooperation with the Office of Intramural Research, Fogarty International Center (FIC), and ORWH through the Graduate Program Partnerships program. The program facilitates and enhances biomedical research in Israel, the Middle East and the US, establishes scientific collaborations between Israel and the NIH, and trains promising students for postdoctoral studies at the NIH.

A joint TAU-NIH committee chooses the best students to join the program each year, who then perform research in the Israeli laboratory (10 months/year) and the NIH laboratory (2 months/year), for three years. Each student is awarded a scholarship from the respective Israeli university and supported by \$10,000/year from NIH. In 2006, five students were supported.

The students that participated in the program have covered many aspects of cutting edge research with a special emphasis on women's health. Topics that were studied include breast cancer and its comparison to male-specific prostate cancer, sexual dichotomy in the expression of activity-dependent neuroprotective protein, bone metabolism and cancer, the genetics of hearing loss, human familial dyautonomia, the genetics of Down Syndrome, and the genetics of autism.

ORWH/ NATIONAL INSTITUTE FOR CHILD HEALTH AND HUMAN DEVELOPMENT FIBROID FELLOWSHIP

The ORWH/NIDCD Fibroid Fellowship was established to provide for the support of continued studies of the molecular derangements accompanying uterine fibroids. This fellowship was awarded to Chantal Mayers, who is participating in the Johns Hopkins University Graduate Partnerships Program. The Graduate Partnerships Program (GPP), established in 2000, links the NIH Intramural Research Program with PhD programs at U.S. and international universities.

Chantal Mayers is a graduate of Salisbury State University, Salisbury, Maryland. Chantal discovered her interest in research as an undergraduate. After graduation she sought and was awarded one of the highly competitive postbaccalaureate Intramural Research Training Awards with Dr. James Segars in NICHD. After doing research with Dr. Segars, and colleagues at the Uniformed Services University of the Health Sciences for three years, Chantal joined the Johns Hopkins Partnership to pursue her PhD. She has elected to continue working with Dr. Segars for her dissertation based on her continued interest in the research of his lab.

In this fellowship, Chantal Mayers will study the factors that contribute to fibroid cell growth, with the assumption that understanding these factors is a necessary step toward rational development of treatment for fibroids that might bypass the creation of medical menopause. She will be examining and characterizing the molecular features of mechano-transduction signaling in fibroids, compared to normal uterine tissue. Specifically, the coupling of mechano-transduction signaling to the small GTP-binding protein Rho is poorly understood, and elucidation of the altered signaling in fibroid tissues is relevant to mechano-transduction in general. It is clear that mechanical signaling occurs in normal uterine tissues, since the uterus is a contractile organ that leads to labor and birth.

INTRAMURAL WOMEN'S HEALTH FELLOWSHIPS IN INTERDISCIPLINARY WOMEN'S HEALTH RESEARCH

ORWH and the NIH Intramural Program for Research on Women's Health (IPRWH) announced the selection of the first recipients of the NIH Women's Health Fellowships in Intramural Women's Health Research. This intramural program is supported jointly by ORWH and the Office of Intramural Research (OIR). The Fellowships are funded through the Foundation of the NIH. The two fellows, Suzanne C. O'Neil, Ph.D., University of North Carolina (UNC) Lineberger Comprehensive Cancer Center and Shannon K. Laughlin, M.D., Loyola University, recently began working with their NIH components.

The Shared Postdoctoral Fellowship is supported through a donation from Batelle and is awarded to Suzanne C. O'Neil, Ph.D. Dr. O'Neil has examined the emotional and behavioral responses of women seeking genetic testing for BRCA1/BRCA2 breast and ovarian cancer susceptibility genes. "The Women's Health Fellowship provides a unique opportunity for a postdoctoral scientist," stated Dr. O'Neil. "The resources provided by the Fellowship will allow me to investigate my own research questions concerning individualized preventive medicine based on genetic risk under the mentorship of the faculty of the National Human Genome Research Institute's (NHGRI) Social and Behavioral Research Branch and the National Cancer Institute. It will provide an excellent foundation for my career as a clinical scientist." Dr. O'Neil obtained her Ph.D. in Clinical Psychology from the University of Delaware and did a clinical internship in behavioral medicine at the Medical University of South Carolina. She has been a postdoctoral fellow at UNC's Lineberger Comprehensive Cancer Center.

The Clinical/Translational Fellowship is funded through a donation from AstraZeneca and is awarded to Shannon K. Laughlin, M.D. Dr. Laughlin is completing her final year of residency in Obstetrics and Gynecology at Loyola University. "During the course of my last year at Loyola, I developed a particular interest in fibroids (benign tumors in the walls of the uterus) and noted the

difference between African American and white patients in prevalence and severity of fibroids,” said Dr. Laughlin. “The Women’s Health Fellowship will enable me to enhance my statistical and epidemiological skills for future research.” Dr. Laughlin is working with the Epidemiology branch of the National Institute of Environmental Health (NIEHS) in Research Triangle Park, North Carolina. Her research plan is to identify factors that place women at high risk of developing fibroids and to discover if early identification and treatment of high-risk women, or perhaps preventive measures, will reduce the need for surgery.

NIH DIRECTOR’S PIONEER AWARD (NDPA)



The NDPA is designed to support individual scientists of exceptional creativity who propose pioneering approaches to major challenges in biomedical and behavioral research. The term “pioneering” is used to describe highly innovative – potentially transformative – approaches that have the potential to produce an unusually high impact, and the term “award” is used to mean a grant for conducting research, rather than a reward for past achievements. Biomedical and behavioral research is defined broadly in this announcement as encompassing scientific investigations in the biological, behavioral, clinical, social, physical, chemical, computational, engineering, and mathematical sciences. The NDPA is meant to support individuals who intend to pursue new research directions that are not already supported by other mechanisms. The program is not intended simply to expand the funding of persons already well supported for a particular project.

In FY2006, ORWH provided full funding to one of the NDPA recipients, Rosalind A. Segal, M.D., Ph.D. of the Dana-Farber Cancer Institute. She is an associate professor of neurobiology at Harvard Medical School and a member of the Department of Pediatric Oncology at the Dana-Farber Cancer Institute. Segal received a Ph.D. in cell biology from Rockefeller University in 1985 and an M.D. from Cornell University Medical College in 1986. Her laboratory focuses on the biology of brain tumors by probing the complex molecular machinery of the developing brain. Segal’s research aims to understand the mechanisms critical for normal development of the nervous system and how deregulated proliferation, migration, and survival of cells can cause brain tumors and other neurological diseases. She will use her Pioneer Award for genetic and biochemical studies to identify the way complex sugars work to maintain neural stem cells in the developing and adult brain. Her prior honors include the Klingenstein Fund Robert Ebert Fellowship and a fellowship from the Claudia Adams Barr Program in Innovative Basic Cancer Research.

MINORITY FACULTY STUDENT PARTNERSHIP PROGRAM (MFSP)

The goal of the Minority Faculty Student Partnership Program is to train minority students and faculty members in the latest principles and techniques of biotechnology. Through lectures and “hands-on” laboratory experience, each participant gains insights and hands-on experience regarding the current thrust of biotechnology. This newly gained information is then taken back and integrated programs at their respective home institution. Faculty members also foster the implementation of minority outreach programs at their respective institutions based on this program’s design.

The Bio-Trac program is an ongoing educational program sponsored by the Foundation for the Education in the Sciences, Inc. at the NIH that provides a series of one-week lecture and “hands-on” laboratory training workshops in different areas of biotechnology that are topical and in demand in the sciences. Bio-Trac has provided instruction to over 9,000 scientists in the last 20 years.

In 2006, ORWH supported two Bio-Trac workshops for the Minority Student Faculty Partnership Program Initiative. These were the Cellular and Molecular Immunology Workshop in May-June 2006 and the Mammalian Cell Culture Methods and Principles of Stem Cell Technology Workshop in September 2006. Twenty-four participants from 11 different colleges and universities participated in these workshops.

NIH/ NATIONAL MEDICAL ASSOCIATION PARTNERSHIP TRAVEL AWARD PROGRAM

Sine 1998, the NIH and the National Medical Association (NMA) partnership committee has worked collaboratively to provide travel awards to support residents and fellows interested in academic medicine to attend the Annual Convention and Scientific Assembly of the NMA. The Awardees participate in a special two day academic skills workshop held in conjunction with the Annual Convention and Scientific Assembly. The topics of the workshop range from how to write a grant to time management skills.

The intent of this award is to enhance the potential careers of residents and fellows of all medical and surgical specialties interested in an academic career, and secondly, to encourage research in disease areas that disproportionately impact the health of underserved communities. The NIH anticipates that through this scientific opportunity, a greater number of physicians from communities that are underrepresented in science will enter into and remain in academic research positions.

The applicant must be a member of nationally underrepresented group in biomedical or behavioral research and the applicant must have a strong interest in academic medicine. A special evaluation committee composed of NIH professional staff and NMA members evaluates and assesses each application. The committee makes recommendations for awards based on the selection criteria and policies and provisions of the NIH governing administrative awards.

ASSOCIATION FOR WOMEN IN SCIENCE 13TH ANNUAL SEMINAR SERIES

The Association for Women in Science (AWIS) is dedicated to achieving equity and full participation for women in science, mathematics, engineering and technology. The Bethesda Chapter of AWIS was formed in 1991 and has grown to over 150 members. Its members are actively engaged in scientific research, education, administration and policy activities, and are employed in federal agencies, academia, business, and non-profit organizations.

In FY2006, ORWH provided support for the 13th Annual Seminar Series, Strategies for Success in Science. Seminars included “Successful Career and Family: How do you Make it all Work?” and “The Challenge of the Grand Challenges: A Career in Global Health Research”, among others.

AMERICAN SOCIETY FOR CELL BIOLOGY WOMEN IN CELL BIOLOGY WORKSHOP

Women in Cell Biology (WICB) is a long-standing committee of the American Society for Cell Biology (ASCB). WICB provides year-round to provide career support and advice. They respond to reports of discriminatory practices, offer a speaker referral service to help program organizers identify women speakers, and produce monthly columns for the ASCB Newsletter. In addition, WICB has a traditional presence at the American Society for Cell Biology Annual Meeting, providing networking and workshop opportunities. This year, ORWH provided funding to support the Workshop, “Developing Leadership Skills” which will be held at the 46th Annual Meeting on December 9, 2006 and led by the WICB committee.

TRAINING PROGRAM IN HEALTH POLICY FOR BIRCWH FELLOWS

ORWH developed the Building Interdisciplinary Research Careers in Women’s Health (BIRCWH) Program as an institutional career development award. BIRCWH supports research career development of junior faculty members who have recently completed clinical training or postdoctoral fellowships, and who are pursuing basic, clinical, translational and/or health services research relevant to women’s health.

This program was designed to provide BIRCWH scholars with a solid understanding of the health policy legislative process in Washington. The training was a day-long event in November 2006, conducted by the George Washington University Department of Health Policy Faculty. Congressional and administration staff members will also provide instruction to the scholars.

**WOMEN'S REPRODUCTIVE HEALTH RESEARCH CAREER (WRHR)
DEVELOPMENT PROGRAM (RFA HD04-014)**

A total of 117 scholars have been appointed to the program since 1998. Since June 2006, 33 new scholars have been appointed to the program, 17 appointed in the 2004 WRHR program sites and 16 in the 2005 sites. The University of Cincinnati College of Medicine WRHR Program hosted the May 2005 WRHR Scholars' Research Symposium and Directors' Meeting. Wayne State University WRHR Program in Detroit hosted the June 2006 WRHR Scholars' Research Symposium and Directors' Meeting. The next meeting will be hosted by the Oregon Health Sciences University WRHR Program in Portland, Oregon in May 2007. A new national WRHR website is hosted by the University of Rochester WRHR Program: <http://www.wrhrscholars.org/>.

For FY 2006, ORWH funded 10 Centers:

(1) 2 K12 HD001255-06

Robert L. Barbieri, M.D.

Brigham and Women's Hospital/Harvard Medical School

Title: Development of Scholars in Ob-Gyn for the 21st Century

This continuing program builds on a long tradition of investigation and teaching in women's reproductive health. Dr. Barbieri has put together an outstanding plan that will make available biomedical resources in the extensive Harvard-affiliated system. The didactic component along with the clinical breadth and biomedical research capabilities of the system will provide a rich foundation for career development. Individualized plans are personalized for each scholar and could include enrollment in Masters or PhD programs. In particular, assignment to one of three career tracks based on the scholar's background can only optimize a quality research experience. Mentoring from both a research and academic career advisor make-up a cohesive plan to solidify career development. Strengths include the five core strategies and key functional components that leverage the full potential of research training to ensure successful career development of ob/gyn physician scientists.

(2) 2 K12 HD001258-06

John C. Hauth, M.D.

University of Alabama at Birmingham

Title: Ob/Gyn Faculty Research Career Development Program

This renewal application is based on a research infrastructure that can accommodate and sustain an independent program dedicated to future generations of physician scientists. Dr. Hauth plans to include the program as a division within the Center for Research in Women's Health, thereby allowing scholars access to research programs and senior mentors. The Center's mission to maximize educational opportunities complements the institution's plan to provide a resource-rich environment for research training. This application offers a formal structured pathway by which entry-level or advanced scholars at different levels of development and expertise can be expected to acquire research skills appropriate to their ultimate goal of becoming independent investigators. A major strength is the critical mass of senior academicians with enhanced

interdisciplinary research skills to assist in the development of physician scientists capable of sustaining independent research careers.

(3) 2 K12 HD001259-06

Thomas R. Moore, M.D.

University of California San Diego

Title: Reproductive Sciences Research Career Development Center

This ongoing proposal includes a flexible two-phase program to accommodate the needs of potential scholars with a broad range of scientific backgrounds and experience. Dr. Moore plans to increase the opportunities for creative interdisciplinary approaches to diseases by bringing together basic scientists and ob/gyn clinical collaborators interested in the application of research advances specific to women's reproductive health. Scholars who enter this program have access to clinical translational and basic science collaborators with expertise in applying scientific findings to bedside medicine. A major strength is the Mentoring Committee, which represents a unique approach to provide scholars with an optimal research environment, and assists in sharpening their research skills as they move toward independence. Required didactic courses and opportunities for advanced degrees round out the training experience.

(4) 2 K12 HD001332-06

James R. Woods, M.D.

University of Rochester

Title: Rochester Women's Reproductive Health Research Program

This renewal application presents an outstanding pathway for ob/gyn physician scientists to commence their research careers. Scholars entering this program complete a basic core of didactic courses emphasizing clinical research design, data processing and analysis, writing and ethics. Dr. Woods believes that a core curriculum of knowledge, skills and research perspectives will be important in clinical investigation and practice. With this in mind and taking into account the experience of the scholars, the program offers two individualized tracks: laboratory science and clinical science. Both tracks will provide scholars with the underpinnings needed to maximize the benefit from mentored research. The environment offers a longstanding multidisciplinary research focus, including a pool of mentors who are leaders in their respective fields and experienced educators. This approach to training is the cornerstone of a program that has been successful in training physician scientists.

(5) 1 K12 HD050128-01

Joe L. Simpson, M.D.

Baylor College of Medicine

Title: Baylor WRHR Program

This application offers career development for ob/gyn clinicians pursuing molecular research related to women's reproductive health. The program is a partnership involving M.D. Anderson Cancer Center that offers scholars greater access to clinical resources and core laboratories, as well as a full range of training opportunities to facilitate a seamless transition to research independence for scholars. A major strength includes the mentoring program that complements a

formal didactic curriculum consisting of five required courses. Dr. Simpson has arranged for each scholar to have two mentors and an individualized training plan expressly designed for their professional backgrounds. These are important strengths of the program. The primary research mentor's role is to secure the development of solid investigative expertise. The secondary ob/gyn academic mentor's responsibilities are to maintain the clinical perspective and monitor academic progress.

(6) 2 K12 HD001271-06

Ronald S. Gibbs, M.D.

University of Colorado Denver/HSC Aurora

Title: Colorado WRHR Career Development Center

This continuing program has a flexible plan focused on basic cellular and molecular mechanisms and translational research for scholars seeking an independent research career in women's reproductive health. Dr. Gibbs has established milestones for advancement in the program, including an ongoing dialogue with mentors, successfully completing a model curriculum for scholars with varying degrees of experience, and writing research proposals. The institution is developing several core laboratory facilities to assist scholars in the design and implementation of their research projects. The combined expertise of these cores will provide the infrastructure for a multifaceted approach to the challenges of career development. A major strength of the program is the new interdisciplinary Graduate Program in Reproductive Science that is expected to foster interactions among scientists and clinicians and offers scholars exposure to multiple disciplines in a rich intellectual environment.

(7) 1 K12 HD050113-01

Robert C. Cefalo, M.D., Ph.D.

University of North Carolina - Chapel Hill

Title: WRHR Career Development at UNC

This application builds on the institution's climate of research growth and commitment to patient-oriented translational research. Dr. Cefalo has a program with a long tradition of preparing ob/gyn physicians for careers in clinical research and a track record of interdisciplinary reproductive health research. One objective is to orient new investigators toward large-scale collaborative research teams. Scholars entering this program will convene a mentor panel to access scientific expertise, consultation, and resources. The new Ob/Gyn Resource Core is available to provide comprehensive services to support integration of laboratory methods into the scholars' research projects. A major strength of the program is the proposed partnership with the Morehouse School of Medicine to identify eligible members of the ob/gyn faculty to participate in the program. Didactic components and a tailored program of training increase the likelihood of future research independence.

(8) 1 K12 HD050121-01

Sherman Elias, M.D.

Northwestern University

Title: Research Career Development in Obstetrics and Gynecology

This proposal has a highly innovative approach for establishing a training program for ob/gyn physician scientists. Dr. Elias proposes a custom-designed research training and career development plan for each scholar. Scholars will be exposed to research tools, graduate courses, and grant writing skills. The program is designed to accommodate scholars with a variety of research backgrounds. The scholars will enter a basic science or clinical track based on their interests and previous research experience. The program provides an outstanding pool of experienced basic science, translational and clinical research mentors whose expertise spans a wide spectrum of reproductive science research. This group has an established track record for training independent investigators. The strength of the program is its location, surrounded by six medical schools in the Chicago area that has one of the largest concentrations of highly qualified potential scholars.

(9) 2 K12 HD001254-06

Mary D'Alton, M.D.

Columbia University Health Sciences

Title: Columbia U CTR For Career Dev. In Reproductive Sciences

This ongoing program offers a unique opportunity for scholars to learn experimental concepts and techniques that will provide the necessary basics for a fruitful academic career. Dr. D'Alton plans to attract mentors primarily from the Center for Reproductive Sciences within the Department of Obstetrics and Gynecology. An important strength of the program is its long-standing history of combining basic investigation and training in the reproductive sciences. With this objective in mind, the program intends to recruit scholars who have an interest and passion for basic investigation. The underlying theme is to maintain an essential clinical link to encourage a bridge between basic research process and its application and relevance to clinical principles related to women's health concerns. Clinical advisors will be available to facilitate this linkage. This program appears well positioned to train the next generation of outstanding physician scientists in women's reproductive health.

(10) 1 K12 HD050108-01

Donald R. Coustan, M.D.

Women and Infants Hospital - Rhode Island/Brown Medical School

Title: Brown Medical School/WIHRI Dept of Ob/Gyn WRHR Program

This proposal presents a very strong program dedicated to the career development of physician scientists and clinical investigators. Dr. Coustan has a flexible program that will provide each scholar with a core curriculum essential for his/her development as an independent investigator in women's health, a suitable mentor who can provide the guidance and expertise to assure successful academic development and skills as an independent investigator, and the research infrastructure in an environment conducive to investigation into women's health. The scholars will be able to capitalize on a diverse group of senior scientific mentors and supporting investigators providing academic career advice. A major strength of this program is the focus on the translation of basic research into patient-oriented, clinical research to improve women's health. Their goal of creating independent investigators who will be committed to research careers in women's reproductive health should be realized.

ORWH REENTRY PROGRAM

The ORWH Reentry Program helps fully trained scientists (women and men) to re-establish careers in biomedical or behavioral science after taking time off to fulfill familial responsibilities. In FY2006, the ORWH supported five individuals.

NHLBI Reentry Candidate: Mary Owen, Ph.D.

Institution: Medical College of Georgia

PI: Richard E. White, Ph.D.

Grant: R01HL73890

Title: Molecular Basis of Estrogen dual effects on coronary arteries

Dr. Mary Owen obtained her Ph.D. from Medical College of Georgia in 1979. After two years of post-doctoral training at UCLA, she became a Research Assistant Professor at the University of Vermont Medical School. In 1984, Dr. Owen became an Assistant Professor at the University of Illinois at Rockford and became an Associate Professor at Philadelphia College of Pharmacy and Science in 1988. Due to her mother's illness, Dr. Owen took a leave for seven years and recently returned to the Georgia Campus of Philadelphia College. Prior to her leave, Dr. Owen has been an active researcher in cardiovascular field. Her research was supported by NHLBI and AHA.

NIDCD Reentry Candidate: Carol McArthur, M.D.

Institution: Oregon Health and Science University

PI: Dennis R. Trune, Ph.D.

Grant: R01DC005593

Title: Steroid Responsive Mechanisms in the Ear

Dr. Carol McArthur received her M.D. from UCLA School of Medicine in 1984. She trained at UC Davis for her residency, and she received a fellowship from Harvard School of Medicine in Pediatric Otolaryngology. In 1996, she left academic medicine to raise two young children. She gave up her clinical practice to move to Portland with her husband, at which time she turned to academic medicine at OHSU. In 2002, she reestablished her clinical practice on a half time basis and at the same time, she began volunteering in Dr. Trune's laboratory within the otolaryngology department. This supplement will be used to facilitate her reentry into academic science.

NIDCR Reentry Candidate: Theresa Freeman, Ph.D.

Institution: Thomas Jefferson University

PI: Irving M. Shapiro, Ph.D.

Grant: R01DE010875

Title: Bone Growth in Dental, Cranial, and Skeletal Tissues

Dr. Freeman received her Ph.D. from University of Medicine and Dentistry of New Jersey and Rutgers University in 1996. After completing a brief postdoctoral fellowship at New Jersey Department of Human Services, she took a position as Research Assistant Professor at the University of Pennsylvania. She decided to relinquish this position when it became clear that she needed to provide parental care to her children. During her seven year hiatus, she took a part time consulting position that allowed her to work from home. In 2004, Dr. Freeman was employed by Thomas Jefferson University as a Research Associate where she provides support to a large number of researchers. She plans to use the supplement to devote time to her own research project in order to build a career in biomedical research.

NHLBI Reentry Candidate: Madhu Bajaj, M.D.

Institution: UCLA Orthopedic Hospital

PI: S. Paul Bajaj, Ph.D.

Grant: R01HL36365

Title: Biochemistry of Normal & Abnormal Variants of Factors IX

Dr. Madhu Bajaj received her M.D. in 1976 from Armed Forces Medical College in Poona, India. She then completed residency and fellowship training at the University of California at San Diego Medical Center and St. Louis University Medical Center. In 1991, she was appointed Assistant Professor in the Division of Pulmonary, Critical Care and Occupational Medicine at St. Louis University School of Medicine. She received tenure in 2000 but was not able to stay in this position due to her daughter's depression and the family's move to Los Angeles. She was able to secure a clinical position as a Visiting Professor at the University of Southern California. However, she would like to reenter research and study the activation of factor IX by tissue factor VIIa in the extrinsic pathway of blood coagulation.

NIDA Reentry Candidate: Adriana Cordal, M.D.

Institution: University of Medicine and Dentistry of NJ –Robert Wood Johnson Medical School

PI: Douglas Ziedonis, M.D.

Grant: R01DA15537 and R01DA15978

Title: Treatment of Addiction to Nicotine in Schizophrenia; Modifying MET for use with ASI Data

Dr. Adriana Cordal received her M.D. in 1985 from the Universidad de la Republica in Montevideo Uruguay. She completed residencies and fellowships at St. Luke's Roosevelt Hospital Center before beginning as a full time academic faculty member at the University of Medicine and Dentistry of NJ in 1994. Upon relocation to Washington State for her husband's job transfer, she began a part-time psychiatric practice. In 2003, her family returned to the East Coast and she joined the Robert Wood Johnson Medical School faculty in 2003. Despite having a clinical position, Dr. Cordal wishes to become an independent academic researcher, which she plans to pursue with this supplement.