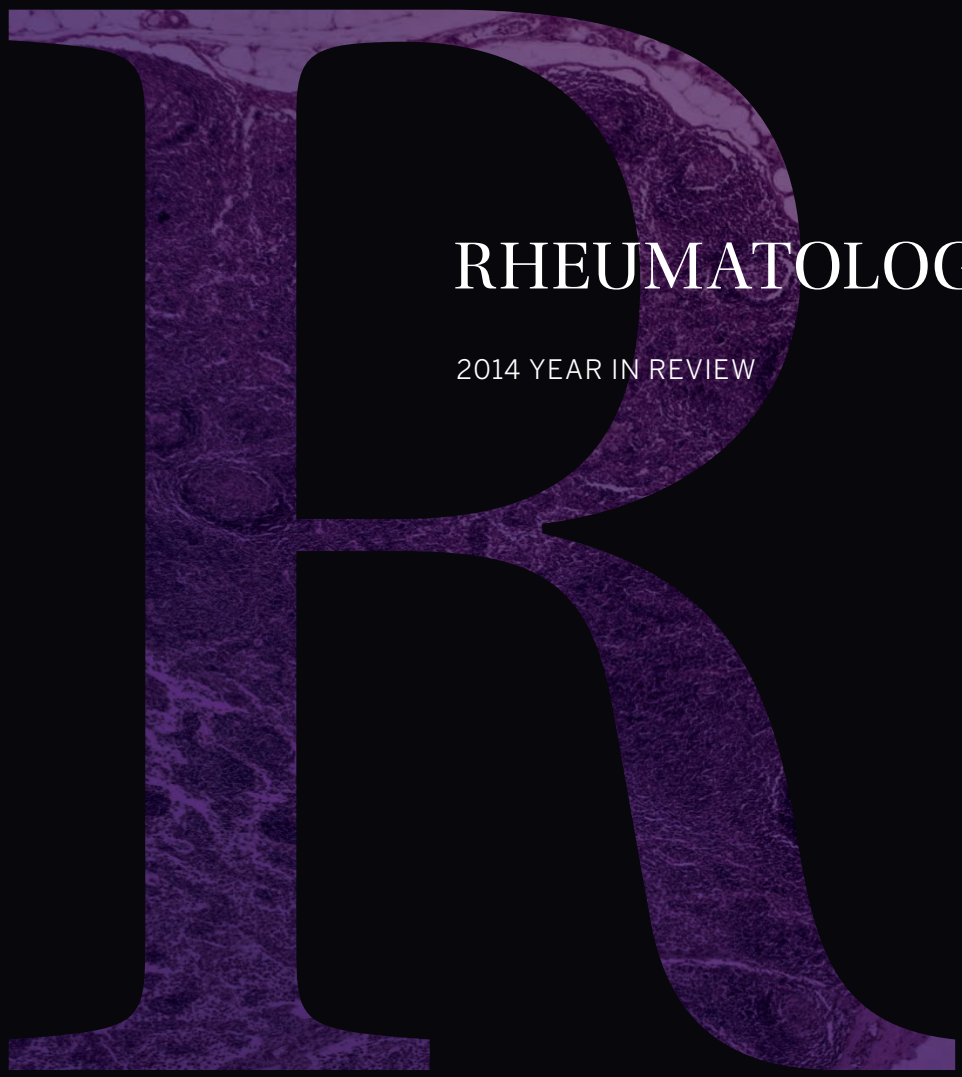
NYU Langone
MEDICAL CENTER



RHEUMATOLOGY

2014 YEAR IN REVIEW

CONTENTS

MESSAGE FROM THE DIRECTOR

Dear Colleagues and Friends,

The tripartite mission of our division is clear: Deliver comprehensive state-of-the-art clinical care, translate and integrate medicine and science, and increase the knowledge base of our trainees.

I'm proud to report that in 2014, with the dedication of all faculty members, we have made significant strides in all three areas, as evidenced in the following pages.

Under the guidance of our previous division director, Steven B. Abramson, MD, now chair of the Department of Medicine, the Judith and Stewart Colton Center for Autoimmunity was established. The center aims to advance discoveries about the microbiome and its relationship to autoimmune disease, and to leverage this new knowledge to develop strategies for prevention and treatment. Our vision of a comprehensive, multidisciplinary Psoriatic Arthritis Center dedicated to the bench-to-bedside integration of dermatology and rheumatology has now been realized, and a strong laboratory research base will stand behind this center to further our understanding of psoriatic arthritis and develop novel therapies.

We have made significant research advancements in 2014, backed by $3.8 million in federal grants and contracts and $11 million in private sector funding. This support will allow us to strengthen our focus on translational research on the biology of inflammation and autoimmunity. Several examples from very different spectra of disease illustrate this commitment, as we strive to identify discrete intestinal microbiota that contribute to the onset of rheumatoid arthritis; define the incidence and prevalence of lupus in Hispanics and Asian Americans; understand the relationship between antiphospholipid syndrome, the endothelium, and the human microbiome; and explore modulation of T cell adhesion to develop new therapies for rheumatoid arthritis.

To keep pace with our progress in 2014, we are poised to continue building on our strengths. We plan to increase extramural research funding, recruit additional basic science and translational research faculty, and expand our research on biomarkers that predict the transition from asymptomatic to clinical autoimmunity. An additional goal—and one I am personally very excited about—is to establish a Pregnancy and Autoimmunity Center of Excellence that will address the unique needs of expectant mothers with autoimmune diseases.

NYU Langone patients have a tremendous advantage that comes from our application of discoveries made in the laboratory to our robust clinical service. We are pushing ahead toward truly integrated and personalized medicine by working collaboratively to fine-tune medications and protocols in real time, and I'm excited to see where this approach leads in 2015 and beyond.

Finally, I extend my sincerest thanks to my longtime colleague and our former director, Steven B. Abramson, MD, an impeccable clinician, a renowned researcher, and a prolific author. His leadership and guidance positioned our division in a place of great strength and his vision continues to inspire.

JILL P. BUYON, MD

Director, Division of Rheumatology,
Department of Medicine

NYU Langone Medical Center

FACTS & FIGURES*

Rheumatology

#6 in the country

for Rheumatology in *U.S. News & World Report*'s 2014–2015 Best Hospitals survey

$3.8 million+

in federal grant/contract funding

$307,000 in clinical trial funds

84 original peer-reviewed papers

$11 million+

in non-federal grants and contracts

38 abstracts

by NYU Langone faculty accepted for the 2014 American College of Rheumatology meeting

faculty

92 faculty members

10 new faculty

6 fully funded fellows

with plans to expand to 7 in 2015

12 new research grants in 2014

- Mechanisms linking mucosal immune response and autoimmune arthritis
  Dutch Arthritis Foundation
- Multi-Ethnic Translational Research Optimization (METRO) Lupus Consortium
  National Institutes of Health (NIH) Accelerating Medicines Partnership
- Preventive approach to CHB with hydroxychloroquine (PATCH)
  Lupus Foundation of America Lifeline
- A Pilot Study to Determine the Feasibility of Prenatal Screening for Anti-Ro Antibodies
  Clinical and Translational Science Institute (CTSI) Resource Allocation Program (RAP), NYU Langone Medical Center
- Platelet Activation and Endothelial Reactivity in the Pathogenesis of Tissue Inflammation/Injury in Systemic Lupus Erythematosus
  Department of Medicine, NYU Langone Medical Center
- Colchicine and cardiovascular risk in gout patients: a national VA health record retrospective study
  CTSI RAP, NYU Langone Medical Center
- Anti-inflammatory approaches to cardiac disease in gout
  New York State Empire Clinical Research Investigator Program
- Targeting T Cell Adhesion in RA
  Investigator Award, American College of Rheumatology
- Pan-microbiome in at-risk subjects + NORA
  Arthritis Foundation
- Role of gut-bacterial species in autoimmunity
  National Institute of Arthritis and Musculoskeletal and Skin Diseases
- Motivational interviewing to improve medication compliance in patients with RA
  Pfizer Foundation
- B Cell Epitope Discovery and Mechanisms of Antibody Protection
  NIH/National Institute of Allergy and Infectious Diseases Contract

600+ patients seen

on an ongoing basis at the newly formed Psoriatic Arthritis Center

75% increase in outpatient volume

from April 2012 to July 2014

14 locations

in the metro NYC area offering Rheumatology services

*Numbers represent FY14 (Sept 2013–Aug 2014) unless otherwise noted

NYU Langone Medical Center

Ranked #1 for Two Years in a Row

in overall patient safety and quality, among leading academic medical centers across the nation that participated in the University HealthSystem Consortium Quality & Accountability Study

UHC Quality Leadership Award 2014 WINNER

Ranked #15 on "Best Hospitals" Honor Roll

by *U.S. News & World Report* and nationally ranked in 13 specialties, including top 10 rankings in Orthopaedics (#4), Rheumatology (#6), Geriatrics (#8), Neurology & Neurosurgery (#8), and Rehabilitation (#9)

BEST HOSPITALS U.S.News HONOR ROLL 2014-15

Ranked One of the Top 20 Medical Schools

by *U.S. News & World Report*

Magnet Designation for Third Consecutive Term

for Tisch Hospital and Rusk Rehabilitation, an honor achieved by only 2% of hospitals in the country. NYU Langone's Hospital for Joint Diseases received its first Magnet recognition in 2012.

MAGNET RECOGNIZED AMERICAN NURSES CREDENTIALING CENTER

NEW & NOTEWORTHY

Making Progress in Rheumatologic Disease through New Clinical Programs and Exciting Research Endeavors

Launching the Judith and Stewart Colton Center for Autoimmunity

The new Judith and Stewart Colton Center for Autoimmunity, directed by Steven B. Abramson, MD, the Frederick H. King Professor of Internal Medicine and chair of the Department of Medicine, is already building on recent discoveries made by Dan R. Littman, MD, PhD, Jose U. Scher, MD, and Gregg J. Silverman, MD, in further investigating the interaction between genes and environmental risk factors in autoimmune diseases.

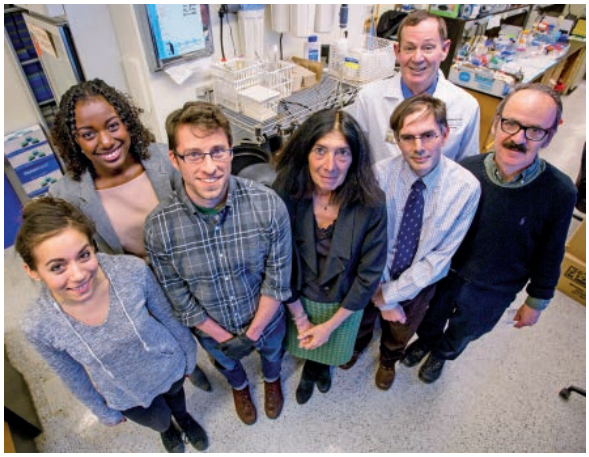
The center's initial goals are to understand the earliest immunologic events that initiate the autoimmune response in three autoimmune diseases—rheumatoid arthritis (RA), systemic lupus erythematosus (SLE), and antiphospholipid syndrome (APS). The center aims to use advanced technology to identify microbial triggers in the gut that initiate and perpetuate autoimmune disease, as well as develop new strategies to treat and prevent those triggers. This entails identifying the molecular abnormalities of T and B cell activation that promote or perpetuate autoimmunity, identifying novel microbes and microbial proteins that could be targeted for treatment and prevention, and identifying and validating serologic and microbial events that could be used as prognostic or diagnostic biomarkers.

Using next-generation DNA sequencing and advanced flow cytometric methods, Gregg J. Silverman, MD, professor of medicine and pathology and director of the Laboratory of B cell Immunobiology, is investigating the mechanisms by which B lymphocytes and antibodies in the gut interact with the microbiome during the development of SLE and APS.

New Biorepository Helps the Division Obtain an Accelerating Medicines Partnership Grant

Launched in 2014, the Specimen and Matched Phenotype-Linked Evaluation, or SAMPLE, is a cross-divisional biorepository of blood and tissue samples paired with a database of all NYU Langone patients (representing multiple ethnicities and races) with any form of rheumatologic or autoimmune disease. SAMPLE's goal is to speed discovery by seamlessly integrating patient information with basic science research. "This ability to link clinical information with immunologic readouts should help us better determine appropriate therapeutic targets," says Jill P. Buyon, MD, professor and director of the Division of Rheumatology. Dr. Buyon continues, "Our plan to be all-encompassing has been realized by approved patient consent forms in Spanish and Mandarin."

SAMPLE played a role in the decision of the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS) to award Dr. Buyon and her partners at the Albert Einstein College of Medicine and Rockefeller University a prestigious Accelerating Medicines Partnership in Rheumatoid Arthritis and Lupus (AMP RA/Lupus) first-year grant of $700,000. AMP is a partnership of the National Institutes of Health (NIH), biopharmaceutical organizations, and nonprofit organizations that studies the biological targets of disease in SLE and RA, with the aim of producing new diagnostics and therapies. According to Dr. Buyon, AMP brings together for the first time "multidisciplinary research teams working to achieve a broad, systems-level understanding of these diseases and set the stage for more effective treatments."



Under the umbrella of AMP, Dr. Buyon and her colleagues have been able to launch the Multi-Ethnic Translational Research Optimization (METRO) project, which reflects the division's commitment to medicine–science partnerships and its unique ability to care for patients of all ethnicities and races. As Dr. Buyon explains, "By virtue of our urban location and affiliation with both Bellevue Hospital Center and the Veterans Affairs New York Harbor Healthcare System, our studies can account for health disparities and facilitate discoveries that are applicable to thousands of people of varied backgrounds and socioeconomic status. I don't think any other medical center can match that."

METRO scientists will employ the latest RNA sequencing techniques to identify cellular pathways that contribute to the development and progression of lupus nephritis. Unique to this endeavor is the evaluation of blood vessels from the skin as a mirror of the microvascular endothelial cells in the kidney. "To cause tissue injury, infiltrating cells have to pass through the vascular barrier. We expect this line of research to lead to new methods for preventing that passage," says Dr. Buyon. The NIH grant is also helping her team—including H. Michael Belmont, MD, Peter Izmirly, MD, and Robert Clancy, PhD—to create a national network that shares clinical and research data to speed the development of new treatments.

NEW & NOTEWORTHY

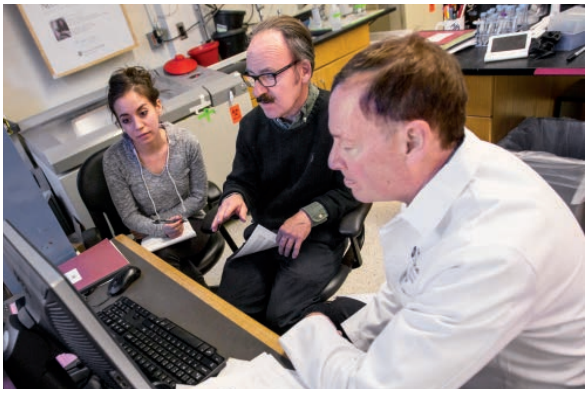
Exploring Gout and Other Crystal-Related Diseases

The Crystal Diseases Study Group (CDSG), directed by fellowship training program director and professor of medicine Michael Pillinger, MD, and Svetlana Krasnokutsky Samuels, MD, MS, assistant professor of medicine, is examining gout and its associated comorbidities. Specifically, the group is investigating the biology of gout and its necessary precursor, hyperuricemia, with a special focus on the interactions of hyperuricemia, gout, and cardiovascular disease and of hyperuricemia, gout, and osteoarthritis. The group is also seeking to determine whether gout treatments—both anti-inflammatory and urate-lowering—may benefit these and other comorbidities, in patients both with and without gout. Ongoing investigations that the CDSG is leading are designed to test the hypothesis that gout treatments are beneficial for vascular function and atherosclerosis. Group members are also collaborating with NYU Langone cardiologists in exploring gout treatments in the setting of acute coronary intervention and, with nephrologist David Goldfarb, MD, professor of medicine, in determining whether anti-inflammatory therapy may help prevent renal impairment in patients with recurrent kidney stones. In other research, the team is looking into the effects of treating osteoarthritis with anti-inflammatory medications traditionally used to treat gout.

The CDSG recently reported that patients with gout have a higher-than-expected rate of osteoarthritis and has published a review of current biology and uses of the gout drug colchicine. Funding includes a $1.2 million collaborative NYS Empire Clinical Research Investigator Program award to establish Translational Research in Inflammation and Atherosclerotic Disease (TRIAD), and a $375,000 American College of Rheumatology (ACR) Investigator Award to Dr. Krasnokutsky to study the treatment of osteoarthritis with anti-inflammatory medications. In addition, Dr. Pillinger serves on the Planning and Executive committees of a $22 million VA Cooperative Studies multisite project to assess the relative efficacy of two standard gout drugs, allopurinol and febuxostat, in reducing the risk of gout flares. In addition to these studies, future goals include performing a large dataset analysis of the benefit of colchicine on myocardial infarction in collaboration with MAVERIC, the Massachusetts Veterans Epidemiology Research and Information Center, and conducting studies examining the interaction between gout and the human microbiome.

Advancing Research on Antiphospholipid Syndrome

Dr. Belmont, professor of medicine and the division's associate director of clinical affairs, has a mission to advance research on APS. He began by creating a robust patient database, merging the Spiegel Foundation NYU Antiphospholipid Syndrome registry with the APS Alliance for Clinical Trials and International Networking (APS ACTION). And he is now participating in a randomized trial of hydroxychloroquine for primary thrombosis prevention as well as collaborating with Gregg J. Silverman, MD, professor of medicine and pathology, in exploring the relationship between APS and the human microbiome. With divisional colleague Dr. Clancy, associate professor of medicine, Dr. Belmont is also investigating the effect of antiphospholipid antibodies on the intracellular signaling of the mTORC pathway in microvascular endothelial cells.



An Integrated Approach to Psoriatic Arthritis

Combining excellence in both patient care and fundamental research, the new Psoriatic Arthritis Center at NYU Langone offers comprehensive, integrated, patient-tailored diagnostics. A key feature of the center is the highly integrated multidisciplinary care and collaboration, including face-to-face interaction between rheumatologists and dermatologists, an on-site musculoskeletal radiologist dedicated to the imaging and detection of early joint and tendon changes, a nutritionist, an orthopaedic surgeon specializing in psoriatic arthritis (PsA), and physical and occupational therapists. Dr. Scher, assistant professor and director of the Microbiome Center for Rheumatology and Autoimmunity, and assistant professor Soumya Reddy, MD, direct the center. Drs. Scher and Reddy, who have recently published groundbreaking research on intestinal bacteria as potential modulators of PsA, are active members of a select group of international researchers in PsA, and have hosted two major workshops for PsA clinics and centers in North America. They also actively participate in pivotal FDA trials to bring novel medications to patients with PsA.

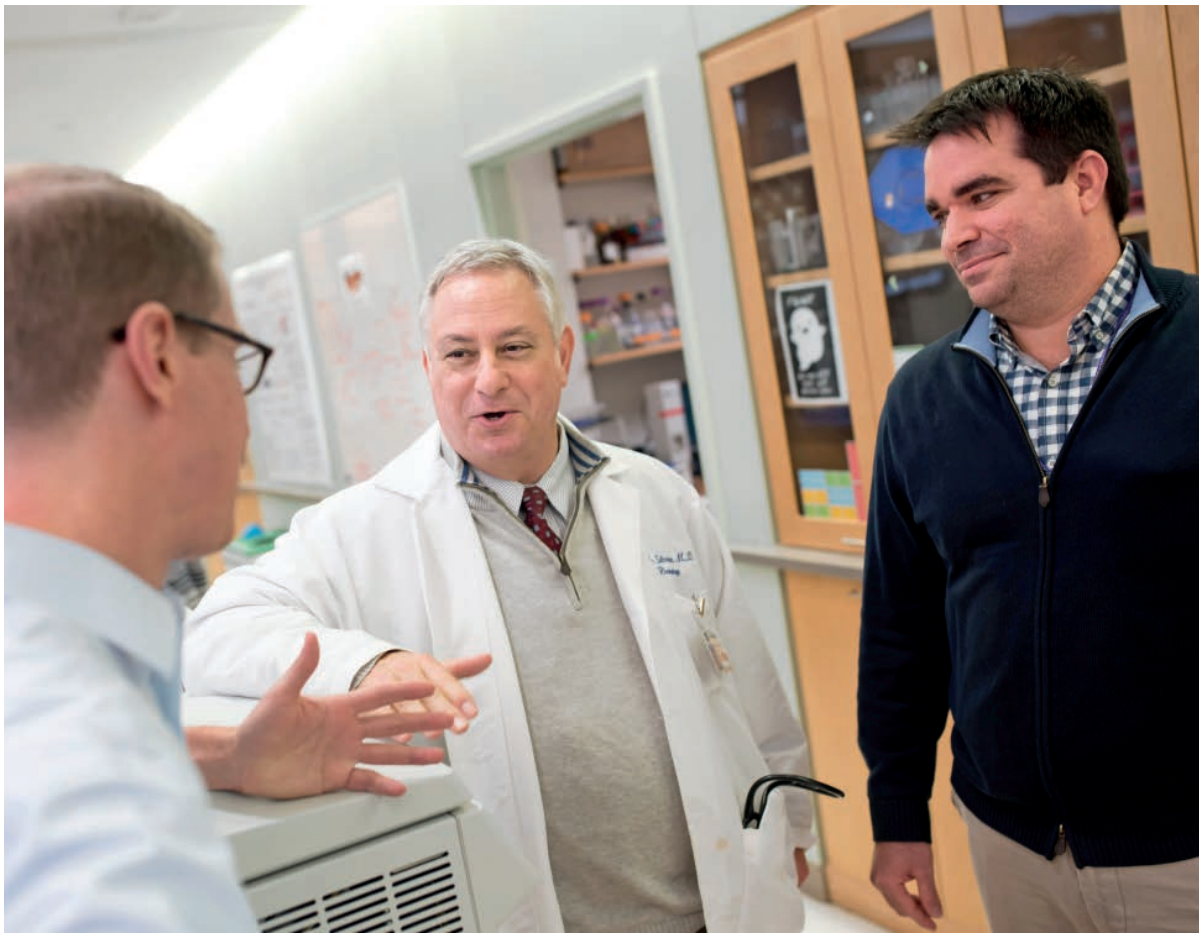
Study on T Cell Adhesion

Effective T cell adhesion is essential for autoimmunity, suggesting that adhesive function may be a target for treating autoimmune diseases such as RA, lupus, and psoriasis. However, the potential for therapeutically ameliorating autoimmunity by modulating T cell adhesion has hardly been explored. Through a 2014 Investigator Award from the ACR, Adam Mor, MD, PhD, assistant professor of medicine, will address this gap by examining how one critical T lymphocyte adhesion molecule—the ß2 integrin LFA-1—is regulated. Dr. Mor, who trained under professor of medicine Mark Phillips, MD, will be manipulating adhesion to regulate T cell function. With a better understanding of T cell adhesion, its activation and action, NYU Langone researchers expect to be able to identify critical components that can serve as targets for the development of new therapies for autoimmune diseases such as RA.

Furthering the Understanding of Methotrexate

Bruce Cronstein, MD, the Dr. Paul R. Esserman Professor of Medicine, was the first to propose that in rheumatic disease, both the mechanisms of action and the toxicities of methotrexate (MTX) depend on its ability to stimulate local cellular generation of adenosine, which has both anti-inflammatory and profibrotic properties. Dr. Cronstein is involved in ongoing research to further understand the drug: In a systematic literature review, he and his team concluded that MTX's efficacy and toxicity appear to be related to the amount of MTX absorbed, not to the route of administration. Dr. Cronstein has also found that MTX reduces inflammatory osteolysis indirectly via stimulation of A2AR, and this may offer a novel approach to improving orthopaedic implant survival, which could delay or eliminate the need for revision arthroplasty surgery.

NEW & NOTEWORTHY



Interdisciplinary Study of Staph Infections

Dr. Silverman, along with NYU Langone infectious disease experts, received a five-year, $6.5 million grant from the NIH/National Institute of Allergy and Infectious Diseases (NIAID) to develop vaccines that could train the immune system to fend off staph infections that do not respond to antibiotics. The collaborative team will draw on their expertise in clinical immunology, microbial genetics, and infectious disease, as well as in protein structure and proteomics, to understand how methicillin-resistant *Staphylococcus aureus* (MRSA) subverts the immune system, claiming more than 19,000 lives annually. The team's ultimate goal is to identify all the antigens in staph bacteria that are recognized by the body to help fight MRSA and to determine which of these antigens offer the best hope for developing new vaccines and medications to prevent and treat this virulent infection.

Awards and Recognition

- **Steven B. Abramson, MD**, was honored as a Master of the American College of Rheumatology (ACR), one of the highest honors the college bestows. The designation is conferred on long-standing ACR members who have made outstanding contributions to the field of rheumatology through scholarly achievement and/or service to their patients, students, and profession.
- **H. Michael Belmont, MD**, professor of medicine and director of the Bellevue Hospital Center lupus clinic, was named Faculty Member of the Year for the Rheumatology Program at NYU Langone's annual Department of Medicine Awards ceremony.
- **Ashira Blazer, MD,** was named Fellow of the Year for the Rheumatology Program at NYU Langone's annual Department of Medicine Awards ceremony.
- **Jill P. Buyon, MD**, has been named editor of *Lupus Science & Medicine*. She also received the Halsted R. Holman Award for Excellence in Clinical Research at the September 2014 Lupus Meeting in Quebec. And she is the director of the Research Registry for Neonatal Lupus, established in 1994 by the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS).
- **Bruce Cronstein, MD**, was honored with the Arthritis Foundation's Lee C. Howley Sr. Prize for Research in Arthritis, recognizing researchers whose contributions during the previous five years have represented a significant advance in the understanding, treatment, or prevention of arthritis and rheumatic diseases. Dr. Cronstein is also a member of the board of directors of the ACR.
- **Rochelle Hirschhorn, MD**, Professor Emerita of Medicine, Cell Biology and Pediatrics, received the American Society of Human Genetics Victor A. McKusick Leadership Award, along with her husband, Kurt Hirschhorn, MD. The award recognizes individuals whose professional activities have fostered and enriched the development of human genetics as a discipline and who have exemplified leadership and vision in the field.
- **Adam Mor, MD, PhD**, was named a Colton Scholar for his work on the role of Rap1 and related proteins in the cellular activation of T cells, mast cells, and other immune cells, since they relate directly to the immune responses in lupus, rheumatoid arthritis, and other autoimmune diseases. In addition, Dr. Mor was a member of the inaugural class of inductees into the Gerald Weissmann Young Scholars Society.
- **Johannes Nowatzky, MD**, assistant professor of medicine, was named a Colton Scholar in support of his research on the development of cell-based immunotherapy for rheumatic and nonrheumatic autoimmune diseases. In particular, Dr. Nowatzky has developed strategies for using regulatory T cell expansion in therapeutic immunomodulation.
- **Michael Pillinger, MD**, director of the Rheumatology Fellowship Program, was honored with the ACR's Distinguished Program Director Award. Dr. Pillinger is also a member of the board of directors and chair of the Curriculum Task Force and the Basic and Clinical Science Training Curriculum Committee.
- **Jose U. Scher, MD**, was a member of the inaugural class of inductees into the Department of Medicine's Gerald Weissmann Young Scholars Society, which was launched in tribute to Dr. Weissmann for his more than 50 years of mentorship provided to generations of physicians and scientists. Dr. Scher also received an Arthritis Foundation Innovative Research Grant Award and an NIH/NIAMS Award; both grants will allow him to expand on his studies of the microbiome in autoimmune and rheumatic disease.
- **Gregg J. Silverman, MD**, was appointed to the ACR Committee on Research.

CLINICAL CARE AND RESEARCH

Advancing Science, Improving Care

➡ ***NYU Langone is leading research efforts that are changing treatment options for patients with rheumatologic diseases.***

Pushing the Envelope

The NYU Langone Research Registry for Neonatal Lupus is the first and only such registry in the United States, with a database of 490 families with

613 affected children

LUPUS AND NEONATAL LUPUS

NYU Langone's Lupus Center offers patients access to expert clinicians and autoimmune disease–focused basic researchers who use the most advanced diagnostic and therapeutic procedures—procedures often based on the research findings of NYU Langone physicians. The center puts special emphasis on autoimmune disease as it affects pregnancy and on conducting clinical trials for new therapeutic agents that may decrease overactive immune cells, reduce pathogenic autoantibodies, and identify biomarkers that predict flare-ups and response to therapy. Jill P. Buyon, MD, professor of medicine, director of the Division of Rheumatology, and director of the Lupus Center, in collaboration with Jane E. Salmon, MD, at the Hospital for Special Surgery, has completed the largest prospective study on pregnant women with lupus and confirmed that those with inactive or stable mild/moderate disease can have successful pregnancy outcomes. Furthermore, as presented at the ACR annual meeting, this team has identified risk factors, such as flares and the lupus anticoagulant, that threaten the health of mother and baby.

AT THE FOREFRONT IN CLINICAL TRIALS

NYU Langone was a major recruiting site for the trial that was integral to the 2011 FDA approval of belimumab to treat lupus—the first new lupus drug approved in 56 years—and it is actively engaged in all the current phase IV trials. Amit Saxena, MD, is the site leader on five clinical trials of belimumab, which inhibits B lymphocyte stimulator (BLyS). One of these trials is evaluating the effectiveness of the drug in African Americans and in patients with lupus nephritis. Other studies will establish the effect of belimumab on patients' response to vaccines and the efficacy of a subcutaneous formulation of the drug, and will create a registry of patients to evaluate the drug's long-term safety. "Belimumab has led the way in a new era of developing molecular targeted therapies in lupus," says Dr. Saxena. "This is an exciting time, with the potential for many options to manage this disease." Dr. Saxena is also leading several other clinical trials, including one on voclosporin, a next-generation calcineurin inhibitor for lupus nephritis. These trials are studying the use of epratuzumab, an anti-CD22 B lymphocyte inhibitor, and MEDI-546, an antibody against type 1 interferon, for the skin, joint, and cardiorespiratory symptoms of lupus. In 2014, the division conducted 12 trials involving eight different drugs for systemic lupus.

PROGRESS IN NEONATAL LUPUS

Dr. Buyon is an expert on neonatal lupus, a disease that affects the fetus and the neonate and that is associated with maternal exposure to anti-Ro antibodies, the major manifestations being heart block and skin rash. Dr. Buyon presented to a large audience of rheumatologists at the 2014 ACR meeting on the latest bench-to-bedside advances in treating the disease, and she is leading research on this rare condition. Her Research Registry for Neonatal Lupus (the first and only such registry in the United States and the largest in the world) has accumulated data on hundreds of neonatal lupus patients and their families—490 families with 613 affected children—and is helping to unravel the genetics behind the disease. Dr. Buyon and colleague Robert Clancy, PhD, associate professor of medicine, are studying the connection between anti-Ro antibodies, which recognize an intracellular target, and the subsequent scarring of the fetal heart. "Our work suggests that these antibodies bind heart cells that are undergoing a specialized form of cell death referred to as apoptosis during fetal development," explains Dr. Clancy. The apoptotic immune complexes are subsequently removed by macrophages, which, in turn, may result in the secretion of proteins that scar surrounding healthy cells in the vicinity of the atrioventricular node. This team identified that Toll-like receptor signaling in the macrophages may be important in the pathogenesis of heart block and that hydroxychloroquine inhibits this signaling. "Next, we're looking to see whether hydroxychloroquine administered early in pregnancy to a mother with anti-SSA/Ro antibodies who has had a previous child with this condition may prevent congenital heart block," says Dr. Clancy.

CLINICAL CARE AND RESEARCH

TRACING LUPUS AMONG HISPANICS AND ASIANS

NYU Langone is joining Emory University, the University of Michigan, the University of California at San Francisco, and the Indian Health Service as the five sites funded by the Centers for Disease Control and Prevention to uncover the true national magnitude and impact of SLE. According to Peter Izmirly, MD, assistant professor of medicine and co-principal investigator of the New York arm of the project, the Manhattan Lupus Surveillance Program, 80 percent of data collection is complete. He and his team hope to have preliminary data published in 2015. The purpose of the study, being done in collaboration with the NYC Department of Health and Mental Hygiene, is to develop a more accurate estimate of the number of lupus cases in Manhattan, especially among minorities. "Manhattan's high concentration of Hispanics and Asians made us a perfect fit for this study, " explains Dr. Izmirly. "Thanks to the extraordinary cooperation we've received from community rheumatologists, we're closer to a good epidemiologic picture of the disease."

STUDY GETS NIH FUNDING

Dr. Buyon's clinical trial, Preventive Approach to Congenital Heart Block With Hydroxychloroquine (PATCH), is a first-ever evaluation of whether hydroxychloroquine, a drug widely used for SLE, prevents heart block. The trial was funded first by the LIFELINE Grant Program through the Lupus Foundation of America, and that backing and the initial success of the study served as a springboard for NIH support.

"Thanks to the extraordinary cooperation we've received from community rheumatologists, we're closer to a good epidemiologic picture of the disease."

Preventing Permanent Damage

The Behçet's Syndrome Center has seen more than **1,200 patients** from 35 states and seven countries

The Seligman Center patient registry has data on nearly **9,000 patients**

BEHÇET'S SYNDROME

While few doctors, even rheumatologists, have enough experience with Behçet's syndrome to diagnose or treat it, the Behçet's Syndrome Center, part of NYU Langone's Seligman Center for Advanced Therapeutics and the only center of its kind in North America, has treated more than 1,200 individuals with Behçet's syndrome from 35 states and seven countries. "We've found the important issue for patients with severe cases of Behçet's syndrome is to start aggressive treatment before any permanent damage is done," explains Yusuf Yazici, MD, assistant professor of medicine. "Once you turn off the disease, it stays away for good in 60 to 70 percent of patients."

AUTOIMMUNE EYE INFLAMMATION AND DEVELOPMENT OF CELL-BASED IMMUNOTHERAPY

NYU Langone is at the forefront of research aimed at better understanding the immunology of Behçet's syndrome and developing new treatment options. Johannes Nowatzky, MD, assistant professor of medicine, is researching the development of cell-based immunotherapy for autoimmune diseases. Dr. Nowatzky is heading a 5-year project that was recently granted funding by the NIH's National Eye Institute. This project is seeking strategies for exploiting the physiologic properties of certain regulatory T cells for therapeutic immunomodulation in uveitis caused by Behçet's syndrome. This proof-of-principle work involves approaches for the generation of suppressive T cell products innovated by Dr. Nowatzky, with the ultimate aim of reintroducing these cells into the patient to fight eye inflammation. "At a time when the scientific community is celebrating major victories of cell-based immunotherapy in the fight against cancer, these approaches remain almost completely unknown in rheumatology. While the development of innovative cell-based therapies for autoimmune diseases faces many challenges, there may be enormous promise for certain subsets of our patients that we can't have them miss out on."

Moreover, because Behçet's syndrome tends to occur in people of Middle Eastern and Far Eastern ancestry, and because New York City has a large population of both groups, NYU Langone is an ideal place for the study and treatment of the disease. "Basically, we are the national referral center for Behçet's," says Dr. Nowatzky, who sees patients with Behçet's syndrome in addition to conducting research.

NYU Langone is also conducting an observational study on the use of abatacept for the mucocutaneous manifestations of Behçet's syndrome. The study enrollment target is 30 patients, including 20 with resistant oral ulcers and 10 with resistant genital ulcers. Study participants will be treated with abatacept for six months, with the goal of decreasing the number of ulcers. In addition, Dr. Yazici's international collaboration, a trial of apremilast conducted at six sites in the United States and three sites in Turkey, was recently completed and is awaiting publication.

SELIGMAN CENTER FOR ADVANCED THERAPEUTICS

The Seligman Center offers innovative therapies integrated with biomedical research for such diseases as SLE, RA, psoriatic arthritis, osteoarthritis, Behçet's syndrome, and Sjögren's syndrome. Says Dr. Yazici, "Our focus is on joining clinical rheumatologists with an extensive investigation program." Dr. Yazici cites tocilizumab, an FDA-approved RA drug already available at the center as part of its vasculitis research protocols. Approximately 25 clinical trials are under way, including one of the nation's first RA minority registries, an international collaboration on the natural history of vasculitis, and Behçet's syndrome collaborations with the NIH. The Seligman Center patient registry has data on nearly 9,000 patients.

CLINICAL CARE AND RESEARCH

Facing Fracture

RHEUMATOLOGY AND OSTEOPOROSIS

With many Americans living longer, and therefore living longer with osteoporosis, NYU Langone rheumatologists are identifying new ways to prevent fracture and to improve healing when fracture does occur.

QUANTIFYING DISTAL FEMUR MICROARCHITECTURE IN WOMEN

Although largely considered the best way to determine bone health, bone mineral density testing has a limited ability to discriminate between good and poor bone quality. Stephen Honig, MD, clinical associate professor and director of NYU Langone's Osteoporosis Center, in collaboration with Gregory Chang, MD, assistant professor of radiology at NYU Langone, recently completed a study to determine whether 7T MRI could quantify and compare distal femur microarchitecture in women with and without poor bone quality as defined by the presence of fragility fractures. The researchers found that microarchitectural parameters could be used to discriminate between these two groups. Study participants with fragility fractures showed lower bone volume fraction and markers of trabecular number, platelike structure, and plate-to-rod ratio, and higher markers of trabecular isolation, rod disruption, and network resorption. By comparison, bone mineral density testing of study participants showed no differences in hip or spine T-scores. These findings could significantly improve future diagnoses, since these microarchitectural parameters are an additional tool for detecting poor bone quality when it is not seen on dual-energy X-ray absorptiometry.

DEVELOPING NEW MEDICATIONS FOR NONUNION FRACTURES

Osteoporosis predisposes people to nonunion fractures, which make up approximately 1 percent of all fractures. Dr. Honig, in collaboration with Kenneth Egol, MD, professor, chief of the Department of Orthopaedic Surgery's Trauma Service, and director of the Bone Healing Center, is investigating the use of anabolic medications for nonunion fractures in the hope that a new treatment may improve osteoporosis-related fracture outcomes.

INVESTIGATING POSTMENOPAUSAL HEIGHT LOSS

Dr. Honig is also beginning a study of postmenopausal women who have lost two or more inches of height. Using thoracic and lumbar spine imaging, Dr. Honig hopes to define how disc degeneration and/or vertebral compression fracture(s) contribute to height loss and whether bone-strengthening medication can prevent or reduce age-related height loss. The study may also point the way toward new therapies that can increase quality of life, improve pulmonary function, and decrease mortality associated with the disease.

RESEARCHING BONE MARROW EDEMA IN OSTEOPOROSIS

Because small fractures of the bone can cause bone marrow edema, rheumatology researchers are using MRI machinery that is equipped with specialized software to study bone marrow edema in the knees of patients with osteoporosis. Their findings may also further the understanding of bone marrow edema seen in the young, for example, in association with Gaucher disease.

THE BONE HEALING CENTER

The Bone Healing Center exemplifies NYU Langone's collaborative ethos. The partnership between the Department of Orthopaedic Surgery and the Division of Rheumatology brings together rheumatologists and orthopaedic trauma surgeons, endocrinologists, radiologists, pain management specialists, and pediatric trauma specialists. The center is pioneering new technologies and procedures to help patients facing long and difficult recoveries because of complex fracture reconstruction or bone healing problems, including nonunion fractures, delayed unions, osteomyelitis, metabolic bone disorders, and limb length discrepancies. "There can be many reasons fractures don't heal, and surgery isn't always the answer," explains Dr. Egol, chief of the orthopaedic trauma service and director of the Bone Healing Center. Through this center, patients have access to advanced therapies including stem cell treatments, electrical bone stimulation, bone morphogenetic proteins, and platelet-rich plasma therapy.

CLINICAL CARE AND RESEARCH

A Comprehensive Approach to Psoriatic Arthritis

PSORIATIC ARTHRITIS

Previously thought to be a subset of rheumatoid arthritis in patients with coincident psoriasis, psoriatic arthritis (PsA) has only recently been recognized as a unique disease. This delay in recognition means that there are few physicians who specialize in treating PsA and its consequences. NYU Langone is fortunate to have two such physician-scientists—Jose U. Scher, MD, assistant professor of medicine, and Soumya Reddy, MD, assistant professor of medicine and dermatology.

By investigating the link between the development of arthritis and microorganisms that live in the human gut and publishing their results, Drs. Scher and Reddy have helped change the way the field of rheumatology views PsA. Dr. Scher led a study that found that PsA patients have fewer beneficial bacteria in their intestines, an observation that recalls the change in the microbiome of patients with inflammatory bowel disease. This exciting finding may help elucidate the initial events leading to the development of arthritis in patients with preexisting psoriasis of the skin. It may also lead to the development of novel therapies in the form of prebiotics, probiotics, or other methodologies for repopulating the intestines with beneficial microbes. Dr. Reddy is investigating gender differences in the development of PsA. In her presentation at the 2014 ACR annual meeting, she reported that women had worse disease activity compared to men despite receiving the same type of medication and even after adjusting for disease duration and inflammation markers in the blood, such as C-reactive protein. Dr. Reddy is also part of an international committee of PsA researchers that has recently published recommendations for managing comorbidities in PsA, such as cardiovascular disease and diabetes.

NYU Langone's Psoriatic Arthritis Translational Registry and Biorepository includes data from more than

300 patients,

making it one of the largest psoriasis and PsA patient registries in the country

"The best psoriatic arthritis care can be achieved only though an interdisciplinary and comprehensive approach."

TRANSLATIONAL REGISTRY AND BIOREPOSITORY

NYU Langone is uniquely positioned to examine the association between genetic and environmental factors in PsA, in part through its noted Psoriatic Arthritis Translational Registry and Biorepository—one of the largest psoriasis and PsA patient registries in the country. The registry, established in 2005, oversees the collection of longitudinal clinical data and biospecimens that can help predict patient response to new therapies and that is thus a prime resource for investigators working with biotechnology and pharmaceutical companies on development of new drugs. Along with researchers at other institutions, including the Cleveland Clinic, the University of Utah, and the University of Pennsylvania, NYU Langone recently helped establish the Psoriatic Arthritis Research Consortium to enable researchers to collaboratively study the screening tools and databases used by psoriasis and PsA centers nationwide.

PROVIDING INTERDISCIPLINARY AND COMPREHENSIVE PATIENT CARE

NYU Langone's new Psoriatic Arthritis Center, led by the Division of Rheumatology in collaboration with the Ronald O. Perelman Department of Dermatology, brings together multiple specialists in an effort to treat the many aspects of PsA in one place. The center is co-directed by Drs. Scher and Reddy, along with senior consultant Gary Solomon, MD, clinical associate professor of medicine.

"The best psoriatic arthritis care can be achieved only through an interdisciplinary and comprehensive approach to patients with very specific needs," says Dr. Scher. This is a defining aspect of the center, which features close interaction between rheumatologists and dermatologists, including Andrea Neimann, MD, MS, assistant professor of dermatology, and includes a musculoskeletal radiology facility dedicated to recognizing and understanding early joint and tendon changes, a nutritionist to treat risk factors for obesity and cardiovascular disease, an orthopaedic surgeon, and specialized physical and occupational therapists.

The center's patients—more than 600 in the past year—also have access to the latest research on new therapies and biologic events in PsA. These include clinical efficacy trials, longitudinal studies (in which researchers study how biomarkers track the disease's activity), and research into the mechanisms by which PsA develops. For over a decade, much of this work has been supported by the William and Lynda Steere Foundation.

CLINICAL CARE AND RESEARCH

Collaborative Care for Rheumatoid Arthritis and Osteoarthritis

RHEUMATOID ARTHRITIS AND OSTEOARTHRITIS

NYU Langone is committed to better understanding rheumatoid arthritis (RA) and osteoarthritis, both of which have been the subject of innovative collaborations that have led to new treatments and insights.

FOCUSING ON THE HUMAN MICROBIOME CONNECTION

Working together, researchers at NYU Langone are discovering the connections between RA and the human microbiome (a focus of work being done as part of the Colton Center for Autoimmunity). Dan R. Littman, MD, PhD, the Helen L. and Martin S. Kimmel Professor of Molecular Immunology, has linked the species of intestinal bacteria known as *Prevotella copri* to the onset of RA, the first demonstration in humans that the disease may be mediated, in part, by microorganisms that live in the gut. Jose U. Scher, MD, assistant professor of medicine and director of the Microbiome Center for Rheumatology and Autoimmunity, is studying the role of oral and gut microbiomes in the pathogenesis of RA and psoriatic arthritis. The data suggest that patients with RA have different intestinal flora from patients without RA. In a proof-of-principle study, Dr. Scher is investigating whether altering the microbial environment can change the outcome of RA.

ADVANCING THE SCIENCE OF JOINT PRESERVATION

NYU Langone's efforts to understand and treat osteoarthritis have led to the creation of the Joint Preservation and Arthritis Center. The center combines clinical and research expertise from across the Medical Center to identify the best treatments to delay arthritis onset and to halt the progression of degenerative arthritis and potentially avoid joint replacement. The center offers specialized imaging to inform diagnosis and care management, the newest surgical and non-surgical techniques, customized physical therapy regimens, and consultation with a multidisciplinary team. Treatments include corticosteroid injections, platelet-rich plasma therapy, stem cell therapy, and hyaluronic acid viscosupplementation. "With the aging population working longer and leading more active lives," says Jonathan Samuels, MD, assistant professor of medicine and co-director of the center, "joint degeneration is becoming an increasing source of pain and disability for roughly two million Americans each year."

Patients can participate in the Joint Preservation Registry, which allows researchers to compare the effectiveness of the different joint-preserving procedures. Using the registry, physicians can identify patients who might benefit from joint-preserving procedures, as well as those who might do better with a total joint replacement. The registry may also help advance the use of biomarkers to create more individualized treatments. In addition, as part of the center's research and through a major grant from the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS), Steven B. Abramson, MD, the Frederick H. King Professor of Internal Medicine and chair of the Department of Medicine, has been collecting data for 10 years from patients with knee osteoarthritis. The data, including information from serial X-rays and blood samples, are being used to find biomarkers of the condition and to identify new treatments based on the molecular mechanisms that lead to osteoarthritis. In collaboration with Mukundan Attur, PhD, assistant professor of medicine and director of the Rheumatology Research Laboratory at NYU Langone's Hospital for Joint Diseases, Dr. Abramson has identified dozens of genes potentially linked to osteoarthritis and is currently studying the molecular connection between genetic mutation and osteoarthritis development in animal models. In an NIH-funded study, Drs. Abramson and Attur plan to use an NIH repository of X-rays and DNA, RNA, and blood plasma samples from 5,000 patients with osteoarthritis to further validate their findings. Dr. Abramson and collaborators also recently published groundbreaking research on the contribution of low-grade inflammation to the progression of knee osteoarthritis.

NYU Langone is the only medical center in New York to have

all three musculoskeletal specialties ranked

in the top 10 in *U.S. News & World Report*'s 2014–15 "Best Hospitals". Its rheumatology (#6), orthopaedic surgery (#4), and rehabilitation medicine (#9) specialties come together to offer a unique level of collaborative and multidisciplinary care at NYU Langone's dedicated musculoskeletal facilities, the Hospital for Joint Diseases and the Center for Musculoskeletal Care.

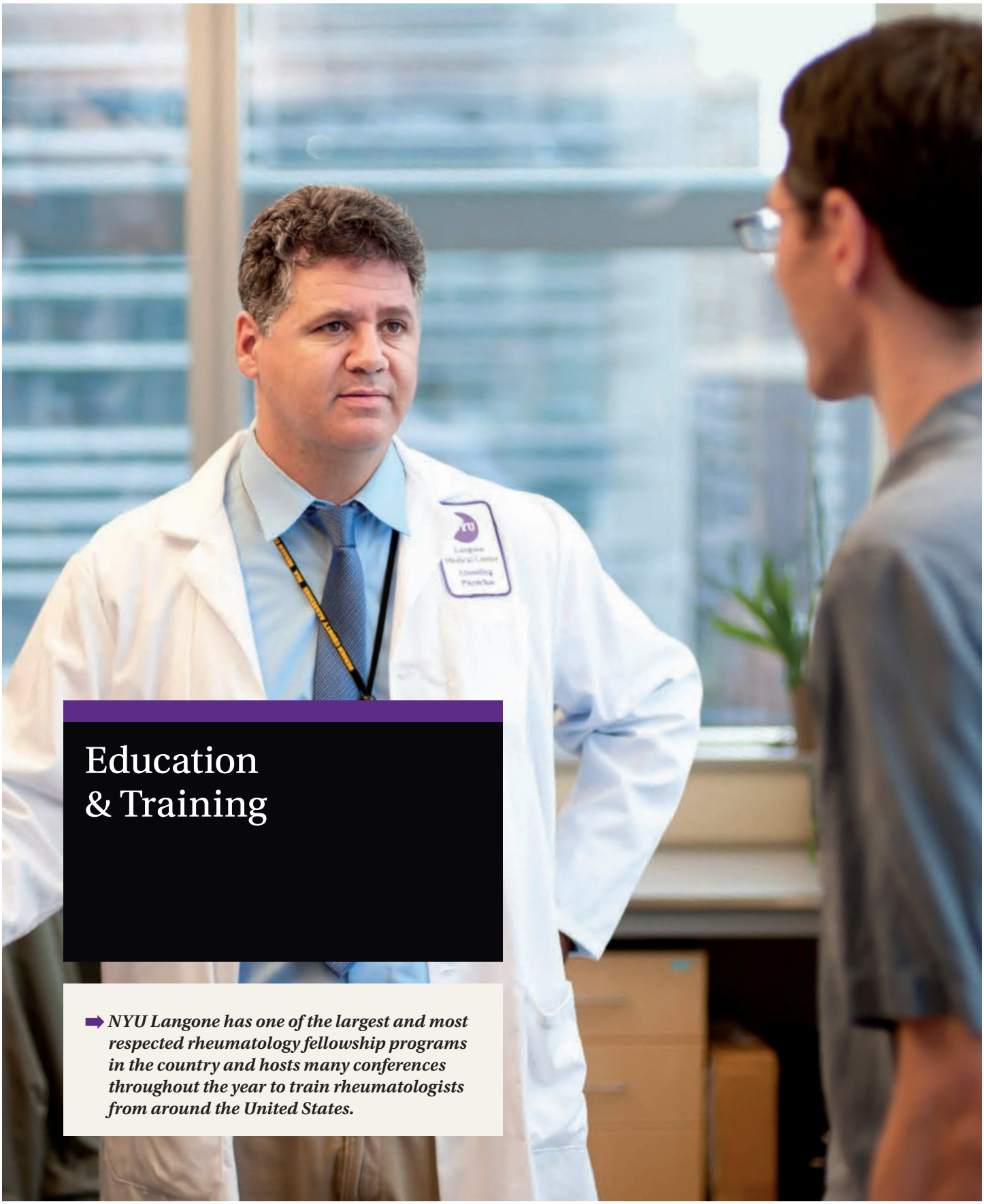
EDUCATING THE COMMUNITY: OSTEOARTHRITIS SYMPOSIUM

In October 2014, the Division of Rheumatology joined with the Department of Orthopaedic Surgery and the Arthritis Foundation to host the 14th Annual Charles L. Christian Osteoarthritis Symposium. More than 130 participants attended the half-day event, which covered such topics as musculoskeletal ultrasound, joint replacement, and nonoperative pain management.

dozens of genes

potentially linked to osteoarthritis identified by NYU Langone researchers

EDUCATION & TRAINING



Education & Training

➡ ***NYU Langone has one of the largest and most respected rheumatology fellowship programs in the country and hosts many conferences throughout the year to train rheumatologists from around the United States.***

Rheumatology Fellowship: A Tradition of Excellence

The ACGME-accredited rheumatology fellowship at NYU Langone is one of the oldest and most highly respected fellowship programs in the United States. Graduates have gone on to advance research at esteemed institutions such as Brigham and Women's, Massachusetts General Hospital, UCLA Medical Center, and Duke University Hospital, and 18 recent graduates have become fellowship program directors at other medical centers.

The NYU School of Medicine program has expanded and now accepts four fellows each year into a training program that includes hospital rotations, outpatient clinical experience, research training, extensive individual mentoring, journal clubs, didactic lectures, and conferences. The fellowship is a two-year program with an optional three-year research track. Fellows can choose between clinical or research tracks. Clinical fellows gain exposure to both inpatient and outpatient medicine, spending much of their time in NYU Langone's two lupus clinics, two arthritis clinics, and the rheumatology clinic located at the Manhattan campus of the VA Harbor Healthcare System. They also have the option to spend time in specialty clinics for osteoporosis, pediatric rheumatology, and sports medicine.

In addition to gaining clinical experience, research fellows spend three months learning about ongoing research in the division's laboratories, which allows them to select an area of investigation for their remaining years of training. They then choose a research project to be conducted under the supervision of one or more faculty preceptors. The division expects the projects to be worthy of publication and presentation at national scientific meetings. Research fellows may also pursue additional research training, including a Master of Science degree in clinical investigation through the Clinical and Translational Science Institute, a partnership between New York University, NYU Langone Medical Center, and the New York City Health and Hospitals Corporation.

FERTILE TRAINING GROUND

Rheumatology fellows at NYU Langone Medical Center have the unique experience of training in a world-renowned musculoskeletal hospital—NYU Langone's Hospital for Joint Diseases. One of few facilities in the country dedicated to the treatment of rheumatologic and orthopaedic disease and a key clinical site for the renowned Rusk Rehabilitation, the Hospital for Joint Diseases provides experience with all rheumatologic illnesses, including systemic lupus erythematosus and seronegative arthritis. In addition, with rotations at NYU Langone's affiliate institutions—Bellevue Hospital Center, Gouverneur Health, and the Veterans Affairs New York Harbor Healthcare System—as well as with the outpatient experience at NYU Langone's Center for Musculoskeletal Care, trainees have the opportunity to treat a diverse urban population and receive comprehensive training from national leaders in musculoskeletal care and research.

For 2015, the division received 120 applications and interviewed

28 candidates

for the four spots and matched with their top choices.

Of the nearly 100 rheumatology training programs in the United States, nearly 10 percent are headed by graduates of the NYU Langone Rheumatology Fellowship Program. Many NYU Langone graduates serve as chairs of rheumatology or research divisions, both in the United States and abroad.

EDUCATION & TRAINING

Advanced Training for Rheumatologists

SEMINAR IN ADVANCED RHEUMATOLOGY

Thursday, March 19–Saturday, March 21, 2015, at NYU Langone Medical Center

Established in the 1950s, NYU Langone's "Seminar in Advanced Rheumatology" is one of the oldest and most comprehensive rheumatology courses in the country, focusing on recent findings in the treatment of rheumatic diseases and highlighting instances of the translation of new discoveries into clinical practice.

In 2014, the seminar included a new session: the "Great Debate". This featured guest experts Brad H. Rovin, MD, professor of medicine and pathology at the Ohio State University, and James Alan Tumlin, MD, professor of medicine and nephrology at the University of Tennessee. One focus of the discussion, moderated by Jill P. Buyon, MD, professor of medicine and director of NYU Langone's Division of Rheumatology, was on whether mycophenolate mofetil (MMF) or cyclophosphamide is superior for induction of remission as well as which might have greater toxicity. In another segment of the debate, Drs. Rovin and Tumlin took opposing positions on the proposition that rituximab is the preferred option for salvage and rescue therapy.

The seminar also featured a "Meet the Professor" lunch hosted by NYU Langone's H. Michael Belmont, MD, professor of medicine and the division's associate director of clinical affairs. Dr. Belmont outlined an approach to treating patients with either refractory lupus nephritis or catastrophic antiphospholipid syndrome (CAPS). Dr. Belmont reviewed the current standard of care, and then the participants voiced their interest in understanding other options for intractable cases. Dr. Belmont discussed data in support of alternatives for treating nephritis including multi-targeted therapy with MMF plus tacrolimus, steroid-avoiding treatment as provided in the RITUXILUP trial, and ACTH gel and, for those with CAPS, eculizumab.

MUSCULOSKELETAL ULTRASOUND CARE

Saturday, March 21–Sunday, March 22, 2015, at NYU Langone's Center for Musculoskeletal Care

NYU Langone's annual course in musculoskeletal ultrasound focuses on the ultrasound needs of rheumatologists and the patients and problems they see. Led by Jonathan Samuels, MD, assistant professor of medicine, the course accepts participants at all levels of familiarity with musculoskeletal ultrasound and offers tailored, hands-on training and practice in the latest techniques in this rapidly growing area.

SEMINAR IN PEDIATRIC RHEUMATOLOGY

Wednesday, March 18, 2015, at NYU Langone Medical Center

Now in its sixth year, this unique course—the only one of its kind in New York—addresses one of the newest and smallest pediatric subspecialties. There are fewer than 250 pediatric rheumatologists in the United States, with several states having none. The pediatric rheumatology seminar targets general pediatricians, pediatric subspecialists, and adult rheumatologists, as well as trainees, including house staff, fellows, and medical students.

CLINICAL RESEARCH METHODOLOGY COURSE

Dates Pending

Now in its ninth year, this one-day program in clinical research methodology, presented by internationally recognized rheumatology and epidemiology opinion leaders, is designed for rheumatologists, rheumatology fellows and residents-in-training, and internal medicine physicians interested in clinical research. The course reviews classification, treatment, and monitoring guidelines and provides tools, data, and knowledge for implementing the treat-to-target paradigm now recommended by the ACR; it is also part of Medicare's Physician Quality Reporting Initiative (PQRI).

A RHEUMATOLOGY FOCUS IN MEDICAL SCHOOL EDUCATION

NYU School of Medicine's recently restructured preclerkship devotes a full week of the curriculum to rheumatology. On the clinical side of medical student education, students are trained by division faculty in an innovative musculoskeletal elective, along with orthopaedic surgery and rehabilitation medicine.

LEARN MORE AND REGISTER FOR COURSES AT NYULMC.ORG/CME

CLASS OF 2015— SECOND-YEAR FELLOWS

- Daisy Bang
  Residency: University of Pittsburgh
  Medical School: Tufts University School of Medicine
- Ashira Blazer
  Residency: Vanderbilt University
  Medical School: Baylor College of Medicine
- Cesar Fors-Nieves (Chief Fellow)
  Residency: Temple University School of Medicine
  Medical School: New Jersey Medical School of the University of Medicine and Dentistry of New Jersey

CLASS OF 2016— FIRST-YEAR FELLOWS

- Adey Berhanu
  Residency: Loyola University Chicago
  Medical School: University of Illinois College of Medicine
- Aaron Garza
  Residency: University of Miami Miller School of Medicine
  Medical School: University of Miami Miller School of Medicine
- Sabina Sandigursky
  Residency: Albert Einstein College of Medicine, Montefiore Medical Center
  Medical School: St. George's University School of Medicine

CLASS OF 2016— INCOMING FELLOWS

- Nicola Berman
  Residency: University of Pennsylvania Hospital
  Medical School: Royal College of Surgeons Dublin
- Vinicius Dominguez
  Residency: New York- Presbyterian Weill Cornell
  Medical School: U Estacio de SA Faculdade de Med, Brazil
- Julia Manasson
  Residency: NYU School of Medicine
  Medical School: Boston University Medical School
- Anna Zezon
  Medical Fellowship: NYU School of Medicine (Geriatrics)
  Residency: Albert Einstein College of Medicine, Montefiore Medical Center
  Medical School: Sackler School of Medicine, American Branch, Israel

PROFESSIONAL ACTIVITIES

SELECT PUBLICATIONS

Zanin-Zhorov A, Weiss JM, Nyuydzefe MS, Chen W, Scher JU, Mo R, Depoil D, Rao N, Liu B, Wei J, Lucas S, Koslow M, Roche M, Schueller O, Weiss S, Poyurovsky MV, Tonra J, Hippen KL, Dustin ML, Blazar BR, Liu CJ, Waksal SD. Selective oral ROCK2 inhibitor down-regulates IL-21 and IL-17 secretion in human T cells via STAT3-dependent mechanism. *Proceedings of the National Academy of Sciences of the United States of America* 2014 Nov 25;111(47):16814-9.

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Jones JD, Kirsch HL, Wortmann RL, Pillinger MH. The causes of drug-induced muscle toxicity. *Current Opinion in Rheumatology* 2014 Nov;26(6):697-703.

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Grönwall C, Reynolds H, Kim JK, Buyon J, Goldberg JD, Clancy RM, Silverman GJ. Relation of carotid plaque with natural IgM antibodies in patients with systemic lupus erythematosus. *Clinical Immunology* 2014 Jul;153(1):1-7.

Scher JU, Bretz WA, Abramson SB. Periodontal disease and subgingival microbiota as contributors for rheumatoid arthritis pathogenesis: modifiable risk factors? *Current Opinion in Rheumatology* 2014 Jul;26(4):424-9.

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2014 AMERICAN COLLEGE OF RHEUMATOLOGY MEETING

ABSTRACTS ACCEPTED FOR ORAL PRESENTATION

Androo J. Markham, Mark Halushka, Cristiana Guiducci, Robert M. Clancy, Jill P. Buyon. Antimalarials regulate TLR7/8 mediated macrophage activation via epigenetic modification at the TNFα promoter. [Abstract #871] *Arthritis and Rheumatology* 2014:66(10 Suppl):S385.

Oral presentation in Concurrent Session:
Systemic Lupus Erythematosus — Human Etiology and Pathogenesis I: Pathways of Inflammation/Injury

Ummara Shah, Amit Saxena, Sara Sahl, Deborah Friedman, Jill P. Buyon, Peter M. Izmirly. Role of fluorinated steroids in preventing the progression of anti-SSA/Ro associated isolated congenital heart block to disease beyond the conduction system. [Abstract #1829] *Arthritis and Rheumatology* 2014:66(10 Suppl):S803.

Oral presentation in Concurrent Session:
Pediatric Rheumatology — Clinical and Therapeutic Aspects: Pediatric Systemic Lupus Erythematosus

Jeffrey R. Curtis, Melvin Churchill, Alan Kivitz, Laura Gauer, Christopher Herrem, David Carter, Jeffrey Melin, Yusuf Yazici. Identification of a patient phenotype which impacts response to therapy in rheumatoid arthritis clinical trials: Certolizumab pegol Phase 4 trial data. [Abstract #1844] *Arthritis and Rheumatology* 2014:66(10 Suppl):S811.

Oral presentation in Concurrent Session:
Rheumatoid Arthritis – Small Molecules, Biologics and Gene Therapy III: Innovative Therapeutic Strategies in Rheumatoid Arthritis

Aranzazu Mediero, Tuere Wilder, Bruce N. Cronstein. Methotrexate prevents inflammatory osteolysis by activation of the adenosine a2A receptor (A2AR). [Abstract #2792] *Arthritis and Rheumatology* 2014:66(10 Suppl):S1219.

Oral presentation in Concurrent Session:
Biology and Pathology of Bone and Joint I: Bone Remodeling in Inflammation and Arthritis

Gulen Hatemi, Melike Melikoglu, Recep Tunc, Cengiz Korkmaz, Banu Turgut Ozturk, Cem Mat, Peter A. Merkel, Kenneth Calamia, Lilia Pineda, Ziqi Liu, Randall M. Stevens, Hasan Yazici, Yusuf Yazici. Effect of Apremilast on quality of life and physical function in patients with Behçet's syndrome. [Abstract #2854] *Arthritis and Rheumatology* 2014:66(10 Suppl):S1247-8.

Oral presentation in Concurrent Session: *Vasculitis III*

PROFESSIONAL ACTIVITIES

Carmen Corciulo, Aranzazu Mediero, Tuere Wilder, Bruce N. Cronstein. Adenosine a2A receptor as a potential new therapeutic target for the prevention/treatment of osteoarthritis. [Abstract #2947] *Arthritis and Rheumatology* 2014:66(10 Suppl):S1288.

Oral presentation in Concurrent Session:
Biology and Pathology of Bone and Joint II: Cartilage Biology and Synovial Activation

Rosalind Ramsey-Goldman, Richard Furie, Chaim Putterman, Anca Askanase, Jill P. Buyon et al. Cell bound complement activation products have higher sensitivity than serum C3 and C4 levels in systemic lupus erythematosus. [Abstract #1924] *Arthritis and Rheumatology* 2014:66(10 Suppl):S846-7.

Oral presentation in Concurrent Session:
Systemic Lupus Erythematosus — Clinical Aspects and Treatment: Biomarkers in Systemic Lupus Erythematosus

John G. Hanly for the Systemic Lupus International Collaborating Clinics (SLICC), Aidan O'Keeffe, Li Su, Murray B. Urowitz, Juanita Romero-Diaz, Caroline Gordon, et al. Outcome of lupus nephritis and impact on health related quality of life: results from an international, prospective, inception cohort study. [Abstract #961] *Arthritis and Rheumatology* 2014:66(10 Suppl):S428-9.

Oral presentation in Concurrent Session:
Systemic Lupus Erythematosus — Clinical Aspects and Treatment: Lupus Nephritis

INVITED SPEAKERS/MODERATORS/FACULTY

ACR BASIC RESEARCH CONFERENCE: EMERGING PERSPECTIVES ON THE MICROBIOME IN THE RHEUMATIC DISEASES

Session IV: Microbiome and Rheumatic Disease
Moderator: Gregg J. Silverman, MD

- Microbiome and Rheumatoid Arthritis
  Speaker: Jose U. Scher, MD

ACR SCIENCE SESSIONS

- *Neonatal Lupus: From Bench to Bedside*
  Speaker: Jill P. Buyon, MD
- *Age Before Beauty: Colchicine, Aspirin, Methotrexate, and Their Mechanisms of Action*
  Speaker: Bruce N. Cronstein, MD
- *ACR Immunology Update: New Immunology of the Spondyloarthropathies*
  Moderator: Gregg J. Silverman, MD
- *Co-Stimulation Pathways: Therapeutic Opportunities for the Rheumatic Diseases*
  Moderators: Gregg J. Silverman, MD, and Adam Mor, MD, PhD

ACR CONCURRENT ABSTRACT SESSIONS

- *Systemic Lupus Erythematosus — Human Etiology and Pathogenesis I: Pathways of Inflammation/Injury*
  Co-Moderator: Robert M. Clancy, PhD
- *Rheumatoid Arthritis – Human Etiology and Pathogenesis I: Mechanisms of Joint Damage*
  Co-Moderator: Bruce N. Cronstein, MD
  - *2013 Lee C. Howley Sr. Prize for Arthritis Research Introductory Talk*
    Speaker: Bruce N. Cronstein, MD

ACR STUDY GROUPS

- *The "Why and How" of Disease* Criteria Study Group
  - *Criteria for Defining Rheumatoid Arthritis: Is New Always Better?*
    Speaker: Yusuf Yazici, MD

ACR MUSCULOSKELETAL ULTRASOUND COURSE FOR RHEUMATOLOGISTS

- Faculty member: Jonathan Samuels, MD

ACR MASTER AWARD

- Steven B. Abramson, MD

CME-ACCREDITED SYMPOSIUM

Sequential Therapy for Established Rheumatoid Arthritis: New Targeted Therapies as Part of an Individualized Approach to Care

- Welcome and Introductions
  Jeffrey R. Curtis, MD, MS, MPH, University of Alabama at Birmingham, Birmingham, AL
  Gregg J. Silverman, MD, NYU School of Medicine, New York, NY
- Rheumatoid Arthritis: Overarching Concepts Treat to Target: Evidence Supporting the Principle Composite Measures of Disease Activity and Assessment New ACR/EULAR Classification Criteria: Review and Implementation in Clinical Practice New Definition of Remission
  Gregg J. Silverman, MD, NYU School of Medicine, New York, NY

LEADERSHIP

JILL P. BUYON, MD
Professor of Medicine; Director, Division of Rheumatology; Director, Lupus Center

H. MICHAEL BELMONT, MD
Professor of Medicine; Medical Director, NYU Langone Hospital for Joint Diseases; Associate Director, Clinical Affairs, Division of Rheumatology

JAMES P. DARROW
Administrator, Division of Rheumatology

MICHAEL H. PILLINGER, MD
Professor of Medicine & Biochemistry & Molecular Pharmacology; Program Director, Rheumatology Fellowship Program

ANN RUPEL
Grants Manager, Division of Rheumatology

RANIT SHRIKY
Administrative Director, Seligman Center for Advanced Therapeutics; Director of Clinical Trials, Division of Rheumatology

DEPARTMENT OF MEDICINE

STEVEN B. ABRAMSON, MD
Senior Vice President & Vice Dean for Education, Faculty & Academic Affairs; Frederick H. King Professor and Chair, Department of Medicine

MUSCULOSKELETAL

DAVID A. DIBNER, MPH, FACHE
Senior Vice President; NYU Langone Hospital for Joint Diseases, Musculoskeletal & Rusk Rehabilitation

LOCATIONS*

1
Center for Musculoskeletal Care
333 East 38th Street
New York, NY

2
Joan H. Tisch Center for Women's Health
207 East 84th Street
New York, NY

3
Preston Robert Tisch Center for Men's Health
555 Madison Avenue
New York, NY

4
Ambulatory Care Center
240 East 38th Street
New York, NY

5
NYU Langone Medical Center
550 1st Avenue
New York, NY

6
Bellevue Hospital Center
462 1st Avenue
New York, NY

7
Ambulatory Care Center
324 East 23rd Street
New York, NY

8
Manhattan Campus of the VA NY Harbor Healthcare System
423 East 23rd Street
New York, NY

9
Hospital for Joint Diseases
301 East 17th Street
New York, NY

10
NYU Langone at Trinity Center
111 Broadway
New York, NY

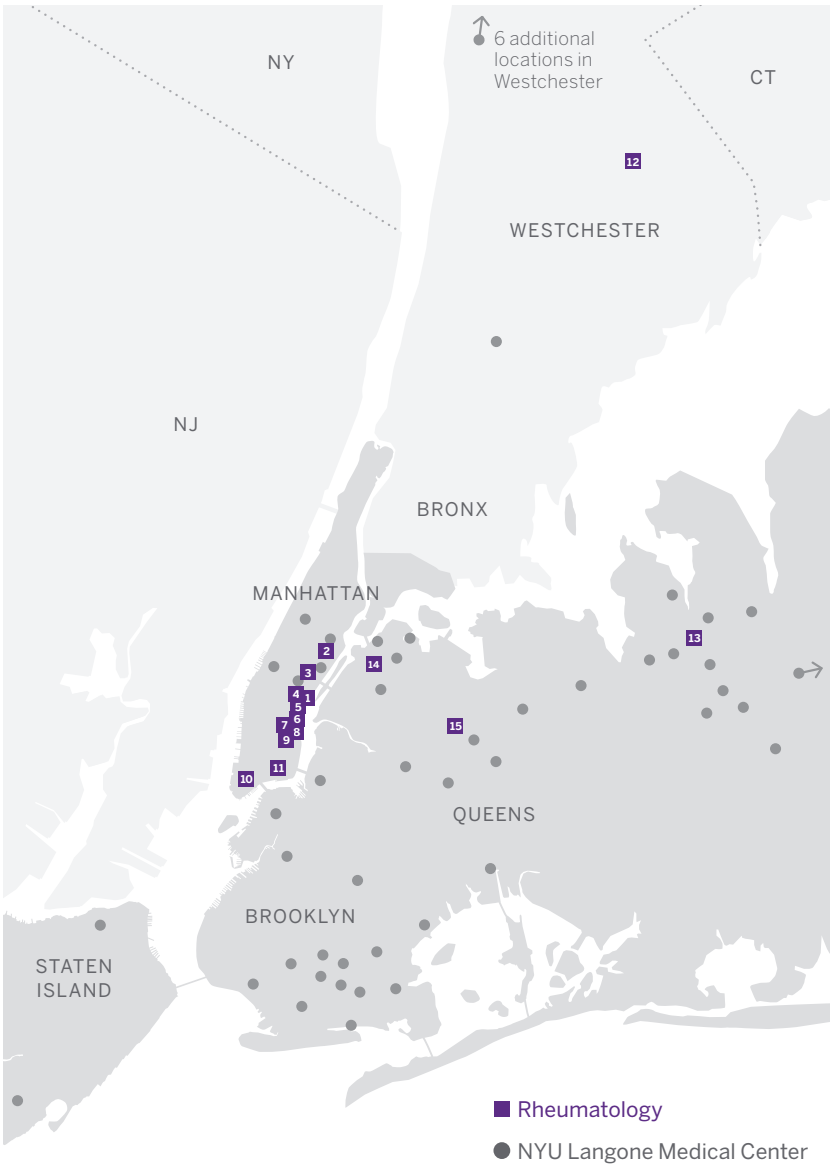
11
Gouverneur Hospital
227 Madison Street
New York, NY

12
NYU Langone Orthopaedics at Westchester
311 North Street
White Plains, NY

13
Rheumatology Associates Long Island
1199 Marcus Avenue
Great Neck, NY

14
Rheumatology Associates Astoria
38-02 31st Avenue
Astoria, NY

15
NYU Langone at Columbus Medical
97-85 Queens Boulevard,
Queens, NY



* (as of December 2014)

LEADERSHIP

NYU LANGONE MEDICAL CENTER
by the numbers*

1,069
Total Number of Beds

77
Operating Rooms

35,666
Patient Admissions

1,061,552
Hospital-Based Outpatient Visits

5,422
Births

2,000,000
Faculty Group Practice
Office Visits

1,408
Full-Time Faculty

1,047
Part-Time Faculty

2,500+
Voluntary Faculty

120
Endowed Professorships

2,515
Physicians

2,953
Registered and Advanced
Practice Nurses

550+
Allied Health Professionals

4,000+
Publications

550,000
Square Feet of Research Space

$245MM
NIH Funding

$285MM
Total Grant Funding

2,053
Inventions

936
US Patents Issued

475
US Patents Licensed

650
MD Candidates

70
MD/PhD Candidates

252
PhD Candidates

415
Postdoctoral Fellows

1,155
Residents and Fellows

*Numbers represent FY14 (Sept 2013–Aug 2014); inventions/patents are cumulative through Aug 31, 2014

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NYU Langone
MEDICAL CENTER

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