The Immune Monitoring Laboratory (IML) core of the Northwestern University Comprehensive Transplant Center (NUCTC) was opened in January 2008. The mission of the IML is to develop ex vivo assays of immune mechanisms in organ transplant recipients that will either reflect accommodation to or reactivity against the graft. These assays will aid in predicting long and short term outcomes and provide rationales for utilizing specific immunosuppressive regimens.

1. Rationales for objective plans to safely and totally withdraw immunosuppressive drugs in an effort to induce permanent ‘immunologic tolerance’ are provided by the IML. These investigational regimens are being tested in only two other centers in the United States, but the need for such protocols has become critical as the long term toxic effects of immunosuppressive drugs used to prevent graft rejection become more and more evident with time. ‘Tolerance’ has been experimentally induced in many animal species, but has been elusive in human organ transplant recipients, primarily because of the absence of ex vivo assays to detect the processes involved.

2. Conversely, the immune processes of transplant rejection have been detectable only by invasive and sometimes risky biopsies for histopathological examinations. Simple blood tests or other physiological indicators of organ dysfunction have merely been signals of graft deterioration, rather than indicating causality. It is disadvantageous to the transplant recipient if therapeutic changes are dictated without a clear-cut rationale requiring specific immune assays to confidently guide changes in therapy allowing the organ transplant to be more permanently accepted by the recipient.

Two tolerance protocols that are receiving national attention are currently being conducted at the NUCTC. Other protocols involve the introduction of new therapeutic anti-rejection agents that are being tested for their effects on the human immune system by ex vivo assays in the IML. Several papers describing assays introduced by the IML have already been published.

The IML, directed by Joshua Miller, MD and co-directed by James M Mathew, PhD, currently has three technologists, Xuemei Huang MD, Li Chen PhD and Dhivya Chandrasekaran MS, performing the various immune assays. Other NUCTC faculty members who are presently involved in the IML are Joseph R. Leventhal MD PhD, Josh Levitsky MD, Anat R Tambur DMD PhD, Lorenzo Gallon MD, John Friedewald MD, Xunrong Luo MD PhD and Javeed Ansari, MD. The expectation is that IML core activity will increase exponentially as NUCTC tolerance programs expand and as new immunosuppressive agents are successfully introduced.

For more information or to utilize the services of the IML, please contact either Dr Miller (joshuamiller@northwestern.edu) or Dr Mathew (james-mathew@northwestern.edu).