Northwestern Medicine

Joseph Leventhal, MD, PhD
Medical Director
Fowler McCormick Prof. of Surgery
Director, Kidney Transplant Program

James Mathew, PhD
Director
Professor of Surgery and
Microbiology-Immunology

Hong Xu, MD
Co-Director
Associate Professor of Surgery

Jes Sanders, MD
General Surgery Resident, PGY-5

Shareni Jeyamogan, PhD
Postdoctoral Research Scholar

Jie He, MD
Senior Research Technologist

https://www.feinberg.northwestern.edu/sites/transplant/research/research-cores/immune-core.html

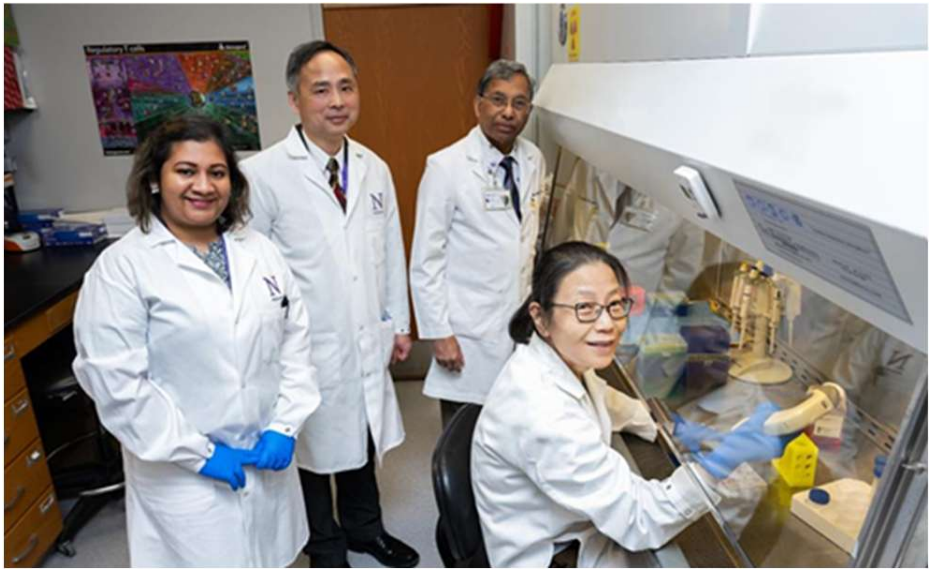
Comprehensive Transplant Center
Feinberg School of Medicine
Northwestern University
676 N. Saint Clair St., Suite 1900
Chicago, IL 60611
Tel: 312-695-8900
Fax: 312-695-9194
Email: ctc@northwestern.edu

Immune Monitoring Core
Comprehensive Transplant Center
Feinberg School of Medicine
Northwestern University
300 East Superior Street, Tarry 11-710
Chicago, IL 60611

Northwestern Medicine®

COMPREHENSIVE TRANSPLANT CENTER

IMMUNE MONITORING CORE



Mission

The mission of the Immune Monitoring Core is to:

- Provide translational mechanistic studies in human solid organ and cellular transplantations.
- Develop cell-based therapies to induce tolerance in solid organ transplant recipients, aiming to minimize or eliminate lifelong immunosuppression through bone marrow stem cell transplant and regulatory T cell therapy.
- Establish non-invasive assays and identify biomarkers to monitor and predict transplant rejection and tolerance.

About the Immune Monitoring Core

The Immune Monitoring Core is located at 300 E. Superior Street, Suite 1100. It is a component of the Comprehensive Transplant Center (CTC) under the direction of Drs. Joseph Leventhal, James Mathew, and Hong Xu.

The Immune Monitoring Core is dedicated to assisting investigators with a central resource for human immune monitoring needs for translational and clinical transplantation research projects. It provides a valuable and unique research opportunity for translational mechanistic studies in organ and stem cell transplantation.

The core offers a wide variety of immune monitoring services, supported by a robust and specialized team of lab personnel and faculty directors. The core provides the necessary expertise in the increasingly specialized investigative paths within immune monitoring.

Personnel include a specialized team with associate directors in Renal, Liver, Pancreas, Islet transplantation as well as composite tissue allografts.

Services

The Immune Monitoring Core currently provides the following services to the investigators of the CTC as well as the other investigators in Northwestern University and beyond. Investigators will be responsible for the costs incurred for their projects and prior animal protocol approval.

- Cell Cultures; Biopsy cultures
- MLR and proliferation assays by ^{3}H-Thymidine incorporation and/or CFSE dilution
- Treg-MLR that assays the ability of modulatory agents to induce the generation of new Tregs in culture
- AlloSEQ Analysis - Flow sorting of MLR responding and proliferating cells (for subsequent TCR and BCR clonotypic analyses by Adaptive Biotechnologies)
- Cells Mediated Lympholysis (CML), Micro-CML and cytotoxicity assays
- 14 Color Flow analyses for cell subsets and intracellular molecules.
- Multicolor RNAscope – an RNA ISH technique that allows for the detection of low quantities of RNA in cellular and tissue samples.
- Cytokine Assays in cell subsets (Flow) and culture supernatants (Luminex)
- ELISPOT Assays for IFN-g, Granzyme-B and other cytokines
- Humanized mouse assays for stem cell and immune subset mediated tolerance, including use of NSG mouse human skin graft model.
- Ex vivo generation and expansion of polyclonal Treg and antigen-specific Tregs.
- The mouse models for induction of transplant tolerance, including bone marrow and skin transplantation

Getting Started

To discuss starting a project using the services of the Immune Monitoring Core of the Comprehensive Transplant Center, please contact:

James Mathew, PhD
james-mathew@northwestern.edu

Hong Xu, MD
hong.xu@northwestern.edu