

DEPARTMENT OF HEALTH AND HUMAN SERVICES

NATIONAL INSTITUTES OF HEALTH

Burden of Chronic Disease

Witness appearing before the
Senate Subcommittee on Labor-HHS-Education Appropriations

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National Institute of Arthritis and Musculoskeletal and Skin Diseases

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Richard J. Turman, Deputy Assistant Secretary, Budget

Mr. Chairman and Members of the Committee:

I am pleased to present the Fiscal Year (FY) 2008 President's budget request for the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS). The FY 2008 budget includes \$508,082,000.

INTRODUCTION

The NIAMS supports a broad range of research, training, and health information activities related to arthritis, musculoskeletal, and skin diseases. These disorders are among the most common, chronic, and costly conditions affecting the U.S. population, and have a major impact on quality of life and disability for patients and families. In many ways, the mission of the Institute is defined by its diversity of the disorders that are studied afflict adults and children, and affect individuals and families of all races, ethnicities, and economic strata. While it is critical to support investigations across the research spectrum of from basic, to translational, to clinical studies of the NIAMS places a strong emphasis on work that has the potential to benefit patients directly.

Recent results from two clinical studies supported by the Institute underscore this commitment: in the first, researchers showed that, while surgery may be an effective route to relief from low back pain for patients with herniated (slipped) discs, over the longer term, non-operative therapies may offer similar benefits for those who cannot or elect not to have surgery. In the second, scientists in the NIAMS intramural research program discovered that the Food and Drug Administration (FDA)-approved arthritis medication anakinra brings marked improvement both in symptoms and the inflammation underlying a rare, debilitating, and often fatal disorder in children and young adults called neonatal-onset multisystem inflammatory disease (NOMID).

Looking ahead, NIAMS is also investing in emerging areas of science, such as tissue engineering and regenerative medicine, which hold the promise of substantially reducing the disability and health care costs associated with many common conditions. For example, insights gained from examining the development of connective tissues in the laboratory could be translated into approaches for the repair and regeneration of tissues in clinical settings. Over time, patients affected by disabling disorders such as osteoarthritis could benefit from this multidisciplinary work.

PREVENTIVE MEDICINE

The NIAMS continues to place a high-priority on studies to identify risk factors and biomarkers of disease, in an effort to facilitate the early identification of signs and symptoms, and to develop interventions that are more effective. To this end, scientists funded by the Institute are improving the understanding of the factors that affect bone mass in older men of to complement the considerable work that has been done in women of so that clinicians can better identify individuals potentially at high risk for fractures associated with osteoporosis, and help determine appropriate treatment and prevention approaches. To date, investigators have identified lifestyle, medical, and demographic

traits that are associated with low bone mass and potential fracture risk. In other work, researchers have identified biomarkers for lupus-related kidney disease. These biomarkers can be used to indicate the type and severity of renal disease, as well as the extent of kidney damage. Ultimately, this discovery could form the basis for a test that would save patients with lupus the expense, discomfort, and potential complications of repeated kidney biopsies.

In the coming year, NIAMS will continue its commitment to two novel public-private partnerships that are designed to improve prevention of osteoarthritis and osteoporosis ó conditions that already affect millions of Americans, with many more at risk as the population ages. The first, the Osteoarthritis Initiative (OAI), is a long-term effort, developed with support from numerous NIH components, private sector sponsors, and with the participation of the FDA, to create a publicly-available research resource to identify and evaluate biomarkers of OA for use in clinical research. The study has 4,800 participants who are at high risk for knee OA and, as of early FY 2007, clinical data from approximately 2,000 of them were available for research projects. The second, the Collaborative Initiative on Bone Strength (CIBS), will enable researchers to identify markers of bone strength to be used as surrogate endpoints for fractures in clinical trials, and to find measurements that are more accurate than bone density to predict risk of fracture. Information collected through this partnership ó which also involves several NIH components, the FDA, academic centers, and industry ó will facilitate the development of new treatments to prevent fractures because it enables the design of clinical trials that are smaller, shorter, and less expensive than current studies.

COMPLEX GENETIC DISEASES

The NIAMS is harnessing the explosion of information related to genomics and proteomics to better understand the causes of complex genetic diseases, and how best to treat and prevent them. This year, scientists supported by the Institute identified a gene that causes susceptibility to psoriasis, an autoimmune disease characterized by patches of thick, inflamed skin which are often itchy and sore. With this information, it may be possible to target the product of this particular gene in developing new treatments ó rather than using current therapies which suppress the entire immune system, leaving patients vulnerable to infections. Progress has also been made in understanding the genetic underpinnings of rheumatoid arthritis (RA), due in part to a twin study which revealed three genes involved in the disease. Using a sophisticated technique called microarray analysis, the scientists discovered three genes that were consistently overexpressed in the RA-affected twins ó pointing to new potential mechanisms of disease that can guide future research activities.

In FY 2008, the NIAMS will enhance its efforts in this area, in part by pursuing genome-wide association studies for diseases of interest to the Institute. Such work ó which will likely focus on analyses of phenotypes for autoimmune diseases and musculoskeletal disorders which collectively affect millions of Americans ó would build on investments being made at the NIH level through the Genetic Association Information Network (GAIN). Over time, identification of the genetic bases of these

conditions could lead to new predictive, preventive, diagnostic, and therapeutic approaches.

TRANSLATIONAL AND CLINICAL RESEARCH

A hallmark of research success is translation: work to bring insights from the laboratory bench to the patient bedside, and back again, with the ultimate goal of improving patient care and public health. To this end, the NIAMS recently launched the new Centers of Research Translation (CORT) program, to bring together basic and clinical researchers in a way that helps translate fundamental discoveries into new diagnostics and treatments. This year, the Institute funded four new centers focused on the following areas: the biological basis of fracture healing and the efficacy of a potential new treatment for healing of fragility fractures in the elderly; the role of different cell types in lupus pathogenesis, the development of markers of disease activity and severity, and the identification of new targets for therapies; the molecular contributors to a genetic form of rickets, and the development of new treatments; and the molecular basis of scleroderma, by using functional genomics and gene networks to understand the underlying causes of the disease.

In the coming year, the NIAMS will fund a second set of CORTs, in addition to supporting translational and clinical studies in a number of other promising areas. For example, together with the National Institute of Neurological Disorders and Stroke and the National Institute of Child Health and Human Development, the NIAMS is placing a high-priority on translational research for therapeutics development for the muscular dystrophies (MDs). Additional research in the MDs will be supported through the Senator Paul D. Wellstone Muscular Dystrophy Cooperative Research Centers, which promote side-by-side basic, translational, and clinical research. Further, within the Institute's intramural research program, work is being done to facilitate patient-oriented studies with a particular emphasis on the genetic, inflammatory, and immune-mediated mechanisms of arthritis, musculoskeletal, and skin diseases.

CONCLUSION

Since the Institute's inception twenty years ago, significant progress has been made to better understand the causes of many disorders of the bones, muscles, joints, and skin, as well as to develop treatment and prevention approaches for these diseases. In the coming year, NIAMS will place a particular emphasis on leveraging resources with public and private sector partners to support key initiatives. In this vein, the Institute plans to fund training fellowships in partnership with scientific organizations to support orthopaedic surgeons and dermatologists to pursue epidemiology, clinical trials, and health outcomes research across our mission areas. Within the intramural research program, a clinical scholars training program will be pursued to foster interactions among existing trainees with common scientific interests. As well, as part of efforts to enhance the research pipeline, the Institute will fund promising new investigators through the NIH Pathway to Independence program.

In addition, the NIAMS will continue to be an active partner with other Institutes and Centers in implementing the NIH Roadmap for Medical Research. In particular, the Institute is helping to lead one of the Roadmap initiatives designed to reengineer the clinical research enterprise. The Patient Reported Outcomes Measurement Information System, or PROMIS, network is developing new ways to measure patient-reported symptoms such as pain, fatigue, physical functioning, and emotional distress that have a major impact on quality of life across a wide variety of chronic diseases. Investigators funded through this initiative are creating a computerized adaptive test that, once validated, will be publicly available for use by the clinical research community. Over time, this tool will benefit patients who suffer from chronic conditions, as well as their health care providers.

Finally, as part of other efforts to serve patients, providers, and the American public, the NIAMS remains committed to a robust program to disseminate research results and science-based health information. In the coming year, the Institute will place an increased emphasis on underserved populations. Work in this area will include expanding the development and distribution of patient publications in Spanish and selected Asian languages, as well as low-literacy materials. Outreach activities with a variety of minority communities will also be enhanced, to increase awareness about NIAMS clinical research studies and health information resources.

DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

Biographical Sketch

NAME : Stephen I. Katz, M.D., Ph.D.

POSITION : Director, National Institute of Arthritis and Musculoskeletal and Skin Diseases, NIH

BIRTHPLACE: Brooklyn, New York

DATE : January 26, 1941

EDUCATION : B.A. (Honors), University of Maryland, 1962
M.D., (Honors), Tulane University School of Medicine, 1966
Ph.D., (Immunology), University of London, 1974

EXPERIENCE

8/95-present : Director, National Institute of Arthritis and Musculoskeletal and Skin Diseases, NIH

10/01-present : Senior Investigator, Dermatology Branch, National Cancer Institute, NIH

7/93-8/95 : Acting Chairman, Dermatology Dept., Uniformed Services University of the Health Sciences (USUHS), Bethesda, MD

2/89-8/95 : Marion B. Sulzberger Professor of Dermatology, USUHS, Bethesda, MD

11/80-10/01 : Chief, Dermatology Branch, National Cancer Institute, NIH

6/77-11/80 : Acting Chief, Dermatology Branch, National Cancer Inst., NIH

9/74-6/77 : Senior Investigator (Dermatology), Dermatology Branch, National Cancer Institute, NIH

1972-1974 : Research Fellow, Department of Pathology, Royal College of Surgeons of England

1967-1970 : Dermatology Resident, University of Miami School of Medicine

1966-1967 : Straight Medical Internship, Los Angeles County Hospital

PROFESSIONAL ORGANIZATIONS

1997-2002 : President, International Committee for Dermatology and International League of Dermatological Societies

1993-1994 : President, Society for Investigative Dermatology

1992-present : Member, Institute of Medicine of the National Academy of Sciences

1991-1995 : Secretary-Treasurer, Clinical Immunology Society

- 1988-1995 : Director, American Board of Dermatology
- 1987-1992 : Secretary-General, 18th World Congress of Dermatology
- 1984-1999 : Association of Professors of Dermatology
- 1971-present : American Academy of Dermatology

HONORS AND AWARDS

- 2006 : NIH Harvey J. Bullock, Jr. EEO Award
- 2006 : Excellence in Leadership Award, International Pemphigus Foundation
- 2005 : Master Dermatologist Award, American Academy of Dermatology
- 2005 : NIH Undergraduate Scholarship Program Recognition Award
- 2004 : Doctorem Honoris Causa, Semmelweis University, Budapest, Hungary
- 2003 : Lifetime Achievement Award from the American Skin Association
- 2003 : Michael Feiwel Lecture, Royal Society of Medicine, London
- 2003 : Doctoris Medicinae Gradum Honoris Causa, University of Munich
- 2002 : Alfred Marchionini Gold Medal for contributions to dermatology internationally
- 2000 : Presidential Executive Meritorious Rank Award, U.S. Government
- 2000 : Presidential Citation, American Academy of Dermatology
- 1999 : Fleur-de-lis Award for Outstanding Service of the Lupus Foundation of America
- 1998 : First Scientific Leadership Award of the S.L.E. Foundation
- 1998 : Dermatitis Research Award of the American Skin Association. Presented at the Society of Investigative Dermatology
- 1998 : Presidential Distinguished Rank Award, U.S. Government
- 1997 : Stephen Rothman Award of the Society of Investigative Dermatology
- 1996 : Outstanding Alumnus Award of Tulane University Medical School
- 1996 : D. Martin Carter Mentor Award from the American Skin Association
- 1996 : Distinguished Service Medal, Uniformed Services University of the Health Sciences
- 1994 : Presidential Executive Meritorious Rank Award, U.S. Government
- 1992 : Election into Institute of Medicine of the National Academy of Sciences
- 1989 : NIH Director's Award
- 1985 : Distinguished Service Award of the U.S. Public Health Services, DHHS highest award
- 1984 : First Annual Marion B. Sulzberger Professor of the Year Award given by the American Academy of Dermatology
- 1981 : Superior Service Award of the Public Health Service
- 1981 : William Montagna Award of the Society for Investigative Dermatology

Department of Health and Human Services
Office of Budget
Richard J. Turman

Mr. Turman is the Deputy Assistant Secretary for Budget, HHS. He joined federal service as a Presidential Management Intern in 1987 at the Office of Management and Budget, where he worked as a Budget Examiner and later as a Branch Chief. He has worked as a Legislative Assistant in the Senate, as the Director of Federal Relations for an association of research universities, and as the Associate Director for Budget of the National Institutes of Health. He received a Bachelor's Degree from the University of California, Santa Cruz, and a Masters in Public Policy from the University of California, Berkeley