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Researchers identify way to predict and prevent damage in donated kidneys

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A multicenter team of researchers led by Barbara Murphy, MD, of the Icahn School of Medicine at Mount Sinai has identified a panel of genes which can help predict whether a transplanted kidney will later develop fibrosis, an injury which can cause the organ to fail. Their results were published in the July 21 edition of *Lancet*.

Researchers in the Genomics of Chronic Allograft Rejection (GoCAR) study obtained biopsy samples from transplanted kidneys three months and twelve months after transplantation. Using microarray, a method by which the expression levels of a large numbers of genes or proteins can be measured simultaneously, the researchers determined which genes were correlated with biopsy samples which had an increased Chronic Allograft Damage Index (CADI) score at the 12-month biopsy. The CADI score is a measure of the level of fibrosis in the transplanted kidney. The researchers then narrowed the genes down to a predictive gene set that identified patients at risk for decline in renal function and loss of the transplanted kidney beyond one year. The rate of correlation of the identified gene set with damage was greater than the clinico-pathological variables currently used in practice to identify kidney transplant recipients at risk of allograft damage and loss.

"This is the first finding of its kind," said Barbara Murphy, System Chair of Medicine for the Mount Sinai Health System and Murray M. Rosenberg Professor of Medicine (Nephrology) at the Icahn School of Medicine at Mount Sinai, and the lead investigator on the study. "By helping us better understand the causes of damage to transplanted

kidneys, this study has the potential to change how we monitor and manage all renal transplant patients."

"The study offers the potential to identify renal transplant recipients at risk for a loss of the new organ prior to the development of irreversible damage," said Dr. Murphy. "This would mean that doctors might eventually have the opportunity to change the therapeutic treatment approach in order to prevent fibrosis from progressing at all."

Provided by The Mount Sinai Hospital