UC San Diego Health

UC San Diego Part of New Effort to Fight Autoimmune Disorders

Major multi-year partnership will focus first on rheumatoid arthritis and lupus

September 25, 2014 |

The Division of Rheumatology, Allergy and Immunology at University of California, San Diego School of Medicine has been named a key site in a national, multi-institution, multi-year $41.6 million program to speed drug discovery, development, diagnostics and therapies for patients with autoimmune disorders, primarily rheumatoid arthritis (RA) and lupus erythematosus, which affect millions of Americans.

"We will be looking to pinpoint the genes, proteins, chemical pathways and networks involved in these diseases at the single cell level," said Gary S. Firestein, MD, professor, dean and associate vice chancellor of translational medicine. "This approach allows us to make comparisons across many diseases, revealing new insights and aspects of the disease process. We hope to better understand why some RA patients, for example, respond to therapy and others do not – and develop new therapies that target their condition based upon their particular genetic and environmental variables."

The effort is part of a five-year, $230 million program called Accelerating Medicines Partnership (AMP), a collaboration between the Food and Drug Administration, the National Institutes of Health (NIH), 10 biopharmaceutical companies and several non-profit organizations. It will initially focus upon autoimmune disorders, type 2 diabetes and Alzheimer's disease, with other diseases and conditions added in the future. The program for RA and lupus is managed through the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS).

The unusual cross-sector partnership will emphasize finding tell-tale "biomarkers" for these disease areas, which are molecules that can be helpful for diagnosis or selecting treatment. The group also will identify promising drug targets and ways to reduce the time and cost of developing new therapeutics. A critical component of the effort, say officials, is that industry partners, such as Merck and Pfizer, will make AMP data and analyses publicly accessible to the broad biomedical community.

"To date, treatments for RA and lupus have been aimed at decreasing inflammation and pain," said Stephen I. Katz, MD, PhD, director of NIAMS. "For the first time, we are bringing together multidisciplinary research teams to achieve a broad, systems-level understanding of these diseases, setting the stage for the development of more effective diagnostic and treatment approaches."

In a consortium with the University of Colorado, the University of Nebraska and Cedars Sinai Medical Center, UC San Diego will be responsible for using the latest genomics and epigenomics research tools to collect and process tissue and blood samples from patients with RA.

RA is primarily an inflammatory disease of the joints, affecting an estimated 1.5 million Americans, or almost 1 percent of the U.S. adult population. While it most often diagnosed in middle age and occurs with increased frequency in older people, it also strikes children and young adults. Symptoms include pain, selling, stiffness and loss of function in joints. RA typically becomes chronic. There are many treatments, but no cure. Research at UC San Diego in RA has contributed to the discovery of several novel therapies that are currently being used. Despite these advances, many patients still have pain and diminished quality of life.

Both RA and lupus belong to a larger group of autoimmune disorders that includes multiple sclerosis, Crohn's disease, ulcerative colitis, type 1 diabetes and psoriasis. These diseases, say researchers, share common flaws in immune function and regulation, leading to inflammation that destroys tissues and results in reduced quality of life, disability and increased risk of death.

If successful, the researchers said the combined efforts of academia, the NIH and biotechnology companies can change the way research is performed and create multi-disciplinary teams that can be more effective than individual groups.

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Media contact: Scott LaFee, 619-543-6163, slafee@ucsd.edu

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