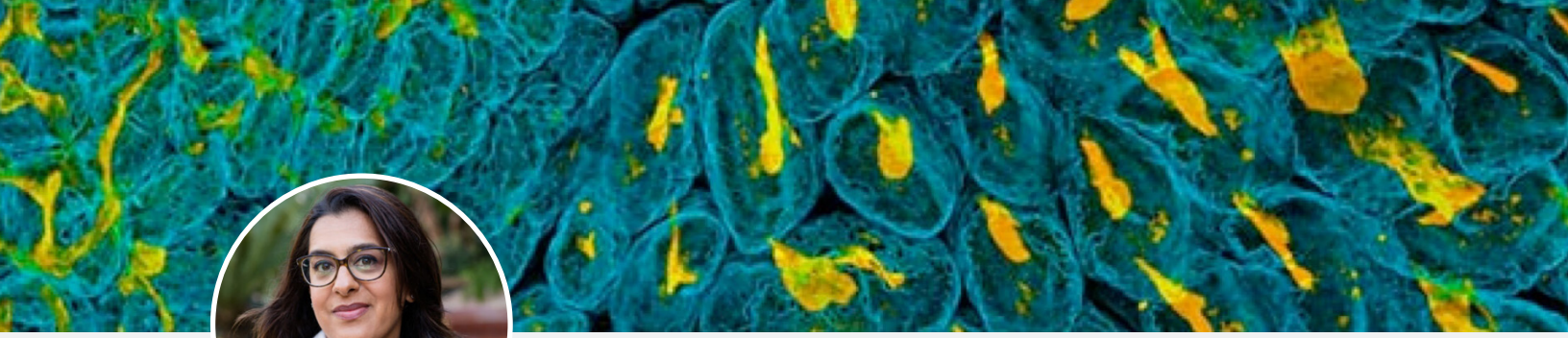

Sonia Sharma, Ph.D.

Associate Professor

Director, Center for Sex-based Differences in the Immune System,
Center for Autoimmunity and Inflammation,
Center for Cancer Immunotherapy

"We're trying to harness the potential of the genome. At our Center, you can systematically dissect the genome by simultaneously conducting thousands of automated experiments to learn how genes function in relation to a given biological system of interest. I think that's incredibly exciting."

FIRST RESPONDERS IN CANCER AND AUTOIMMUNITY

Our lab studies innate immunity, the early phase of the body's immune response. Our goal is to shed new light on the role the immune system's "first responders" play in shaping protective immunity in cancer or harmful inflammation in autoimmunity with a specific focus on human immunology. Notably, our studies show that in settings of both cancer and autoimmunity, the earliest immune responses are actually initially triggered by non-immune cells such as those in skin or lining blood vessels, rather than professional immune cells (white blood cells). We aim to stimulate innate immunity to eradicate tumors and where appropriate, to dampen innate immunity to alleviate pathogenic inflammation and autoimmunity. For example, our studies on human autoimmunity uncovered a metabolic pathway that stimulates innate immunity in both nonimmune and immune cells. Notably, this pathway (e.g. adenosine pathway inhibitors) is highly dysregulated in tumors, and currently is the target of a specific class of cancer immunotherapy drugs being testing in trials. Our studies shed new light on the mechanism of action for these drugs.

Dr. Sharma received her B.Sc. and Ph.D. in microbiology and immunology from McGill University, in Montréal, Québec. From 2004-2009, she was a postdoctoral fellow at the Immune Disease Institute (IDI) at Harvard Medical School. In 2001, Dr. Sharma joined La Jolla Institute as an Instructor in Developmental Immunology before she was appointed assistant professor in 2013.