We are pleased to share recent news on some of the clinical programs and research endeavors taking place in rheumatology at NewYork-Presbyterian Hospital. Through its affiliation with Columbia University College of Physicians and Surgeons and Weill Cornell Medical College, the Hospital offers comprehensive rheumatology services that continue to expand and strengthen clinical, research, and educational efforts.

A Legacy of Achievements. The Division of Rheumatology at NewYork-Presbyterian/Columbia builds on a long and distinguished history of achievements in the field. Among the Division’s esteemed clinician-scientists are Leonard Chess, MD, who served as Chief of the Division for 25 years. Dr. Chess pioneered the identification and study of biologically and clinically important molecules on the surface of human T lymphocytes. In recent studies, Dr. Chess, together with Hong Jiang, MD, PhD, is defining immunoregulatory functions of major histocompatibility complex (MHC) class I restricted CD8 T cells, which control autoimmune phenomenon in mice and man.

In 2010, renowned clinical researcher Joan M. Bathon, MD, was named Chief of the Division of Rheumatology at NewYork-Presbyterian/Columbia. Previously, Dr. Bathon served as Deputy Director of the Division of Rheumatology and Director of the Johns Hopkins Arthritis Center.

Dr. Bathon, who is Editor-in-Chief of the American College of Rheumatology journal, *Arthritis & Rheumatism*, has published more than 120 journal articles and book chapters, with a focus on mechanisms of inflammation in arthritis, biologic treatment of rheumatoid arthritis, and biomarkers in inflammatory arthritis.

She is past co-principal investigator of a National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)-sponsored Rheumatic Disease Research Center Core, and is a past co-investigator of one of the Field Centers for the Osteoarthritis Initiative, a NIAMS-sponsored large-scale longitudinal observational study of risk factors for knee osteoarthritis.

In recognition of his contributions to the role of different genetic factors and their interactions with environmental factors in the pathogenesis, diagnosis, and clinical management of rheumatoid arthritis, Dr. Winchester has just been named a 2013 recipient of the Crafoord Prize by the Royal Swedish Academy of Sciences.

Dr. Winchester’s current studies continue to focus on lupus. In one study, he is looking at the cells that infiltrate the kidney in lupus nephritis to determine their activation characteristics. He has already described interesting cellular findings that may explain some of the heterogeneity in lupus nephritis and why some people respond to medication and why some do not. In a second study, Dr. Winchester is looking at lupus pregnancies to identify factors that might precipitate eclampsia.
At NewYork-Presbyterian/Columbia, the Division of Rheumatology embraces a philosophy of multi-disciplinary and collaborative care, partnering with other medical specialties throughout NewYork-Presbyterian Hospital to develop effective treatment modalities and conduct research into future therapies. “The infrastructure needed to accomplish this brings together rheumatologists, scientists, orthopedists, cardiologists, nephrologists, and obstetrician/gynecologists, all working in concert to provide the highest quality patient care,” says Dr. Bathon.

Adult Rheumatology. Twelve rheumatologists in the Division of Rheumatology at NewYork-Presbyterian/Columbia treat the full range of autoimmune diseases and inflammatory disorders, including:

- inflammatory arthritis
- ankylosing spondylitis
- vasculitis, together with polyarteritis nodosa and Wegener’s granulomatosis
- osteoarthritis
- systemic lupus erythematosus
- scleroderma
- Sjogren’s syndrome
- myositis, with polymyositis and dermatomyositis

In 2011, the Division expanded with the appointments of Jon T. Giles, MD, MPH, and Dimitrios Pappas, MD, who were previously on staff at the Johns Hopkins Arthritis Center.

Dr. Giles brings with him research focusing on understanding the inflammatory and non-inflammatory determinants of body composition abnormalities in rheumatoid arthritis and their subsequent effects on health outcomes. He is also investigating accelerated atherosclerosis and myocardial dysfunction in patients with rheumatoid arthritis; identifying the risks of biologic therapeutic use for patients undergoing surgery; and exploring the musculoskeletal side effects of a class of medications used to suppress estrogen in women with certain forms of breast cancer.

Dr. Pappas has particular expertise in patients with inflammatory arthritis and concurrent interstitial lung disease or cardiac involvement. He is using musculoskeletal ultrasound technology for diagnostic and interventional purposes in patient care and research. Dr. Pappas’ clinical and translational research is focused on investigating the specifics of cardiovascular and respiratory disease in rheumatoid arthritis. He is also pursuing registry-based research and comparative effectiveness studies for therapeutic agents used in rheumatoid arthritis.

The Division’s newly established Arthritis Center is providing comprehensive care for patients with inflammatory arthritis, including rheumatoid arthritis and spondyloarthritis, crystal arthritis, as well as those with osteoarthritis. Collaborations with other medical specialties – cardiology, nephrology, obstetrics, and orthopedic surgery – are key to the Center’s integrated and multidisciplinary approach to treatment, as well as to research into future therapies. Clinical services include an injection clinic that employs ultrasound technology to allow for more targeted treatments.

With a high prevalence of systemic lupus erythematosus in the African-American and Hispanic communities of Northern Manhattan surrounding NewYork-Presbyterian/Columbia, the rheumatologists work closely with the Divisions of Nephrology and Obstetrics to address the increased risk for renal disease and pregnancy loss brought on by the disease. The Division is also partnering with the Lupus Foundation to incorporate a patient education component into its lupus program.

A Cardiovascular Risk Management Clinic is also under development in collaboration with the Divisions of Cardiology and Endocrinology to prevent and manage heart disease in rheumatology patients and to serve as a hub for research efforts.

Among the many other research endeavors underway by Division faculty are:

**ESCAPE II Myocardium: How RA and TNF inhibitors affect myocardial structure and function.** Funded by NIAMS, this study investigates how inflammation may be related to alteration in heart size and function and whether specific FDA-approved arthritis treatments may prevent the effects of inflammation in the heart muscle. Researchers are using 3D echocardiography and PET-CT imaging to evaluate the function of the heart muscle and
measure the presence of inflammation in the myocardium.

**Development of a predictive multimarker algorithm for cardiovascular disease in rheumatoid arthritis.** Current cardiovascular risk assessment tools do not predict cardiovascular disease well in RA patients. The goals of this study are to identify a group of proteins in the blood that are able to distinguish RA patients who have advanced atherosclerosis from those who do not. This will potentially allow earlier detection of atherosclerosis in this population with higher overall risk of cardiovascular disease.

**Identifying candidate citrullinated myocardial proteins in surgical pathology tissues.** People with rheumatoid arthritis have a greater risk for heart failure than those without RA; however, little is known about how the heart muscle differs in RA patients. Antibodies targeting heart muscle may be a feature of RA that may link aspects of the disease to the elevated risk of heart failure in RA patients.

**Ongoing analysis of data from the ESCAPE RA study.** Individuals with rheumatoid arthritis are at a heightened risk for heart attack, heart failure, and stroke. However, whether subclinical coronary and/or carotid atherosclerosis and myocardial dysfunction are increased in RA patients is unclear. If increased in RA, understanding the traditional and RA associated risk factors for subclinical cardiovascular disease will inform preventive and treatment strategies for decreasing cardiovascular disease risk in this high-risk group.

**Pediatric Rheumatology.** The Division of Pediatric Rheumatology, under the leadership of Lisa F. Imundo, MD, was one of the first programs of its kind established in the United States and the first in the New York City area. It was founded in 1960 by Jerry C. Jacobs, MD, a leading authority on rheumatoid arthritis in children, who wrote the first authoritative textbook, *Pediatric Rheumatology for the Practitioner.*

Today, the Division’s six pediatric rheumatologists provide care to thousands of children with rheumatic diseases and autoimmune disorders at NewYork-Presbyterian/Morgan Stanley Children’s Hospital. Board certified in both pediatrics and pediatric rheumatology, faculty are internationally renowned for their approach to juvenile idiopathic arthritis, systemic lupus erythematosus, Lyme disease, and Kawasaki disease, to name a few. Children with rheumatic diseases benefit from the close collaboration of the Division with pediatric programs in orthopedics, ophthalmology, nephrology, physical and occupational therapy, child psychiatry, and the pain service.

The large clinical practice of the Division of Pediatric Rheumatology is complemented by an active research program in which pediatric rheumatologists play leading roles in clinical trials of new medications and in innovative treatment protocols for juvenile arthritis, dermatomyositis, and childhood-onset systemic lupus erythematosus. A major focus is on the development of regimens to help patients function better while reducing the potential long-term side effects of treatments.

Current projects include trials that focus on:

- cholesterol-lowering drugs in the prevention of atherosclerosis in children and teens with lupus
- IL-1 inhibition in systemic juvenile idiopathic arthritis
- etanercept for acute Kawasaki disease
- the IBP-ROCK2-IRF-4 axis, a novel target for therapeutic intervention in SLE
- intravenous gammaglobulin in the treatment of juvenile dermatomyositis and the development of a treatment protocol without steroid therapy

The Division is also a member of the Children’s Arthritis and Rheumatology Research Alliance, a national organization of pediatric rheumatologists who have joined together to answer critical clinical research questions.
On January 1, 2012, Laurie H. Glimcher, MD, a world-renowned investigator in the fields of immunology and rheumatology, began her role as the Stephen and Suzanne Weiss Dean of Weill Cornell Medical College and Provost for Medical Affairs of Cornell University. Prior to joining Weill Cornell, Dr. Glimcher was the Irene Heinz Given Professor of Immunology at the Harvard School of Public Health and Professor of Medicine at Harvard Medical School, where she headed one of the top immunology programs in the world. Her pioneering research laboratory is credited with many discoveries, including defining the genetic bases of cytokine expression in T helper lymphocytes and identifying a transcription uncovering a novel protein called Schnurri-3, which controls adult bone formation. Dr. Glimcher is a member of the National Academy of Sciences and a recipient of the prestigious Lee S. Howley Award from the Arthritis Foundation.

At Weill Cornell Medical College, Dr. Glimcher’s laboratory is focused on immune and ER stress responses in disease processes; skeletal biology; and the study of cancer. A Professor of Medicine in the Department of Medicine, Dr. Glimcher currently serves as principal investigator on three NIH-funded projects.