

# NIH CENTER FOR HUMAN IMMUNOLOGY, INFLAMMATION AND AUTOIMMUNITY

The NIH Center for Human Immunology, Inflammation, and Autoimmunity (CHI) is a trans-NIH initiative whose mission is to provide a collaborative resource to enable high-dimensional multiplex immune phenotyping for NIH clinical studies. This is accomplished through a focused team for scientific input, advanced technologies, and informatics support to better understand human immune function and pathophysiology.

The CHI is a translational operation that will serve as a hub for facilitating the interaction of various immunologically oriented NIH investigators with an interest in translational studies while having access to cutting edge advanced technologies. The center provides technological resources which are often unavailable to individual laboratories due to costs, complexity, novelty, technological understanding and expertise. Technology platforms include but not limited to, transcriptomics, single cell technologies such as CITE-seq, high parameter cytometry, and serum proteomics.

## COLLABORATING WITH CHI

There are three ways to work with CHI:

- Access to specific technologies via the CHI fee-for-service program
- Technological development or enhancement
- Collaborative study proposals



Yasmine Belkaid, Ph.D.  
Scientific Director, CHI  
ybelkaid@niaid.nih.gov



James M. Cherry, Ph.D.  
Chief of Operations, CHI  
jim.cherry@nih.gov

## SCIENTIFIC ADVISORY BOARD



Pamela Guerrerio, M.D., PH.D.  
Chief of the Food Allergy  
Research Section



Frank DeLeo, Ph.D.  
Chief of the Laboratory  
of Bacteriology



Luigi D. Notarangelo, M.D.  
Chief of the Laboratory of  
Clinical Immunology and  
Microbiology



Robert Seder, M.D.  
Chief of the Cellular  
Immunology Section



## MAJOR AREAS OF SUPPORT

- Single cell sequencing
- Serum proteomics
- High-dimensional cytometry
- Computational analysis
- Systems Immunology
- Microbiome

## TECHNOLOGY PLATFORMS

### Sequencing-based technology

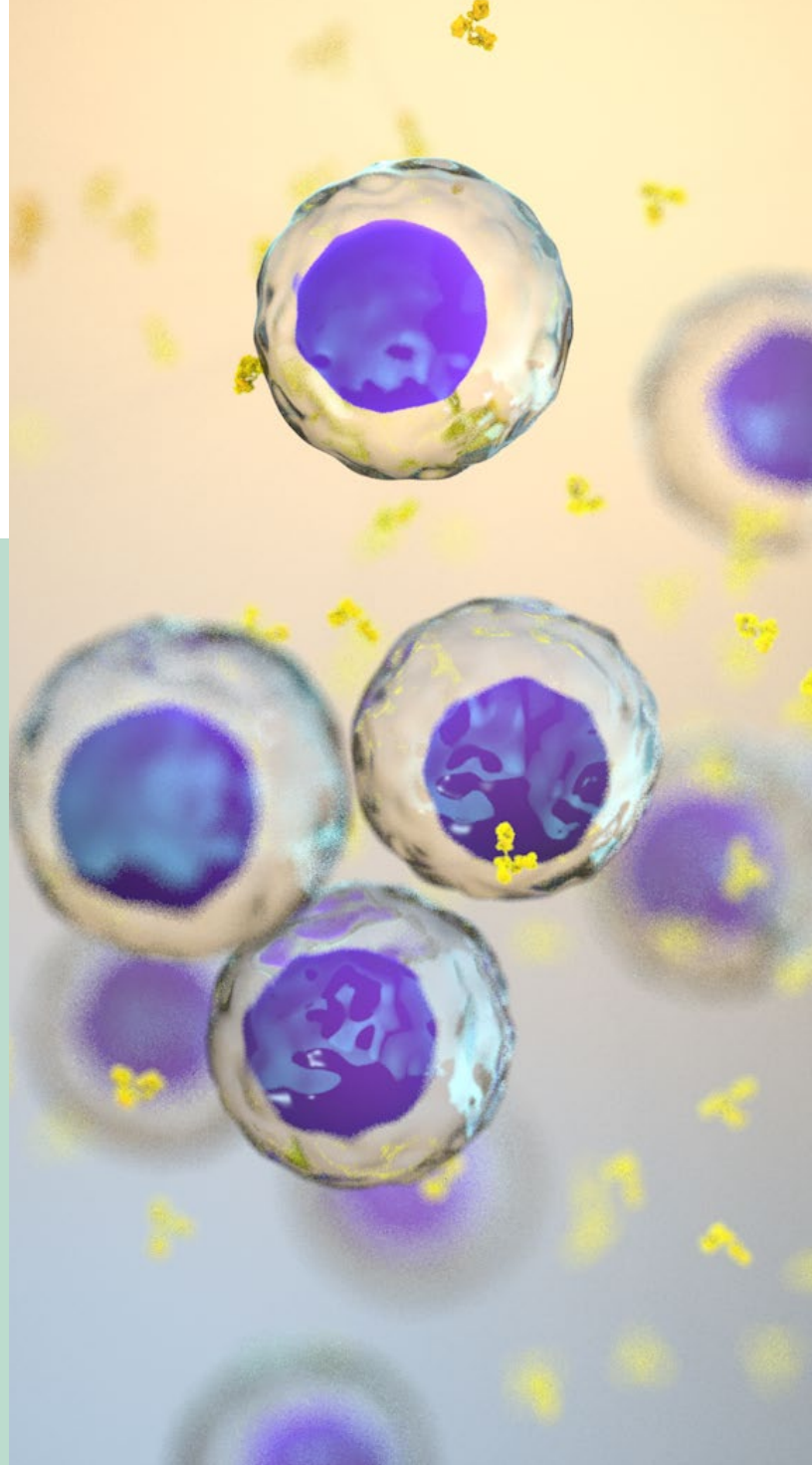
- 10x Genomics Chromium X for single cell sequencing library preparation, including CITE-seq and ASAP-seq to assess chromatin accessibility, transcriptome, and more than 100 surface proteins in the same single cells
- Automated pipeline for NGS library preparation, including a Qiasymphony and BioMek for bulk RNA-seq
- Illumina NextSeq 2000 for sequencing
- Sony MA900 flow cytometer for cell sorting to enrich rare populations for sequencing

### High-dimensional cytometry

- Flow phenotyping with 30-40c panels for PBMC, T cell subsets, and specific tissues
- Stimulation assays to simultaneously assess 8 phospho-protein signaling pathways in 20 PBMC populations
- Cytex Aurora and BD FACSymphony for high parameter flow cytometry
- Fluidigm Helios for mass cytometry

### Aptamer based proteomics

- SomaLogic run in-house to assay 7,000 protein analytes in peripheral blood serum/plasma
- Exploratory application to other sample types such as CSF, urine, and saliva
- Tecan Fluent 780 for automated assay performance



## FOR MORE INFORMATION, CONTACT:

**Rachel Tracy**

Executive Assistant, CHI

rachel.tracy@nih.gov



WEBSITE