The past two decades have witnessed a revolution in the study and treatment of rheumatoid arthritis, asthma, lupus and a host of other immune and inflammatory disorders. The mapping of the human genome, the advent of computer-enhanced medical technologies and other powerful investigative tools are enabling researchers to probe the root causes and biological underpinnings of these intractable diseases with ever-increasing precision. Their findings have been translated into new forms of treatment such as biologic “smart drugs” that can pre-empt harmful immune responses by homing in on molecular targets critical to the disease process.

Better news is yet to come. Basic research and clinical trials now under way at Massachusetts General Hospital (MGH) hold the promise of greater relief and fresh hope for millions of Americans and others throughout the world suffering from painful, frightening and potentially disabling diseases embedded in the body’s immune system.

Starting in 2000, when Andrew Luster, MD, PhD became Chief of the MGH’s Division of Rheumatology, Allergy and Immunology, the hospital began to enhance and expand clinical services in response to a burgeoning patient population, while establishing a new interdisciplinary research center to search for answers from multiple perspectives. Since taking over as division chief, Dr. Luster has recruited established leaders and rising stars to join him and existing faculty in an aggressive multi-pronged effort to unlock the mysteries of immune and inflammatory diseases and to translate their findings into improved clinical care as soon as possible.

The Division’s clinicians and investigators are making progress every day, and now they are poised to build on their gains and ratchet up the pace of discovery. At a time when support from the National Institutes of Health – our nation’s primary source of research support – is stagnating, philanthropy must play a front-and-center role in helping the Division’s faculty take the next steps in advancing their work. There is a pressing need for gifts that will strengthen the Division’s clinical and translational research infrastructure; to spur innovative and collaborative problem solving; to support the best and brightest young faculty; and to meet other important Division needs.

Additional funding for the Division’s priorities is certain to increase investigative opportunities, foster collaboration, increase synergy and speed the pace of discovery. MGH patients, their families and millions of others stand to benefit profoundly.

The Challenge and Opportunity to Improve Care
Tens of millions of Americans are affected by rheumatoid arthritis, asthma, lupus and other immune and inflammatory disorders that exact a staggering human and economic toll on society.
Asthma alone affects an estimated 25 million adults and children, resulting in 4,000 deaths each year and costing $16 billion annually in direct medical expenses and lost wages, not to mention the personal and family distress and anxiety associated with breathing problems. Similarly, the pain and suffering caused by rheumatoid arthritis, lupus and other autoimmune disorders diseases are immeasurable.

For nearly a century the MGH’s Division of Rheumatology, Allergy and Immunology has been a pioneer and innovator in the study and treatment of rheumatic, allergic and immune system disorders. Today, the Division’s physicians are treating a dramatically expanding patient population from the U.S. and beyond, due to the skyrocketing incidence of these disorders and the Division’s reputation for clinical excellence.

The MGH’s practice in allergy and clinical immunology quadrupled in size over the past six years and expanded its services to the MGH’s Waltham facility, while the number of patients seen by MGH rheumatologists is increasing at a steady rate of 10% each year. The growth of services and an expanding clinical research agenda are under the direction of two highly regarded specialists – Aidan Long, MD (Allergy and Clinical Immunology) and John Stone, MD, MPH (Rheumatology), who joined the Division in 2008.

The MGH Advantage

Drs. Long and Stone and their colleagues are especially expert in treating patients with lupus, rheumatoid arthritis, chronic sinus disease, drug allergies and asthma. Patients coming to the MGH also have ready and convenient access to world class clinicians from related specialties. For example:

- The Division’s allergy and immunology services are co-located with the MGH’s specialists in chronic obstructive pulmonary disease and other pulmonary problems, making it convenient for exams, tests and consultations when patients need to access pulmonary expertise;
- MGH rheumatologists frequently consult and collaborate with the hospital’s renowned orthopedic specialists to diagnose, assess and treat joint problems;
- Patients with chronic sinus disease – an inflammatory disorder of unknown origin – benefit from a team approach to care involving specialists from the MGH and Massachusetts Eye and Ear Infirmary;
- A team approach to care is also employed with patients suffering from “onco-allergies” – an inability to tolerate cancer treatments – and allergies to other medications such as antibiotics and aspirin (for cardiac patients). The MGH is known for its expertise in desensitizing patients so that they can take these life-saving drugs.

New Treatments on the Horizon

One of the most promising developments in the treatment of immune and inflammatory diseases is the discovery of new biologic therapies and the application of existing drugs to treat different diseases. These drugs work by neutralizing a critical pathway of an inflammatory immune response. Examples of this class of biologic drugs – referred to generically as monoclonal antibodies – include Tumor Necrosis Factor (TNF) inhibitors, anti-Immunoglobulin-E (IgE) agents and B-cell depletion therapy.
Because these drugs work directly on the immune system and are not disease-specific, their potential to treat multiple rheumatic, immune and allergic disorders is a subject of intense interest at the MGH and elsewhere.

Numerous opportunities exist for the development of additional biologic drugs and entirely new therapies such as vaccines. The critical first step is understanding the genetic roots and biological mechanisms that underlie disease. The MGH Research Center for Immunology and Inflammatory Diseases, established by Dr. Luster in 2000, is taking a lead in these and other avenues of basic study, which are profiled in the following pages. Future gains in the laboratory and clinic – some which are very near – are providing patients and families with a fresh cause for hope in the battle against immune and inflammatory disorders.

**The Time is Now to Support Innovative Research**

The MGH Division of Rheumatology, Allergy and Immunology has been at the forefront of clinical care, research and training for nearly a century. It has sustained this preeminent position by attracting and retaining top faculty, by nurturing the best and brightest young physicians and by ensuring that these skilled and talented specialists have the resources they need to excel in the clinic, laboratory and classroom.

Research in immune and inflammatory diseases now stands on the cusp of a new era of breakthroughs in treatment and prevention. Philanthropy will play a central role in making these advances possible and bringing their benefits to patients as soon as possible.

For further information about the MGH Division of Rheumatology, Allergy and Immunology and ways of supporting its physicians and programs, please contact Melissa King of the MGH Development Office at 617-643-0466 or mgking@partners.org.