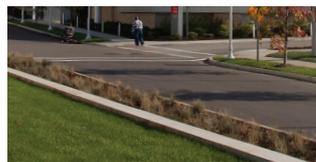


**DIVISION OF
RHEUMATOLOGY**



UH CASE MEDICAL CENTER

Among the nation's leading academic medical centers, UH Case Medical Center is the primary affiliate of Case Western Reserve University School of Medicine.

With more than 1,000 registered beds, UH Case Medical Center provides primary, specialty and subspecialty medical and surgical care. Located in the heart of Cleveland's University Circle on a beautiful 35-acre campus, UH Case Medical Center includes general medical, intensive care and surgical units as well as three major hospitals:

UNIVERSITY HOSPITALS SEIDMAN CANCER CENTER

UNIVERSITY HOSPITALS MACDONALD WOMEN'S HOSPITAL

UNIVERSITY HOSPITALS

RAINBOW BABIES & CHILDREN'S HOSPITAL

Our physicians and researchers – who also serve as faculty at Case Western Reserve University School of Medicine – are leaders in their respective fields, and their ongoing clinical research programs push the boundaries of medical progress.

To learn more, visit UHhospitals.org

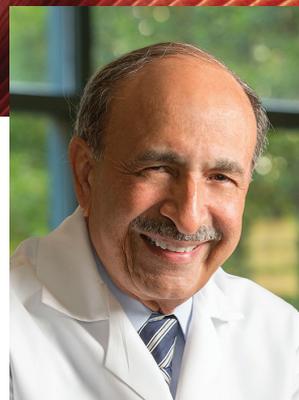
HARRINGTON DISCOVERY INSTITUTE

ACCELERATING BREAKTHROUGH DISCOVERIES INTO MEDICINES

The Harrington Discovery Institute at University Hospitals is the nonprofit arm of The Harrington Project for Discovery & Development, a national initiative supporting breakthrough research by physician-scientists. The Harrington Project is a new and powerful approach to address the challenges of advancing discoveries into medicines.

To learn more, visit HarringtonDiscovery.org

DIVISION OF RHEUMATOLOGY



Ali D. Askari, MD
Chief, Division of Rheumatology and Director, Rheumatology Fellowship Program, UH Case Medical Center Professor of Medicine, Case Western Reserve University School of Medicine

The Division of Rheumatology at University Hospitals Case Medical Center delivers advanced diagnostic testing and therapeutic treatments for personalized care of rheumatic diseases, including:

- Systemic lupus erythematosus (lupus)
- Rheumatoid arthritis
- Sjögren's syndrome
- Fibromyalgia and inflammatory muscle diseases
- Common arthritic problems, such as osteoarthritis

Widely recognized as a center for superb patient care, our distinguished specialists continue to develop innovative therapies, collaborating with colleagues in a spectrum of musculoskeletal services such as orthopaedic surgery, physical and occupational rehabilitation, neurosciences and diagnostic radiology.

In addition, with primary affiliate Case Western Reserve University School of Medicine, the division offers unsurpassed medical training through its postdoctoral fellowship program, and directs a number of local and national leading-edge clinical research projects.

Visit UHhospitals.org/CME for the latest in live, webinar and on-demand Continuing Medical Education events.



Dr. Donald Anthony Jr.

NATURAL KILLER CELLS STUDIED IN HEPATITIS C SETTING

NK Cells Hold the Key to
Interferon-free Therapies

A project funded by the Veterans Affairs central office and the NIH, to Case Western Reserve University School of Medicine, led by **Donald D. Anthony Jr., MD, PhD**, *rheumatologist, University Hospitals Case Medical Center; Rheumatology Section, Louis Stokes Cleveland VA Medical Center; and Associate Professor of Medicine, Case Western Reserve University School of Medicine*, is evaluating the role of NK cells in host defense mechanisms in hepatitis C infection to better understand how the interferon response mechanism may work during chronic viral infection.

One of the projects is looking at the role of systemic immune activation and aging on host response to new antigens, or new pathogens, by observing how the immune system state before immunization with a vaccine predicts whether somebody will respond to the vaccine. A number of cells and cytokines are known to be involved in this, but a recent endeavor is to fully understand how prior activation of the system can make the host less able to respond. This applies to the settings of chronic viral infection as well as to autoimmune disease, where the immune system is activated either by dealing with pathogens or because of autoimmunity.

It is also known that in hepatitis C infection, specific genotypes of NK cells are associated with the ability of the human host to resolve infection on its own. Dr. Anthony believes that NK cells and interferon work together to help clear hepatitis

C infection during interferon-based therapy. However, interferon therapy has many unwanted side effects. Dr. Anthony hopes that understanding how NK cells help fight viral infection will lead to the development of new treatment strategies for hepatitis C and other viral infections.

Highly morbid outcomes of some hepatitis C infections include formation of autoantibodies and vasculitis, which can lead to kidney failure, nerve problems and even death. Additional contributors to such outcomes include cold precipitable immune complexes composed of rheumatoid factors. Another goal of Dr. Anthony's lab is to understand how these autoantibodies are produced during hepatitis C infection, so that better treatment strategies can be developed.

Natural Killer (NK) cells were identified in the early 1980s as being capable of killing tumors or virally infected cells without any prior exposure to the virus, differing from T or B cells in that they require no memory. Though they have long been attractive as cancer-fighting cells, harnessing their power has been elusive.

All National Institutes of Health (NIH) funding for basic and clinical research is awarded to the School of Medicine at Case Western Reserve University.

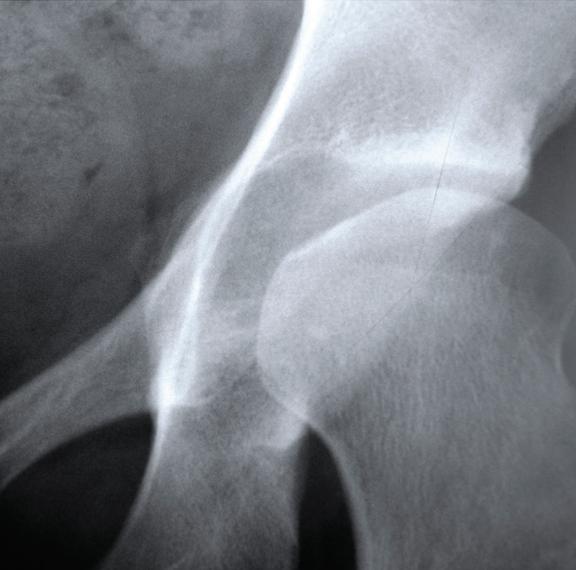
CLINICAL ADVANCES

The Division of Rheumatology at UH Case Medical Center offers specialized treatment through its renowned centers, including:



The Sjögren's Syndrome Center, founded and led by **Ali D. Askari, MD**, Chief, Division of Rheumatology and Director, Rheumatology Fellowship Program, UH Case Medical Center; and Professor of Medicine, Case Western Reserve University School of Medicine, which was established to improve treatment, build awareness of the disease and increase clinical research for future treatments. Through its multispecialty team of physicians, including staff from ophthalmology, otolaryngology, neurology, urology, dental medicine, gynecology, gastroenterology and pathology, the center helps patients receive the highest-quality care.

Dr. Ali Askari (center) with fellows: Dr. Artan Kaso; Dr. Maya Mattar; Dr. Shernett Griffiths, Chief Fellow; Dr. Zachary Wolff; Dr. Ogechi Muoh; and Dr. Ayesha Kanwal



The Osteoporosis Center, which diagnoses and treats osteoporosis patients at nearly any stage. Certified DEXA Scan technologists perform bone density scans, limiting radiation exposure to just 10 percent of the radiation used during a standard chest X-ray. Bone density results are then discussed in professor rounds for final approval and increased accuracy.

The Infusion Center, which offers advanced care for infusions of biologic agents that provide leading-edge treatment of rheumatic diseases.



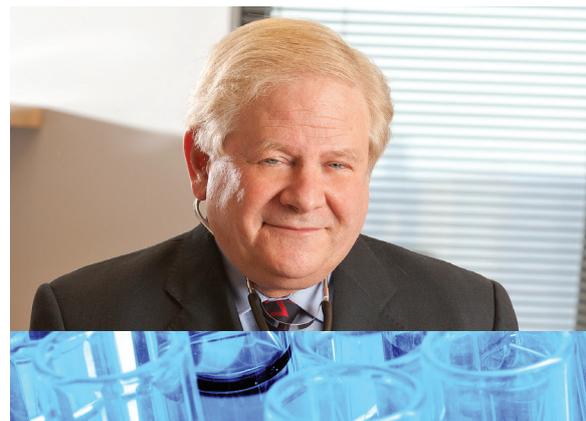
The Rheumatology Chemotherapy Treatment Clinic at the Louis Stokes Cleveland VA Medical Center, which is known for advanced care of rheumatic diseases.



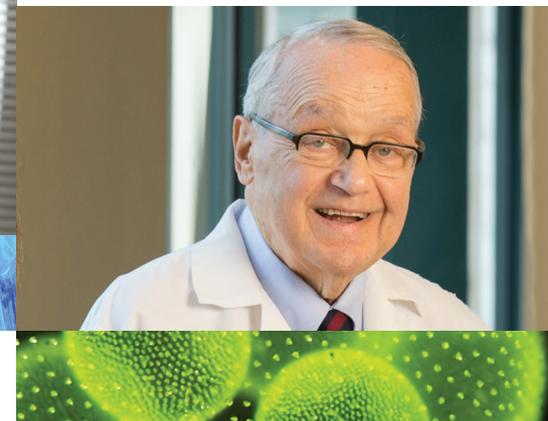
In addition to boasting clinical practices at **14 sites** in the Cleveland metropolitan area and leading clinical research on rheumatic disorders and related conditions, education has been one of the utmost priorities of the division since its inception. Over the past four decades, more than 50 highly qualified rheumatologists graduated from this residency program and were certified in internal medicine and the subspecialty of rheumatology, and most of them are now involved in academic practice or clinical research across the country. The division's postdoctoral fellowship program, through Case Western Reserve University School of Medicine, is nationally recognized and fully accredited with commendation – the highest honor – by the Accreditation Council for Graduate Medical Education (ACGME). Fellows are trained as investigative diagnosticians, leading-edge researchers and compassionate clinicians.

UH Case Medical Center's physicians, surgeons and scientists – all members of the faculty of Case Western Reserve University School of Medicine – are leaders in their respective fields, and their ongoing research programs are at the leading edge of medical progress. A strong emphasis on translational, or “bench-to-bedside,” research means that new and innovative treatments and technologies transfer more rapidly from the research laboratory to actual patient care.

Dr. M. Edward Medof



Dr. Roland Moskowitz



TOMORROW'S CURES TODAY.



Dr. Charles Malemud

The lab of **Charles J. Malemud, PhD**, Assistant Director for Fellowship Research, UH Case Medical Center; and Professor of Medicine and Anatomy, Case Western Reserve University School of Medicine, is currently involved in a study of tocilizumab, an approved drug for the treatment of mild to severe rheumatoid arthritis, and its effect on the metabolism of cartilage.

Tocilizumab is becoming more significant in the clinic because it has an important effect on moderating the biological activity of a potent pro-inflammatory cytokine called IL-6. IL-6 is an acute-phase reactant protein that is increased in synovial fluid in patients with rheumatoid arthritis.

M. Edward Medof, MD, PhD, Professor of Medicine and Pathology, Case Western Reserve University School of Medicine, specializes in rheumatoid arthritis, lupus and other connective tissue diseases in which the immune system is deregulated. Dr. Medof is internationally known for the discovery of the Decay-Accelerating Factor (DAF), a protein present on all cells that functions as a shield to protect self-cells from attack by our own immune system, important for connective tissue disease.

Dr. Medof recently discovered how Foxp3+ T regulatory cells (Tregs), master cells that protect us from autoimmunity, naturally develop in the body. Defects in Tregs are present in many autoimmune diseases, and the new knowledge of how to make Tregs is an exciting new approach for immune biotherapies. Dr. Medof's laboratory has learned how to make Tregs that possess robust suppressor activity from patients with autoimmune disease and that can be given back to patients to shut down their auto-immunity naturally. A similar protocol is in progress for lupus.

Roland W. Moskowitz, MD, Professor Emeritus of Medicine, Case Western Reserve University School of Medicine, was the division's chief from 1976 to 2001 and is a world-renowned authority and researcher in osteoarthritis. In 1991, Dr. Moskowitz described the first genetic defect as a cause of familial osteoarthritis through NIH-funded research. Over the past decade, he has been involved in the development of models for investigation of osteoarthritis, which are used by many investigators to demonstrate the efficacy of various therapies in treatment. Dr. Moskowitz received the highest level of honor from the American College of Rheumatology, the President's Gold Medal.



Rheumatology fellows: Dr. Irfan Raheem; Dr. Artan Kaso; Dr. Krissy Choi; Dr. Riaz Ahmad; and Dr. Cuoghi Edens

All National Institutes of Health (NIH) funding for basic and clinical research is awarded to the School of Medicine at Case Western Reserve University.

CLINICIANS AND SCIENTISTS

at UH Case Medical Center and
Case Western Reserve University School of Medicine

RHEUMATOLOGY

Ali D. Askari, MD

Chief, Division of Rheumatology
Director, Rheumatology
Fellowship Program
Professor of Medicine

Donald D. Anthony Jr., MD, PhD

Rheumatology Section,
UH Case Medical Center
and Louis Stokes Cleveland
VA Medical Center
Associate Professor of Medicine

David Blumenthal, MD

Rheumatology Section, Louis Stokes
Cleveland VA Medical Center
Assistant Professor of Medicine

Elizabeth Brooks, MD, PhD

Assistant Professor of Pediatrics
and Medicine
Adult and Pediatric Rheumatology

Hulya Bukulmez, MD

Assistant Professor of Pediatrics
Pediatric Rheumatology Research

Douglas Flagg, MD

Assistant Clinical Professor of Medicine

Lawrence Kent, MD

Clinical Professor of Medicine

Marie Kuchynski, MD

Senior Clinical Instructor of Medicine

Arminda Lumapas, MD

Clinical Instructor of Medicine

Charles J. Malesud, PhD

Assistant Director for Fellowship Research
Professor of Medicine and Anatomy

M. Edward Medof, MD, PhD

Professor of Medicine and Pathology

Roland W. Moskowitz, MD

Professor Emeritus of Medicine

Ogechi H. Muoh, DO

Clinical Instructor of Medicine

Mathilde H. Pioro, MD

Director, Rheumatology Section,
Louis Stokes Cleveland VA Medical Center
Associate Director of Fellowship Program
Assistant Professor of Medicine

Angela B. Robinson, MD, MPH

Assistant Professor of Pediatrics
Pediatric Rheumatology

Elisabeth Roter, MD

Assistant Clinical Professor of Medicine

Donna Sexton-Cicero, MD

Clinical Instructor of Medicine

Padmapriya Sivaraman, MD

Instructor of Medicine

Richard L. Stein, MD

Assistant Clinical Professor of Medicine

Van D. Warren, MD

Assistant Professor of Medicine

STAFF

Carmelene Jefferson

Division Manager

Jacqueline Russell

Academic Education Coordinator



PHYSICIANS IN THE COMMUNITY

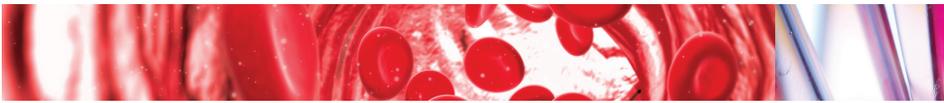
Mohammed A. Ali, MD

Jeffrey Chaitoff, MD

Phyllis Iannuzzi, MD

Mohammad Moayeri, MD

Senior Clinical Instructor of Medicine



To refer a patient or learn more about
UH Case Medical Center Division of
Rheumatology, call **1-866-UH4-CARE**
(1-866-844-2273) or visit
UHhospitals.org/Rheumatology.



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