Dear Friends and Colleagues,

I am delighted to share with you an update regarding the great strides the Division of Rheumatology and Immunology at The Ohio State University College of Medicine has made in the last few years. Our rapidly evolving program has grown considerably and—through our implementation of a number of forward-looking initiatives—we have fostered exceptional patient care, learner-centered education and groundbreaking research. I am especially excited about our recruitment of four excellent new faculty members, who have added to the already diverse skill set of our Division.

The breadth of our faculty experience has enabled us to create multidisciplinary specialty clinics in lupus, vasculitis and compression fractures. Combined with our use of musculoskeletal ultrasound in the clinic and our focus on personalized health care, patients are coming from increasingly greater distances to receive their care at Ohio State.

In addition to patient care, our research endeavors range from those of our newest members, who bring expertise from institutions of distinction, to internationally recognized experts. Our investigators are unraveling the mysteries of rheumatic conditions, through both innovative basic science and superb translational studies. Two of our outstanding researchers are leading national, multicenter studies: Drs. Peter Embi (RISE Network) and Rebecca Jackson (Osteoarthritis Initiative). You will find descriptions of these projects inside.

Another pioneering step taken by our Division was our inaugural symposium on Systemic Lupus Erythematosus (SLE), held in conjunction with the annual American College of Rheumatology meeting. Over 110 experts in SLE biomarkers were brought together through our conference, promoting collaborations and an innovative approach to SLE biomarker research. This meeting attracted researchers from all over the nation and from as far away as Switzerland.

We continue to maintain high standards for education in all our work, including our national ultrasound symposium held annually. We have increased the span of our fellowship program, keeping pace with the ever-rising caliber of fellows joining our program. We also promote this excellence in our other educational programs, exposing residents and medical students to the fascinating complexities of rheumatology in our rotation. Furthermore, we continue to help rheumatologists in the Ohio region stay on the cutting edge through a variety of CME offerings.

I thank you for the opportunity to share both my pride in our Division and my excitement for our future. I welcome your interest and questions, please feel free to contact me at Wael.Jarjour@osumc.edu.

Wael N. Jarjour, MD, FACP
Martha Morehouse Chair in Arthritis and Immunology Research
Director, Division of Rheumatology and Immunology,
Department of Internal Medicine
The Ohio State University College of Medicine
The Ohio State University Wexner Medical Center

“ Welcome

I’m proud to be part of The Ohio State University College of Medicine.

And, it’s easy to be excited about the movement and innovation occurring within the Division of Rheumatology and Immunology, with clinical and basic scientists investigating underlying disease causes and excellent clinicians caring for patients in a range of specialty clinics. I’ve been a member of the clinical faculty for nearly 30 years and am very impressed with the extremely high quality of students, residents and fellows who are attracted to Ohio State.”

Joseph Flood, MD
2013 President-elect, American College of Rheumatology
Clinical Assistant Professor of Internal Medicine
The Ohio State University College of Medicine

“Our young patients at Nationwide Children’s Hospital benefit from the high degree of collaboration and collegiality we enjoy with Ohio State’s Division of Rheumatology and Immunology. Not only are we partners in educating the next generation of adult and pediatric rheumatologists, we also work together to advance knowledge through clinical and translational research. Excellent patient care is a shared passion between our organizations—in particular, the capable and collaborative work of Dr. Stacy Ardoin provides a unique, natural bridge for our adolescent patients’ smooth transition to adult care. This is extremely important for our maturing patients whose rheumatic conditions have challenged them developmentally and emotionally, as well as physically.”

Charles H. Spencer, MD
Chief, Division of Rheumatology
Nationwide Children’s Hospital
Member, Steering Committee
Childhood Arthritis & Rheumatology Research Alliances (CARRA)
Patient care is at the heart of everything we do at Ohio State. All of our Division’s research—from basic science to clinical trials—is about ensuring that each individual who suffers from some form of arthritis or other autoimmune disease is receiving the best, evidence-based diagnoses and treatments that science can provide. Similarly, all of our teaching activities are about making sure that this generation and future generations of our patients are cared for by the best trained and most highly skilled clinicians possible.

In the 35 years since I joined the Division, I have witnessed many advancements, particularly since Dr. Jarjour took the reins as director. Under his leadership, our research endeavors have grown in scope and impact, and our fellowship program is both outstanding and highly sought. Most importantly, we have enjoyed major inroads in quality patient care, through leading-edge therapies and technologies, as we continue to care for each patient as a person, helping them achieve their goals for a full, functional and healthy life.”

Ronald L. Whisler, MD
Professor Emeritus
Division of Rheumatology and Immunology
Former Division Director
Division of Allergy, Immunology and Rheumatology

The Division’s strong patient care program rests on the firm foundation built over many years by Ronald L. Whisler, MD.

Our clinicians provide specialized care for patients with a varied spectrum of clinical disorders ranging from autoimmune disorders to degenerative musculoskeletal diseases. Our specialty outpatient clinics including General Rheumatology, Lupus, Vasculitis and Connective Tissue, as well as an extensive Infusion Suite led by Linda S. Gray, MD, associate professor, all serve a large, diverse patient population from a wide geographic area. Through our clinics, which operate at four conveniently located sites, we offer patients access to multiple clinical trials focusing on exploring the next generation of therapeutics for osteoporosis, inflammatory arthritis, systemic lupus erythematosus and osteoarthritis. We highlight our newest clinics:

**Lupus Clinic** | Lupus Clinic – the only comprehensive, multidisciplinary lupus clinic between Baltimore and Chicago, provides patients from more than a dozen states rapid access to specialists who cover all organ systems potentially involved in immunologic systemic diseases. In addition, innovative treatments are available through a number of clinical trials. By having several disciplines in one location, experts easily confer on complex patients, providing quick intervention for nephritis, as well as evaluation for antiphospholipid syndrome, glomerulonephritis and vasculitis. Collaboratively founded in 2010 by Division director Wael N. Jarjour, MD, FACP, and Brad H. Rovin, MD, FACP, FASN, Division of Nephrology director, the clinic is a regional referral center, attracting patients from Indiana, Kentucky, West Virginia and Virginia, and has had nearly 2,200 patient visits since its inception. Among key members of the Lupus Clinic team, Stacy P. Ardoin, MD, MHS, also provides comprehensive care for children with rheumatic diseases at Nationwide Children’s Hospital. Through her work with the Childhood Arthritis & Rheumatology Research Alliance (CARRA), Dr. Ardoin was part of a team that established the standard of care for pediatric lupus nephritis.

**Musculoskeletal Ultrasound Clinic** | Nicole Bundy, MD, MPH oversees the use of musculoskeletal ultrasound (MSK) in the care of patients with inflammatory arthritis, which can be difficult to diagnose without imaging. Neither CT nor MRI provides real-time information for timely, day-to-day care, and CT needlessly exposes patients to radiation. MSK enables us to more accurately diagnose inflammatory arthritis and soft tissue pathology when there is no obvious joint inflammation or other diagnostic findings on physical exam. Further, it helps monitor response to biologic therapies and assists in aspiration and injection of joints.

**Compression Fracture Clinic** | Madhu Mehta, MD, assistant professor, along with other rheumatology experts from our Division, works collaboratively as part of Ohio State’s Comprehensive Spine Center. Along with specialists from Neurosurgery, Physical Medicine and Rehabilitation and Interventional Pain Management, we provide a multidisciplinary approach to the evaluation, treatment and rehabilitation of patients with acute and chronic osteoporotic compression fractures. Patients with previously undiagnosed osteoporosis also benefit through rapid referral into our program.
Kevin V. Hackshaw, MD, provides academic and clinical leadership for our two-year, ACGME-accredited Rheumatology Fellowship Program.

As director, Dr. Hackshaw mentors four fellows (two first-year and two second-year). In the program, they gain longitudinal clinical experience in the Division's specialty clinics and through inpatient consultative experience at Ohio State’s Wexner Medical Center, and they participate in basic science, clinical and translational research opportunities. A third year is optional for fellows who desire more research-intensive training. Zhanna Mikulik, MD, who provides didactic teaching and clinical supervision, is assistant program director.

A distinctive aspect of our program is that our fellows receive extensive exposure to musculoskeletal ultrasound, accumulating considerable hours toward individual accreditation and becoming procedurally proficient. Our regional Musculoskeletal Ultrasound Clinic affords extensive opportunities for hands-on patient diagnosis and treatment, with the added bonus of offering an ultrasound dedicated to the fellows for their use in other settings as well.

Through our range of specialty clinics, described on the following page, our fellows see patients representing the full spectrum of rheumatic disorders. In addition, they receive significant teaching experience, as they play an integral role in the Division’s educational offerings for medical students and residents.

In collaboration with the Division of Nephrology, we will be offering a one-year fellowship in Lupus/Glomerulonephritis/Vasculitis. This unique fellowship program is available to qualified applicants who have completed training in Rheumatology or Nephrology. The fellowship provides highly specialized clinical and research training that will prepare an individual for an academic career in this field.

Fifteen fellows have graduated since the inception of our program in 1994; 20 percent have chosen academic careers.

Nicole Bundy, MD, MPH, will lead this two-day, intensive workshop to be held July 27-28, 2013 at our state-of-the-art Clinical Skills Education and Assessment Center in Ohio State’s Prior Health Sciences Library. The workshop features experts in musculoskeletal ultrasound from academic medical centers across the country, who will review ultrasound scanning techniques, normal extremity anatomy and common pathology in inflammatory arthritis. More than 11 hours of hands-on training in small groups will include learning ultrasound-guided injections on cadavers; understanding and incorporating the role and use of musculoskeletal ultrasound in the care of patients with inflammatory arthritis; and recognizing on ultrasound the common pathologies of the musculoskeletal system.

Through Ohio State’s Continuing Medical Education office, ACCME approves this course for continuing medical education for physicians. For information or to register, please visit https://ccme.osu.edu or contact karen.hart@osumc.edu or visit our website: internalmedicine.osu.edu/rheumatology
We are honored to have two of our distinguished colleagues at Ohio State’s Wexner Medical Center leading these national, multi-center initiatives:

**RISE Network** | Peter J. Embi, MD, MS, FACP, FACMI, is a board certified rheumatologist and National Institutes of Health (NIH)-funded investigator, internationally recognized for his expertise in the area of clinical research informatics. Dr. Embi served on the American College of Rheumatology’s (ACR) Board of Directors until 2010, and he currently serves as chair of the ACR Registries and Health IT Committee. He is applying his informatics expertise to rheumatology by leading the ACR’s initiative to improve clinical practice and advance science: RISE (Rheumatology Informatics System for Effectiveness) Network. The RISE Network, which provides a reliable and cost-effective means of connecting data from multiple electronic health record (EHR) systems across the country to enable quality improvement, reporting and research querying by the rheumatology community, was first piloted last year (2012) in Ohio State’s General Rheumatology Clinic and is now being expanded to multiple sites. Dr. Embi is vice chair and associate professor, Department of Biomedical Informatics and chief research information officer, Ohio State’s Wexner Medical Center, as well as an associate professor in our Division.

**Osteoarthritis Initiative** | Rebecca D. Jackson, MD, is director, The Ohio State University Center for Clinical and Translational Science (CCTS), which is a member of the NIH Clinical and Translational Science Award Consortium. Dr. Jackson has had a nearly two-decade commitment to examining and finding solutions to women’s health issues, particularly osteoporosis and chronic musculoskeletal disease associated with aging in longitudinal cohort studies, including the Women’s Health Initiative (WHI) and Osteoarthritis Initiative (OAI). With Ohio State designated as one of four clinical sites for this multi-center, longitudinal, prospective observational study of knee osteoarthritis (OA), members of our Division have been collaborating with Dr. Jackson. She is a principal investigator in this important initiative to help identify biochemical, genetic and imaging biomarkers for the development and progression of knee OA and other musculoskeletal phenotypes. The University of California, San Francisco coordinates the OAI, which is a public-private partnership.

**Stacy P Ardoin, MD, MHS**, a nationally recognized pediatric and adult lupus expert and an assistant professor of adult and pediatric rheumatology—in collaboration with **Subha Raman, MD, MSEE, FACC**, an internationally renowned cardiologist and pioneer in CMR (cardiovascular magnetic resonance), is applying novel MRI technology to study myocardial inflammation and dysfunction during lupus flare. The translational CCTS-funded study, “Myocardial Inflammation in Lupus,” seeks to prevent long-term adverse cardiovascular outcomes for lupus patients by exploring potential new mechanisms in cardiac dysfunction. In collaboration with **Brad H. Rovin, MD, FACP, FASN**, director of Ohio State’s Division of Nephrology and widely recognized authority in lupus nephritis, Dr. Ardoin—known for her expertise in pediatric rheumatology—is principal investigator for a 2012-2013 Lupus Foundation of America National Research Program-funded study, “MicroRNA in Pediatric Lupus Nephritis.” Their research aims to determine whether levels of microRNA in the urine can indicate lupus nephritis-related disease activity and damage in the kidneys of children with lupus. In addition, the two have established the Lupus, Vasculitis, and Glomerulonephritis Registry and Biorepository to be used in potential research to discover biomarkers that identify lupus nephritis flares.

**Matthew Husa, MD** recently joined our Division as an assistant professor, having completed his fellowship at the University of California, San Diego, where he investigated the cell biology aspects of chondrocytes in cartilage health. He is part of an innovative, translational research project that is advancing through collaboration with a joint biology group. Currently, the cross-campus collaborators are developing...
In addition to numerous pharmaceutical industry-sponsored trials, members of our Division are leading basic science and translational studies, including:

- **Sudha Agarwal, PhD**, who has appointments in Ohio State’s College of Dentistry and Department of Orthopaedics, as well as in our Division, is an established basic scientist whose laboratory has provided solid evidence that mechanical forces of physiological magnitudes are potent anti-inflammatory and reparative signals in chondrocytes and osteoblasts, as well as in cartilage and bone. Together, Drs. Husa and Agrawal, bolstered by the clinical expertise of **Wael N. Jarjour, MD, FACP**, seek to translate Dr. Agrawal’s basic science findings to a clinical population.

- **Clark L. Anderson, MD**, professor, is a trailblazing physician-scientist whose long career has been funded continuously for almost 40 years by R01 grants from the National Institutes of Health. His current study—funded through 2014—is an investigation into how the liver sinusoidal endothelial cell removes and destroys blood-borne viruses and small immune complexes, a function previously ascribed almost exclusively to the Kupffer cell. Dr. Anderson’s early career focused on the frontier of a developing area of immunologic research, creating new knowledge about the role of IgG Fc receptors, that has now gone into the clinic, into textbooks and into biotech companies. Today, his basic science laboratory, which continues to focus on provocative questions in the fields of immunology and cell biology, is filling large gaps in the fabric of scientific knowledge.

- **Ing-Ming Chiu, PhD**, professor emeritus, is an investigator and inventor of extraordinary productivity. Dr. Chiu holds numerous patents, including “Methods of Obtaining Neural Stem Cells” (granted June 29, 2010) and “Ultra-Nanocrystalline Diamond as a Biomaterial for Enhancing Proliferation and Differentiation of Neural Stem Cells” (granted January 24, 2012). For more than 25 years, Dr. Chiu has conducted basic research as a member of our Division, collaborating with others across the University campus. A member of numerous societies, including the International Society for Stem Cell Research, Dr. Chiu today holds a concurrent appointment as adjunct professor, National Chung Hsing University, College of Life Science, in Taichung, Taiwan. He was inducted as a fellow of the American Association for the Advancement of Science in 2010.

- **Kevin V. Hackshaw, MD**, director, Rheumatology Fellowship Program and an associate professor in our Division and in Ohio State’s Department of Molecular and Cellular Biochemistry, is an active investigator whose research interest centers on the mechanisms of neurotrophins in propagating chronic nerve pain. His current study, “Fibromyalgia and Painful Sensory Neuropathy – Different or the Same?” seeks to identify a “biochemical fingerprint” to distinguish between similar central sensitization disorders that represent the spectrum of illness experienced by fibromyalgia patients. Dr. Hackshaw serves as a full member and reviewer, National Institutes of Health, Somatosensory and Chemosensory Study Section, through 2018.

- **Wael N. Jarjour, MD, FACP**, a nationally recognized expert in lupus and vasculitis, participates in his colleagues’ investigations in addition to focusing his research activities on gender bias in lupus and other autoimmune diseases and on how estrogen impacts the immune response. In investigating the role of estrogen receptors and estrogen in SLE and other autoimmune diseases, Dr. Jarjour has demonstrated that estrogen up-regulates numerous genes that regulate the immune response. In a recent publication, his team identified a novel target of estrogen that is significantly up-regulated in SLE patients and plays a critical role in regulating inflammation. Dr. Jarjour is exploring functional consequences of this up-regulation. The long term goal of this project is elucidating the role of estrogen and its receptors in the pathogenesis of SLE and identifying biomarkers that will define women who are at high risk of developing lupus.
In addition to leading our Division, Dr. Jarjour also is vice chair for Ambulatory Medicine in the Department of Internal Medicine, which has more than 300 faculty members. For the Health and Human Services-funded National Lupus Initiative, Dr. Jarjour is chair of the Lupus Curriculum Review Committee which highlights for U.S. medical school students and residents how health disparities can affect the diagnosis and care of patients with lupus.

**Lai-Chu Wu, D.Phil.,** a basic scientist who is an associate professor in Ohio State’s Department of Molecular Virology, Immunology and Medical Genetics, Department of Molecular and Cellular Biochemistry, and in our Division, is interested in cancer research and osteoimmunology, as well as the interaction of signal pathways and transcription factors that regulate bone development and immunity. In addition to a variety of studies with collaborators around the world, Dr. Wu is working with Kevin V. Hackshaw, MD, and other Ohio State cross-campus collaborators to investigate the role of the large zinc finger protein ZAS3 as a key mediator of adult bone formation and resorption. In addition, she and Wael N. Jarjour, MD, FACP, and others collaborated to find that ZAS3 is a novel estrogen target gene that is overexpressed in SLE. Dr. Wu also collaborates with Sudha Agarwal, PhD, and Matthew Husa, MD, in their study described on the adjacent page.

**Predictive Biomarkers in SLE: A Journey to Personalized Healthcare**

“Predictive Biomarkers in SLE: A Journey to Personalized Healthcare,” a symposium held for the first time in November 2012, featured twelve nationally recognized experts from renowned institutions such as the Hospital for Special Surgery; Mayo Clinic; University of California, San Diego; Johns Hopkins; and others, as well as industry leader Genentech, Inc. The symposium summarized cutting-edge biomarkers research in lupus and obstacles preventing their use as predictive markers. The interdisciplinary symposium, led by Wael N. Jarjour, MD, FACP, brought together biomarker experts from hematology, cardiology, nephrology and rheumatology to delineate more effective strategies for the next phase in the discovery and validation of biomarkers in SLE.
The quantity and quality of publications authored or co-authored by our Division faculty, and published in peer-reviewed journals is impressive.

We highlight these:


