



UNRAVELING THE MYSTERIES OF THE IMMUNE SYSTEM IN HEALTH AND DISEASE

The immune system is continually in action to keep us healthy. Immune cells sense and fight foreign invaders and other insults in our bodies every day, without our knowledge. When the system is working perfectly, we stay healthy. But for the millions of people around the world living with inflammatory diseases such as in autoimmunity, cancer, or chronic infections, their immune systems are out of balance. Understanding what makes a healthy immune system and how that system fails in these varied illnesses will help researchers diagnose and develop better, more targeted treatments for these immune-related diseases.

At the Allen Institute for Immunology, we will focus on how to define a healthy human immune system at a scale and precision never done before. We'll work directly with volunteers and patients to establish a baseline of what a healthy immune system is and what then goes wrong when the scales tip and disease occurs. Our initial partners will be Benaroya Research Institute at Virginia Mason, Fred Hutchinson Cancer Research Center, the University of California San Diego with the University of Colorado Anschutz Medical Campus, and the University of Pennsylvania. Their combined clinical research expertise is essential for our success. Our partner research organizations will recruit and establish groups of research participants – healthy individuals as well as patients with rheumatoid arthritis, inflammatory bowel disease, and cancer for longitudinal studies of the immune system.

The human immune system is an immense mystery that requires a large-scale, dedicated research effort to unpack. The resources and data we generate – a combination of medical information with biological data – will be open to all, through the Allen Institute's commitment to open science. Our discoveries will form a baseline of detailed understanding about the healthy immune system that will spotlight the pathways of disease initiation and progression for future research on new treatments

