

ORWH CAREER DEVELOPMENT PROGRAMS FY 2001

BUILDING INTERDISCIPLINARY RESEARCH CAREERS IN WOMEN'S HEALTH

The Office of Research on Women's Health (ORWH) developed an institutional career development award for "Building Interdisciplinary Research Careers in Women's Health (BIRCWH) Career Development Programs." These Programs support research career development of junior faculty members, known as Interdisciplinary Women's Health Research (IWHR) Scholars, who have recently completed clinical training or postdoctoral fellowships, and who are commencing basic, translational, clinical and/or health services research relevant to women's health.

The goal of this initiative is to promote the performance of research and transfer of findings that will benefit the health of women. The Programs will accomplish these goals by bridging advanced training with research independence, as well as bridging scientific disciplines or areas of interest. This will increase the number and skills of investigators at awardee institutions through a mentored research experience leading to an independent scientific career addressing women's health concerns. This RFA uses the NIH Mentored Research Scientist Development Program Award (K12) mechanism.

A need was identified for expanded support for interdisciplinary research bridging the completion of training with an independent career in research addressing women's health as described in the "Agenda for Research on Women's Health for the 21st Century, A Report of the Task Force on the NIH Women's Health Research Agenda for the 21st Century," Volume 2, pp. 187-198, Career Issues for Women Scientists, and pp. 223-228, Multidisciplinary Perspectives. ORWH has as one of its priorities "facilitating research initiatives that foster multidisciplinary collaborations". Program grant awards from this RFA met the specified need by providing clinical, health or life sciences, or public health departments, centers, and institutes, both developing and established, an opportunity to build national capacity for junior investigators in women's health research, here defined as including research on sex and/or gender differences, as well as research on factors that contribute to disparities in health status or health outcomes for different populations of women.

Investigators with established research programs covering a broad range of basic and applied biomedical and behavioral science or health services research, in the Principal Investigator's and collaborating departments, centers, or institutes, form an intellectual and technical research base for mentoring IWHR Scholars. Mentors from collaborating departments are encouraged to provide needed expertise and resources, as long as the emphasis of IWHR Scholars' projects is on research relevant to women's health. Projects are basic, translational, clinical, or health services research, but must be within the biomedical and behavioral purview of NIH and/or the health services research purview of AHRQ. Health services research includes the study of the

quality, appropriateness, outcomes and effectiveness of health care services, as well as the cost, use and access to health care services.

In FY 01, ORWH convened a meeting of the Program Officials from each awardee institution at which issues, success stories, and problems were discussed in an open forum. Each institution reported on their status of the scholars recruited and updated the group on the program to date. BIRCWH is a unique program, not only in its special structure and goals, but also as the first research initiative to have primary sponsorship by ORWH. This was the first annual meeting of the directors of Building Interdisciplinary Research in Women's Health (BIRCWH) programs. The meeting is sponsored by the Office of Research on Women's health (ORWH) and was held on Monday, July 9. Each grant award includes funds for one person to travel to the meeting, either the Principal Investigator or Program Director.

The meeting included several presentations by NIH staff, but was mainly devoted to discussion, with focus on the following topics: recruitment and retention, NIH policies regarding human subjects, preparing the noncompeting renewal application, programmatic issues, and general trouble-shooting. One person from each site gave a very brief overview of the program, highlighting any areas of emphasis and special characteristics.

Baylor College of Medicine
Houston, Texas
Positions - 4
Contact: Jennifer Hays, Ph.D.
jhays@bcm.tmc.edu

The Baylor program offers two tracks, molecular/clinical and clinical/health services/population research. Under this framework, 26 mentors from departments of Medicine, Obstetrics-Gynecology, Rehabilitation, Ethics, Molecular Medicine, and Health Services Research will collaborate to offer an intensive research experience, with a strong focus on molecular and human genetics and cell biology. Where appropriate, Scholars will work toward a Master's degree, e.g. in Public Health. Continuing guidance will be provided to Scholars after completing the program.

University of Alabama at Birmingham
Birmingham, Alabama
Positions - 5
Contact: John Hauth, M.D.
brials@uabmc.edu

A major emphasis of the program at Birmingham will be the health problems more common in minority and disadvantaged women. Mentors who work on health disparities were preferentially chosen for the program, and scholar candidates with an interest in disadvantaged

populations will be particularly sought. Limited-experience and advanced tracks feature individualized curricula. Among a total of 24 mentors, seven from obstetrics-gynecology form a subgroup of reproductive health, with 17 others from a diverse group of 11 different departments.

**University of California Los Angeles
Los Angeles, California**

Positions - 4

**Contact: Gautam Chaudhuri, M.D., Ph.D.
gchaudhu@obgyn.medsch.ucla.edu**

UCLA proposes a highly interactive program involving 32 mentors, representing a mix of basic and clinical research. Areas of interest include developmental biology, molecular genetics, cell biology, behavioral sciences, cardiovascular sciences, cancer, clinical pharmacology, translational and clinical investigation, and health services research. The overall program comprises three phases, with entry depending on the experience level and needs of each Scholar.

**University of California San Francisco
San Francisco, California**

Positions - 4

**Contact: PD: Deborah Grady M.D.
dgrady@itsa.ucsf.edu**

UCSF and the Northern California Kaiser Division of Research here join forces to focus a program on chronic diseases of women. A core curriculum and tailored course work may be applied toward an advanced degree. Twelve senior mentors plus resource faculty offer a research experience in seven disease areas: cardiovascular, breast cancer, skeletal health, neuropsychiatric disorders, substance abuse, urinary incontinence, and HIV. There are also five cross-cutting research areas: sex hormones, women's imaging, complementary and alternative medicine, health services research, and aging.

**University of Connecticut Health Center
Farmington, Connecticut**

Positions - 5

**Contact: Judith Fifield, MD
Fifield@nso1.uhc.edu**

Twenty-one women's health investigators now scattered across three campuses of the University, including allied health professionals, join as mentors at this site. Areas of research are bone and skeletal biology, addictions and mental health, reproductive health and sexually transmitted diseases, and gender roles. Basic, clinical, and sociobehavioral approaches will be applied in all these areas. Curriculum and plans will be individualized within three tracks:

Experienced investigator, Limited research experience, and Degree (MPH or Masters of Dental Sciences).

University of Kentucky
Lexington, Kentucky

Positions - 6

Contact: Pomeroy, M.D.
cpomer0@pop.uky.edu

The University of Kentucky presents a program organized around three major themes: regulation of the menopause and its repercussions for women's health, nutrition-related illnesses and their impact on women, and drug abuse and its relationship to gender (including AIDS/HIV). A didactic phase will be tailored to the background and interest of the Scholar. There are 18 mentors whose areas of research include cardiovascular, bone, infectious disease, alcoholic liver disease, brain and aging.

University of Medicine and Dentistry of New Jersey
Newark, New Jersey

Positions - 4

Contact: Laura T Goldsmith, Ph.D.

The UMDNJ-New Jersey Medical School site proposes a strong focus on minority and disadvantaged populations of women. Fourteen mentors offer a research experience on the areas of cardiovascular disease, diabetes, multiple sclerosis, infectious disease, aging, and reproduction and development. Career development includes a core curriculum plus individualized course work, and Scholars have the option of working toward a Ph.D. or MPH.

University of Michigan
Ann Arbor, Michigan

Positions - 4

Contact: Timothy R. B. Johnson, M.D.
trbj@mailgw.obgyn.med.umich.edu

With a focus on gender differences across the lifespan, twenty mentors at the University of Michigan Medical Center offer research experiences in four target areas: pelvic floor/urology/gynecology (uniting obstetrics-gynecology, urology and nursing research); health services research; reproductive science and women's medicine (including toxicology); and biobehavioral and aging research, especially depression. A Women's Academic Leadership Plan is available as part of a Scholar's individualized career plan.

University of North Carolina at Chapel Hill
Chapel Hill, North Carolina

Positions - 5

Contact: Bruce Lessey, M.D., Ph.D.
Lessey@med.unc.edu

The University of North Carolina has organized its program around three central themes: biomarkers of therapeutics, prevention and intervention, and health issues of the mature woman. Thirty-six mentors will cover a broad array of topics including cancer, pharmacology, cell biology, nutrition, sexually transmitted diseases, complications of pregnancy, substance abuse, contraception, environment and health, domestic violence, gastroenterology, cancer, cardiovascular disease, and the pelvic floor. Prevention and outcomes research are also featured. Two tracks are available, depending on experience level, and Scholars may work toward an advanced degree.

Virginia Commonwealth University
Richmond, Virginia
Positions - 5

Contact: Mary Nettleman, M.D.
mnettle@hsc.vcu.edu

The VCU site centers on forming a focus of women's health research in five areas: substance abuse, psychiatric genetics, reproductive health, cancer, and diseases associated with aging. Through these areas run themes of basic, clinical, behavioral, epidemiological, and health services research. Individualized course work will prepare Scholars for their research experience. The faculty consists of 25 mentors, including a Core Mentor for each of the areas.

Washington University
St. Louis, Missouri
Positions - 5

Contact: Clay Semenkovich, MD
Semenkov@im.wustl.edu

Twenty-five mentors provide a newly integrated focus on women's health research across eight focus areas: autoimmune disease, cardiovascular disease, complications of pregnancy; diabetes, obesity and metabolism; osteoporosis, infectious disease, and cancer. Two tracks will serve scholars with substantial or limited prior research experience. Those with limited experience who are pursuing patient-oriented research will enter the MS in Clinical Investigation Program.

Yale University
New Haven, CT
Positions - 5

Contact: Bruce Rounsaville, M.D.
bruce.rounsaville@yale.edu

The Yale program will center on women's health and substance abuse, with twenty-five mentors from a broad array of basic, clinical and social science disciplines. Areas include the etiology of drug and alcohol abuse in women; the development of new sex-specific treatments;

behavioral interventions for drug-abusing mothers and their children; sex differences in drug abuse consequences, course and co-morbidity, particularly stress and depression; and translation of research findings into practice. Clinical scholars will have an option of complementing their research with training in substance abuse treatment sites.

2. ACHIEVING EXCELLENCE IN SCIENCE (AXXS)

ORWH, in conjunction with The American Society for Cell Biology and the National Institute of Environmental Health Sciences, convened AXXS'99 to explore the roles of scientific societies in advancing science by building the careers of all women in science, from the pre-doctoral stage to the senior scientist level. The workshop was held December 9-10, 1999, as a satellite meeting to The American Society for Cell Biology's Annual Meeting in Washington, D.C. More than 140 participants representing more than 50 scientific societies, organizations, and government agencies gathered to:

- _ develop action items that societies could consider for their membership,
- _ contribute to an annotated bibliography of the career resources that could be made available as a national resource on the Internet, and
- _ exchange information with other workshop participants on the strengths and weaknesses of existing and planned societal programs and resources for their women members.

AXXs Goals:

Goal 1: A new cultural norm for women:

- _ where gender bias is eliminated, women's leadership and communication styles are honored, the image and perception of women are highly valued, and science and family are compatible roles for women and men in this society.

Goal 2: Equity with male counterparts:

- _ where women are equally represented in their disciplines and societies compared to their male counterparts, and where women's society memberships, honorary awards, grants, faculty positions, leadership roles, pay rates, journal editorships, and so forth, are on a par with men.

Goal 3: High visibility and recognition:

- _ where there is widespread professional respect for the accomplishments and contributions of women scientists, large numbers of well-known women deliver keynote addresses, and women routinely receive awards for their scientific achievements.

Goal 4: Mentoring as an integral part of career development and advancement for women:

- _ where mentoring is "gender-neutral" and encompasses both one-to-one and institutional programs, characterized by men seeking out women mentors, and the mentoring of women as an integral part of high schools, academia, professional societies, and scientific organizations and institutions.

Goal 5: Varied and valued career options for women:

- where expanded career possibilities for women in science are widely promoted and highly visible at all stages of the career pathway, more teen girls opt to take high school science, an “incubator” environment provides conditions favorable to the advancement of women in science, and greater numbers of mid- and upper-level women scientists remain on chosen career tracks.

Goal 6: Readily available networking, resources, and support:

- where women have access to, and are included in, non-gender-biased networks, which are both formal and informal, as well as faculty- and employer-sponsored.

Goal 7: Professional advancement and skill building through scientific societies:

- where there is significant support within societies to help women in science to advance their careers, in the form of mechanisms to promote an individual’s career, funding for skill building and development, affirmative public statements from scientific societies, and job access and advancement through societies.

Goal 8: Inner and outer empowerment:

- where women are comfortable with themselves and their careers, feel valued and effective, and hold empowered attitudes -- free from any victim-like mentality (inner empowerment); and where there is collaboration and exchange from peers and role models, and MIT- type studies initiated .

AXXS ‘99 Initiatives

Leadership, Visibility and Recognition

- Develop forums to highlight successes of women scientists
- Formalize mechanisms for opportunities, awareness, and development for women in science
- Increase the number of women in society leadership roles
- Find and implement new strategies for leadership development programs within societies
- Provide training and facilitate understanding regarding the rules of the game as they pertain to networking, promotion, tenure, etc

Mentoring and Networking

- Establish a national mentoring system for women
- Establish mentoring as a core activity of professional societies
- Develop effective mentoring programs
- Create a networking website for scientists

Best Practices

- Design best practices for the advancement of women
- Establish a best practices clearinghouse

Oversight, Tracking and Accountability

- _ Create an umbrella organization of professional societies to facilitate networking and exchange of information and ideas:
- _ Develop a database of women scientists
- _ Establish a report card on the status of women in science and engineering

The full report on AXXS'99 is available on-line at www4.od.nih.gov/axxs/. As follow up to the Achieving XXcellence in Science (AXXS) meeting in December 1999, ORWH developed, designed, launched, and now maintains an AXXS Web page, which will serve as a primary resource for women in biomedical sciences. <http://www4.od.nih.gov>

OVERVIEW OF THE JUNE 2, 2000 MEETING

Sponsored by the Office of Research on Women's Health (NIH), in cooperation with The American Society for Cell Biology, AXXS 2000 was launched on June 2, 2000 at a meeting of a small, representative subset of AXXS'99 participants. Invitees came prepared to take the next critical step toward meeting AXXS'99 goals by building on the 14 recommended initiatives from AXXS'99. Thirty-one participants gathered at the National Institutes of Health to:

- _ prioritize and refine initiatives developed at AXXS '99 for promoting women's scientific careers, and
- _ consider necessary actions for implementing these initiatives, both within and across scientific societies.
- _ The group was intentionally small to allow participants to develop detailed initiatives, while also keeping in mind the big picture, i.e., eliminating redundant efforts, identifying what societies might do to take action on their recommendations, and defining possible mechanisms for continued AXXS support.

In FY 01, the following plans were developed for an initiative called ACT. The ACT team has a clear objective; to move quickly from AXXS plans to society-driven initiatives to advance the careers of women in science by turning plans into actions to advance the careers of women in science. Specifically, this project moves to implement two-three initiatives into societies and/or academic institutions within the first six months. Further, it is intended to refine one or more complex initiatives (e.g., mentoring) and move it into one or more societies and/or academic institutions within the first year. Future plans include a meeting in Spring 2002 AXXS -2002 hosted by the NAS for clinical societies.

WHI MINORITY INVESTIGATOR CAREER DEVELOPMENT AWARD

ORWH co-sponsored an RFA with NIAMS and NIA to provide Career Development Awards (K01 or K08) to minority scientists to facilitate participation in the Women's Health Initiative. These serve two purposes: first, to enhance the research skills, training and development of the individual awardees, and second, to enhance the diversity of the investigator teams currently carrying out this project. Scientists and clinicians thus trained

will contribute to the nurturing of the next generation of clinical investigations. ORWH supported 3 awards in FY 1997, four in FY 1998 and FY 1999.

In FY 2001 supported the following:

Title: **Stress and Immune Functioning in Women With A Family History of Cancer**
Institute: **NIAMS**
Awardee: **Paige A. McDonald, PhD**
Institution: **Howard University Cancer Center, Washington, DC (Year 3)**

This study aims at the causes of morbidity and mortality associated with chronic diseases among women; strengthening the applicant's present training and ability to conduct psychoneuroimmunological research through course work, laboratory training, and clinical experience; familiarizing the applicant with all phases of research; and developing the applicant's ability to conduct independent research and obtain independent funding.

Title: **Ethnicity, Body Composition, Bone Density and Breast Cancer**
Institute: **NIAMS**
Awardee: **Zhao Chen, PhD**
Institution: **University of Arizona, Tucson, AZ (Year 4)**

This study aims to recruit Hispanic postmenopausal breast cancer cases; to form a Hispanic postmenopausal breast cancer case-control study comparing bone mineral density among Hispanic breast cancer patients recruited in the proposed study as cases and Hispanic women from the Women's Health Initiative observation study group in Arizona as controls; to examine the interrelationship between bone mineral density and breast cancer in Hispanic postmenopausal women; to assess the role of body composition in the relationship between bone mineral density and breast cancer in Hispanic postmenopausal women; to identify risk factors for and links between osteoporosis and breast cancer in Hispanic postmenopausal women; and to compare results of the proposed study with results from other ethnic groups in the WHI when they are available.

ORWH/NIH REENTRY PROGRAM

The ORWH Reentry Program was developed in 1992 as a pilot program to help fully trained scientists (women and men) reestablish careers in biomedical or behavioral science after taking time off to care for children or parents, or to attend to other family responsibilities. This program was originally started as a pilot program to encourage fully trained women and men to reenter an active research career after taking time off to attend to family needs. The success of this pilot program was the impetus to expand the program across the NIH and it is currently supported by all NIH ICs. The aim of these supplements is to encourage fully

trained individuals to reenter research careers within the missions of all the program areas of NIH. This program will provide administrative supplements to existing NIH research grants for the purpose of supporting full-time or part-time research by these individuals in a program geared to bring their existing research skills and knowledge up to date. It is anticipated that at the completion of the supplement, the scientist will be in a position to apply for a career development (K) award or for a research award. ORWH currently provides funding of \$20,000 for each of 2 years. In FY 01, ORWH sponsored 2 new reentry candidates and continued Year 2 funding for 2 others.

PI: Maryellen L. Giger, Ph.D.
Institution: University of Chicago
Title: Computerized Radiographic Analysis of Bone Structure
Grant Number: 3R01AR42739-04A2S1
Awardee: Tamara Vokes, M.D.

The research examines the ability of texture analysis to detect bone fragility in vivo (estimated from prevalent vertebral fractures) and compare its predictive value to methods currently used for diagnosing osteoporosis. The study subjects undergo texture analysis, assessment of bone mass by several commonly used methods, and examination of lateral spine for prevalent vertebral fractures. The presence and degree of prevalent vertebral fractures will be used to diagnose and quantify bone fragility. The diagnostic performance of texture analysis (with and without heel BMD) in detecting the prevalent vertebral fractures will be compared to that of methods currently used for diagnosing osteoporosis (central and peripheral BMB, and heel ultrasound).

The study subjects will be postmenopausal women recruited from the pool of patients referred to the Bone Clinic for bone density measurement as part of their routine medical care. We plan to study 650 subjects over 2.5 years. We will make a special effort to include patients who are likely to have vertebral fractures based on their appearance, history of fractures, or age.

The proposed research is closely related to the research objectives of the parent grant. Because Dr. Vokes has significant clinical experience and a large cohort of patients with osteoporosis, she will be in a unique position to recruit the patients for the studies proposed in the parent as well as in the supplemental grant. Furthermore, as a director of the Endocrinology clinic of which the densitometry program is a part, she is responsible for the day-to-day densitometry operation and will be able to identify suitable candidates for enrollment into the proposed studies. Because of her enthusiasm and interest in research, she has already made significant contribution to further developing the project described in the parent grant. The supplement would provide her with protected time, which would allow her

to actually carry out the exciting and promising studies proposed in the parent as well as in the supplemental grant.

Despite the success and accomplishments achieved during her fellowship training and early faculty appointment, she voluntarily chose to make a change in her career path after having her first daughter. Consequently, she took a position as a clinical endocrinologist in a multi-specialty group, which allowed greater flexibility and enabled her to be with her children and providing a much more vital understanding of the importance of clinical research in bringing state-of-the-art care to the physician-patient encounter. In 1999, she returned to academic medicine at the University of Chicago as an Assistant Professor of Clinical Medicine in the Section of Endocrinology. Based upon these successes, Dr. Vokes has applied for an NIH K award so this reentry grant may only be needed for 1 year.

PI: Robert Kimberly, M.D.
Institution: U AB at Birmingham
Title: Mononuclear Phagocyte Function in Immunologic Diseases
Grant Number: 3R01AR33062-19S1
Awardee: Julie G. Baskin, Ph.D.

Dr.. Baskin took time off from her research career for child-rearing purposes from 1993-present She completed a Post-doc and published a manuscript on this work in 1995 and also taught in high school and at the university level during this time.

Dr. Baskin's research will initially focus on the analysis of a series of α -chain receptor chimeras in order to characterize the unique contributions of each α -cytoplasmic domain. Using cells lines (P388D1, RBL and IIA1.6) transfected with wild type and cytoplasmic domain truncation mutants, she will define the impact of the cytoplasmic domain on early signal transduction and gene transcription. This research is proposed for several reasons: (1) it will require that she master techniques of molecular biology to construct the chimeric receptors, (2) it will require that she master transfection and assessment of expression by flow cytometry, (3) it will require that she master techniques related to signal transduction, and (4) it will provide the opportunity to become familiar with gene expression arrays.

The research training environment and the mentoring relationship between the Principal Investigator and the candidate are tightly interwoven and will provide rigorous training in research methods and a strong appreciation for interdisciplinary challenges and opportunities.

The accelerating impact of the human genome project has heightened awareness of the convergence and interdependence of clinical and more fundamental scientists, and a basic understanding of pathophysiologic mechanisms and molecular techniques will help inform research initiatives, not only at the bench but also in the clinic. This understanding is also

essential for the application of news diagnostic technologies and therapeutic modalities that are now reaching into the effective practice of medicine.

The interdisciplinary environment fostered by the University-wide Interdisciplinary Arthritis and Musculoskeletal Center positions Dr. Baskin at the intersection between mechanism-based research, its application to clinical medicine, and its impact on disease outcomes. Furthermore, the new opportunities developed within the UAB Arthritis and Musculoskeletal Center, including its Methodology Core and its Biomedical Research Cores, underscore the range of expertise and technologies available to the candidate.

Systemic lupus erythematosus (SLE) is an autoimmune disease characterized by the production of multiple autoantibodies. These autoantibodies, including IgG antibodies specific for nuclear material, form immune complexes with autoantigens. Circulating immune complexes can deposit in tissues, induce inflammation, and cause organ damage, including glomerulonephritis. Mononuclear phagocytes that bear cell surface receptors for the Fc portion of immunoglobulin (FcR) facilitate clearance of these circulating immune complexes and therefore can potentially influence disease susceptibility.

Grant: 5 R01 HL23671-19
Title: Renal Functional Derangements in Hypertension
P.I. Gabriel L. Navar, Ph.D.
Institution: Tulane University School of Medicine
Awardee: Shirley A. Williams-Scott, Ph.D.

Dr. Scott was awarded a minority supplement which is being converted to a reentry supplement to be co-funded by NHLBI and ORWH. She will work with the senior faculty and staff at Tulane University Medical School Physiology Department. The focus of this activity is to define and characterize the mechanisms responsible for the intrarenal hormonal, microcirculatory and transport derangements that occur in ANG II dependent hypertension and to develop an understanding of the experimental methods used to study renal uptake, and augmentation of intrarenal ANG II levels during ANG II induced hypertension. I propose to work with Dr. L. Gabdel Navar for the next four years to develop the skills and knowledge to become an independent investigator in renal physiology with a focus on the hypertensinogenic influence of ANG II. In keeping with the overall objective of the parent grant, the applicant will perform pertinent studies that will define and characterize mechanisms responsible for microvascular and tubular reabsorption derangements that occur in ANG II dependent hypertension. (Year 2.)

Grant: 5 R01 DA13016-01
Title: Impacts of Managed Care on Substance Abuse Services Linkages
P.I.: Joseph P. Morrissey, Ph.D.
Institution: U NC at Chapel Hill

Awardee: Kathleen Thomas, Ph.D.

"Impacts of Managed Care on Substance Abuse Services Linkages," is an interorganizational study that examines the effect of managed care on linkages between outpatient drug abuse treatment programs and both primary care and mental health services. This 29-month reentry supplement request will provide support for Dr. Kathleen Thomas who has had a break in her career for child rearing responsibilities.

Dr. Thomas will undertake a more in-depth assessment of the costs of interagency linkages than proposed in the original application. She will focus on understanding how service relationships are impacted by the introduction or intensification of managed care payment practices for providers serving persons with dual substance abuse and mental disorders. Her work will investigate how to cost out linkages between treatment units and other mental health/primary care agencies, determine the most cost-effective linkage to meet a specific goal, develop a strategy for measuring the effectiveness of the linkages, and consider ways to extend this system level study to the client level. Dr. Thomas plans to develop a research plan for such a study and submit it as a separate R01. (Year 2.)

WOMEN'S REPRODUCTIVE HEALTH RESEARCH CAREER DEVELOPMENT CENTERS

ORWH joined NICHD in the development of a Request For Applications (RFA) to invite institutional career award applications for Women's Reproductive Health Research Career Development Centers in FYs 98 and 99. These Centers support research career development of obstetrician-gynecologists, known as Women's Reproductive Health Research (WRHR) scholars, who recently completed postgraduate clinical training, and were commencing basic, translational and/or clinical research relevant to women's health. The goal of this initiative is to promote the performance of research on women's reproductive health and transfer findings that will benefit the health of women. The Centers serve to bridge clinical training with independent research, increasing the number and skills of obstetrician-gynecologist investigators at awardee institutions through a mentored research experience leading to an independent scientific career addressing women's reproductive health issues.

In FY 98 12 Centers were funded: Magee-Women's Hospital Pittsburgh, Oregon Health Sciences University, Stanford University, University of California, San Francisco, University of California, Los Angeles, University of Cincinnati, University of Pennsylvania, University of Texas Health Sciences Center/Houston, University of Texas Medical Branch/Galveston, University of Washington, Wake Forest University School of Medicine, and Wayne State University Detroit. In FY 99, eight Centers were added: Brigham and Women's Hospital, Case Western Reserve University, Columbia University, University of Alabama at Birmingham, University of California, San Diego, University of Colorado, University of Rochester, and

University of Utah. Funding in FY 2001 continues for the 20 centers at the same funding levels.

SACKLER SCHOLARS NIH U.S.-ISRAEL STUDENT EXCHANGE PROGRAM

In conjunction with the NIH Office of Intramural Research, a Bi-national Student Exchange Program in Women's Health Studies will be initiated in FY 2001 with the Sackler Faculty of Medicine, Tel Aviv University (TAU), Tel Aviv, Israel, with preliminary arrangements such as scholar applications, review, and logistics which began in FY 2000.

This program aims to expose excellent M.D.-PhD. or Ph.D. Israeli students in the biomedical field to the leading research programs at the NIH. The program encourages those interested in research related to women's health, whether basic, patient-oriented, or population-based. The program should facilitate and enhance biomedical research in Israel, establish scientific collaborations between Israel and the NIH, and train promising students for postdoctoral studies at the NIH.

The Sackler Faculty of Medicine represents the largest medical faculty in Israel with two medical schools (an Israeli program and an American-international school), a dental school, a school of health professions, a school of continuing medical education and a graduate school. To attain the best medical and scientific education for better service to the community, the best training opportunities are required and the NIH, as the largest biomedical research institute in the world, offers a unique location for this education. The new program offers an opportunity to present new horizons for research into women's health issues and should provide a pioneering model for other medical faculties and other countries.

A joint TAU-NIH will choose the best students to join the program each year, with a maximum of ten at any given time. These students will have an Israeli advisor and an American advisor. The student will perform 10 months/year research in the Israeli laboratory and up to two months/year in the NIH laboratory, for a total of four-five years of research. Once a year, the American supervisors will visit Israel for a joint scientific meeting of all enrolled in the program. The program will favor excellence, students enrolled in the M.D./Ph.D. program, women and minorities. In FY 2001, 5 students were supported for a summer experience in NIH intramural laboratories.

AWIS SEMINAR SERIES

ORWH is providing support is for the 2000-2001 Eighth Annual Association for Women in Science (AWIS) Bethesda Chapter Seminar Series entitled "Strategies for Success in Science". In FY 2000-2001, the seminars are: Exploring Informatics Careers: Paths in the Neurosciences and Molecular Biology, A Report on the Status of Women Faculty in Science at MIT: An

Update, Employment Opportunities for Scientists at Federal Agencies, Science and Business: Working in Industry, and Career and Family: Challenges and Rewards.

OFFICE OF SCIENCE EDUCATION/ORWH PROGRAMS

The partnership between the ORWH and the Office of Science Education (OSE) supports educational programs for pre-college age students and those interested in health with materials and resources that complement those found in schools and communities. These programs are developed with a focus on the important role education plays in providing young people, especially adolescent girls, with the tools necessary to deal successfully with the many risks to health that they will encounter throughout their lives.

Five programs continued to be funded in FY 01. These programs target populations ranging from middle school girls through adult women. The initial establishment and implementation of these programs allow the ORWH/OSE to test innovative program concepts.

HEALTH SCIENCE CURRICULUM ONLINE

An interactive program for students in grades 7-12 centered on women, and minority health issues. The curriculum emphasizes understanding, depth of knowledge, and the interdisciplinary nature of science. Health topics center on diabetes, cardiovascular disease, and cancer with two stories on each disease; incorporated into the stories is information of special interest to Latino, Native American, and African American populations. The stories, a resource section, and information on career opportunities are available in both English and Spanish.

Curriculum Online opened to the public in the spring of 1999. In fiscal year 2000 approximately 400 teachers enrolled in the program, bringing the user total to approximately 700. Each new registrant receives a manual and welcoming letter. An electronic version of the manual can be downloaded by teachers, which reduces the time delay, labor, and cost involved in mailing a hard copy of the manual. The electronic version of the manual was updated in June 2000.

Personal nutrition was selected as the primary focus because of the strong causal relationship between nutrition and the three diseases that underlie the COL scenarios. And, because exercise is also part of a healthy lifestyle strategy, we hope to add an exercise element to the study. The nutrition and exercise components would link to related sites, such as to basic biochemistry, structural formulas, molecular modeling, recipes, and menus. The nutrition component has been written and is being formatted for the COL Web site. The Department of Health and Human Services added COL to its Girl Power Web site and thought that the stories were so interesting and multi-cultural that they modified the Girl Power mission statement to include the program.

WOMEN IN SCIENCE POSTER SERIES

A series of free posters, with a companion Web site, aimed primarily at middle-school girls. The series will emphasize that scientific and medical research offers many different career paths, all of which are open to women.

Highlights: The graphic design for the first three posters was developed and approved by the director of the ORWH. Each poster has a photo and short quote from three women in a specific field of research. Of the three women featured on each poster, one will be an M.D. or Ph.D. senior research scientist, one a professional in a research-related discipline, and one a professional whose job is crucial to research but does not require as many years of schooling as the other two. The racial and ethnic diversity of the women depicted will help make the posters relevant to a large number of girls, in particular those from populations currently under represented in scientific and medical careers.

The first poster, Women in Neuroscience Research, was created and produced, and is ready for printing. A print run of 5,000 copies is planned. Audrey Penn and Claudia Gerwin of the National Institute of Neurological Disorders and Stroke, and Dinora Domingues of the Clinical Center are featured. Profiles of each woman for the Web site were written by a freelance writer, edited into final form, and read for accuracy by the women featured. Women to be profiled on the next two posters, Women in Diabetes Research and Women in Heart Disease Research, have been identified. They are: Luz Maria Rodriguez-Fernandez (National Cancer Institute); Stervema Fields (National Cancer Institute); Lucie Chen (National Library of Medicine); Patrice Desvigne-Nickels (National Heart and Blood Institute); Patti Riggs (Clinical Center); and Joy Laurienzo (National Heart and Blood Institute). The profiles of these women for the Web site are currently being developed, and the photography for the next posters is in progress. All three posters will be released at the same time, along with the Web site.

12. SNAPSHOTS OF SCIENCE

An online magazine and interactive learning tool published twice each academic year for high school students but it also appeals to the general public. Each issue provides an in-depth look at a single area of cutting-edge research, covering its scientific basis, history, some people working in the field, and the legal, ethical, or social questions the research raises.

13. ORWH/OSE SPEAKERS BUREAU

A program designed to increase national visibility of NIH research scientists and clinicians who are available to speak at schools and other organizations about NIH research. Speakers address a total of 29 topics, such as osteoporosis, depression, and breast and ovarian cancer, with 178 sub-topics. The speakers are diverse in their fields of expertise and their gender, race, and ethnic background.

WOMEN ARE SCIENTIST VIDEO & 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 effect their career options later. In the middle-school years, many girls are discouraged from pursuing advanced levels of 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.

Howard Hughes Medical Institute (HHMI) Summer Program:

A program that gives students who successfully completed an HHMI internship the opportunity to return to the NIH for a second summer. Through the program, returning students further develop or complete their research projects, thus gaining a greater understanding of the total research process. Students are able to present their research at a conference, submit an abstract for publication, and/or help other students.

The Virtual Mentor Program: (A new program developed in FY 2000) A Web site to foster career success for students who are or who may be interested in the health science professions.

- Students (middle and high school, college). The primary objective will be to guide students in creating a list of career choices through self-assessments that will include educational requirements, salary, and personal interests.
- Mentors (parents, counselors, scientists). The focus for this section will be on tips for being an effective mentor.
- Database. This will include a career list with quick sketches of about 120 health-science-related careers as well as relevant professional organizations, scholarships and internships; a detailed career database; and a glossary of technical terms.
- Role Models and Personal Stories. This section will include video and audio interviews with a variety of health-science professionals (with written questions and answers), video or slide shows of “a day in the life of” people in certain careers (five minutes long or less), and people talking about what they do and why they like their jobs.

An active developmental Web page with graphics was designed. Two NIH scientists were recruited for the five-minute videos. Initial interviews took place, a script was written, filmed and edited. The videos were presented to the NIH Science Education Resource Group in May, to a middle-school focus group in June, and to high-school and college students at the Frederick Research Center in July. Feedback from those presentations is being incorporated into the

project design. A tentative list of careers was developed along with an initial draft of the content of career descriptions. The OSE staff discovered the Department of Labor's O*Net, an Occupational Information Network. The O*Net database will be used for the Virtual Mentor job descriptions, which can then be updated as O*Net is updated. The OSE staff met with Department of Labor staff and will be the first Federal agency they know of that is adapting the O*Net database for its own use.

ORWH/OFFICE OF EDUCATION: Programs for NIH Trainees in FY-2001

The ORWH provides essential support to the Office of Education for the design and implementation of programs that foster the professional development of NIH trainees, in particular the postdoctoral fellows in both clinical and basic research programs across all institutes and centers. During FY 2001, ORWH-supported programs were again implemented to enhance the training experiences of participants in the NIH Postbaccalauteate Intramural Research Training (IRTA) program, as well.

Programs for Postdoctoral Trainees Career Development Series

This series focused on a variety of science-related as well as alternative career options of interest to NIH postdoctoral trainees.

Patent/Technology-February 8, 2001

This workshop provided an overview of how scientific training is used in the process of awarding patents. Panelists included Drs. Maria Freire, former director, NIH Office of Technology Transfer; Kathy Karr, United States Patent Office; and Grant Reed, from the law firm of Sterne, Kessler, Golstein and Fox.

Administrative Career Options-February 22, 2001

The workshop examined administrative career opportunities in areas other than grants management. Discussants included Drs. LaShawn Drew, Acting Director, NIH Academy, and Sharon Gordon, Director, Office of Education, NIDCR.

Consulting-March 8, 2001

This seminar, conducted by Dr. Krystyna Issacs, a former NIH postdoctoral fellow, provided information regarding opportunities for fellows to use their scientific training as consultants to academic institutions, government, and the private sector.

Science Writing/Journalism-March 29, 2001

This workshop, led by Dr. Crispin Taylor, Science's Next Wave, focused on careers in science writing as a possible option for postdoctoral trainees.

Science Policy-April 12, 2001

Academy of Sciences and Christine Grady from the Department of Clinical Bioethics in the Clinical Center.

This workshop was intended to provide information regarding careers in areas related to the development of science policy. Panelists included Drs. Deborah Stein from the National

Science Administration-April 26, 2001

This workshop explained how postdoctoral fellows at the NIH transition from laboratory research to careers as Health Scientist Administrators in the extramural arena. Speakers included Drs. Betty Hayden, CSR, and Martha Lundberg, NHLBI.

Teaching-May 10, 2001

This workshop featured presentations by Susan Gagnon, Montgomery County Public Schools, and Christina Hrycyna, former NIH postdoctoral fellows who are pursuing teaching careers at the high school and university levels respectively.

II. Special Lectures

Mentoring-September 27, 2000

The OE sponsored a workshop designed to provide fellows with skills that can be used to ensure that a meaningful mentoring relationship occurs. The workshop was conducted by Dr. J. Tyson Tildon, former Associate Director for Research and Graduate Studies at the University of Maryland School of Medicine and his colleague, Nancy Anne Baugher, CPA and Director of Finance at that institution.

Advancement of Women in the Sciences-July 17, 2001

In this special lecture entitled "The Advancement of Women in Science," Dr. Virginia Valian, Department of Psychology, Hunter College, discussed advances as well as challenges that women face in pursuing careers in science.

Debt Management-July 19, 2001

This seminar, conducted by Dr. Jeff Hanson, Access Group, covered strategies that might be helpful in handling personal finances and debt management.

Individual Development Programs

These programs are designed to complement the training experiences of postdoctoral fellows at the NIH and to enhance skills that are crucial to success in biomedical research.

Writing about Science Two 5 Week Sessions: March 8-29, 2001 and May 31-June 28, 2001

Taught by Maggie Meitzler, a manuscript editor for the Entomological Society of America, this course is intended to assist postdoctoral fellows to develop and enhance their scientific writing skills.

Speaking about Science -March 8-29, 2001 and June 6-27, 2001, and September 6 to October 3, 2001.

This course taught by Scott Morgan, President, Premier Public Speaking, Washington, DC, is designed to assist fellows in developing communication skills that are essential in preparing and making effective scientific presentations.

Advanced Speaking -April 5 to April 26, 2001

This pilot course, also taught by Mr. Morgan, is intended to assist fellows in building upon the lessons learned in the introductory course. This more advanced class focuses on vocal and other technical instruction, new methods of presentation, as well as providing individual coaching to each participant.

Resume /CV Writing -September 5, 2001

In this workshop, a panel consisting of a counselor from the NIH Work and Family Life Center, a senior investigator, and a university professor examined the CV's of three different individuals and identified the relative strengths and weaknesses of each, as well as how they could be improved.

Interviewing -September 10, 2001

This workshop, conducted by Beth Fisher and Dr. Michael Zigmond, was scheduled primarily for trainees who will be attending the job fair for postdoctoral fellows that is held annually in conjunction with the NIH Research Festival. The workshop covered a variety of relevant topics, including whom to talk with; questions to expect; how to be convincing; how to respond to inappropriate questions; as well as questions that fellows should consider asking.

Fellows Award for Research Excellence (FARE) 2001

The FARE competition is a program that annually allows postdoctoral and clinical fellows at the NIH to compete for a travel award to be used to attend a domestic scientific meeting. The ORWH contributes \$250 to each award. The program provides support for a maximum of 25% of the contestants and this year, 159 of the 636 participants received travel awards.

Job Fair 2001

The Job Fair for Postdoctoral Fellows, held annually in conjunction with the NIH Research Festival, is scheduled for October 3rd in the Natcher Conference Center. This year's keynote address will again be delivered by Dr. William Schrader, Vice President for Scientific and Technical Affairs, Ligand Pharmaceuticals in San Diego and former Assistant Dean of the Graduate School at Baylor.

PROGRAMS FOR POSTBACCALAUREATE TRAINEES

Poster Day-April 5, 2001

The second annual poster day for postbaccalaureate IRTA trainees provided a forum for 83 prospective scientists to share their accomplishments with the NIH community. The participants represented virtually all IC's with intramural programs.

Pre-Med Advising Workshop -April 26, 2001

This workshop included presentations by Paula Ashby from the University of

Maryland-Baltimore County and Dr. Georgina Aboko-Cole from Howard University. It was intended to provide relevant information for NIH trainees who contemplate applying for admission to medical school.

NIH Academy Curriculum

The NIH Academy, a postbaccalaureate program for recent college graduates with an interest in pursuing careers that address the issue of domestic health disparities, enrolled its charter class during the academic year 2000-2001. ORWH support covered honoraria for three speakers who discussed academic preparation for varied careers in the health sciences.

ADVANCE - National Science Foundation

The pursuit of new scientific and engineering knowledge and its use in service to society requires the talent, perspectives and insight that can only be assured by increasing diversity in the science, engineering and technological workforce. Despite advances made in the proportion of women choosing to pursue science and engineering careers, women continue to be significantly under represented in almost all science and engineering fields, constituting only ~22% of the science and engineering workforce at large, and less than 20% of science and engineering faculty in 4-year colleges and universities.

The goal of the ADVANCE program is to increase the representation and advancement of women in academic science and engineering careers, thereby contributing to the development of a more diverse science and engineering workforce. Creative strategies to realize this goal are sought from men and women. Members of under represented minority groups and individuals with disabilities are encouraged to apply.

In FY 2001 this pilot program will offer three types of awards:

- Fellows Awards will enable promising individuals to establish or reestablish full-time independent academic research and education careers in institutions of higher learning.
- Institutional Transformation Awards will support academic institutional transformation to promote the increased participation and advancement of women scientists and engineers in academe.
- Leadership Awards will recognize the outstanding contributions made to date by organizations and/or individuals who have enabled the increased participation and advancement of women in academic science and engineering careers, and will enable

awardees to sustain, intensify and initiate new activities designed to make further progress. The following awards were made.

AWIS

Proposal ID: 0123697

PI: Didion

Budget \$80,483

This project builds on previous work which established a survey vehicle for assessment of institutional climate for students and faculty. The goals of this present grant fit nicely with AXXs in that they will develop an online Institutional Assessment Kit, Model Academic Polices/best practices, and develop professional society linkages.

Arizona State University

Proposal ID 0123659

PI: Gretchen E Hofmann

Budget \$185,175

This program seeks to set up a university based model for advancement of women in science. It focuses on the Universities Biology Department and seeks to change "the culture" and produce a self sustaining mentoring program for women from undergraduates through the faculty ranks.

Bryn Mawr College

Proposal ID: 0123581

PI: Rhonda Hughes

Budget: \$198,210

This is a collaborative project between Spelman and Bryn Mawr Colleges Building on previous efforts, the goal is to identify and replicate effective structures that promote successful advancement of women in the mathematical sciences. The efforts are three fold - broad dissemination of information on programs that work for retention and advancement, a mentoring program, and symposium/workshops.

UC Davis

Proposal ID: 0123574

PI: Debbie Niemeier

Budget: \$200,000 (ORWH would provide \$36,132 towards this amt)

This application seeks to develop a national data base for demographic data on department chairs in science and engineering and the process for how they are chosen. Obtaining this information fits exceedingly well with the goals of AXXs.

Developing Country Scientist Program at NIH

FIC

In conjunction with FIC, ORWH will support a meeting with experts to consider this new program and how it could meet the needs of women scientists in particular. The funding would bring together senior scientists from the developing world to provide insights into the obstacles faced by women in academic and public health institutions in those settings. FIC, OIR, and other NIH partners develop and support a program to expand participation in the Visiting Program from the developing world, provide supplementary training in addition to scientific training, and support, on a competitive basis, “re-entry” grants on the scientists’ return home.

The NIH Visiting Program provides opportunities for young scientists from abroad to learn research techniques and conduct related research in all fields of biomedicine and behavioral science. These scientists, on their return home, are encouraged to compete for NIH extramural awards, to partner with U.S. scientists on collaborative research projects, and to assume leadership positions. As NIH works to address global health challenges and to advance critical areas of science, including HIV/AIDS, malaria, tobacco-related illness, and the health challenges facing women, scientists from the developing world play an important role. Their scientific knowledge, coupled with that of local cultures and norms, positions them to design and conduct research studies that are scientifically valid and that take into account local as well as international norms.

Of the roughly 2500 foreign scientists in the NIH Visiting Program, only 20 are from sub-Saharan Africa. This trend is similar for Asia, with the notable exceptions of India and China, and for most of Latin America. In addition, based on consults with current Visiting Fellows, there is a perceived need for supplementary training in areas that would bolster skills to take on leadership positions on return home. Further, Visiting Fellows would be more likely to return home and to continue to work productively in their field if small amounts of “re-entry” support could be provided.

