DALLAS--Doctors in a three-state area will join in an extensive study to determine how much tissue matching between unrelated persons aids in kidney transplantation.

The University of Texas Southwestern Medical School at Dallas will lead the study, collecting data and overseeing the accuracy of typing in Texas, Oklahoma and Arkansas.

The study is funded by a $103,966 contract awarded by the Transplantation and Immunology Branch of the National Institute of Allergy and Infectious Diseases of the National Institutes of Health.

Project director for the study is Dr. Peter Stastny, an associate professor of Internal Medicine at UTSWMS who has been involved in a world-wide tissue matching effort.

While experts are fairly sure that matching helps in the case of related donors, they are not so sure it assures acceptance of grafts in unrelated persons, Dr. Stastny explained.

In some ways similar to red blood cell matching, which has made types like "A" or "O Positive" familiar terms, current modes of tissue matching involve a battery of more than 60 different typing serums.

Framework for the study will be the newly-formed Southwest Kidney Transplant Region, a cooperative which has sought to find optimum kidney matches. There are 150 to 200 persons who need kidneys and whose tissue types are computerized with the region, notes Dr. Stastny.

Researchers in this region include Dr. Roger Rossen of the Baylor-Methodist Tissue Typing Laboratory at the Baylor College of Medicine in Houston, Dr. Stephan E. Ritzmann of The University of Texas Medical Branch at Galveston, Dr. Marvin Forland at The University of Texas Medical School at San Antonio, Dr. B.J. Matter at The University of Oklahoma Medical Center in Oklahoma City and William J. Flanigan at the University of Arkansas Medical Center in Little Rock.

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Whatever the present success of tissue matching in transplantation, the process seems, at least, to offer a fascinating method of "test tube Archaeology."

Dr. Stastny recently presented a paper at the Fifth International Conference of Histocompatibility at Evian, France, detailing apparent tissue typing reactions in remains of Peruvian mummies. "We seem to be detecting antigens, but we can't yet rule out contamination," said Dr. Stastny, who added that the age of the mummies was between 1,000 and 2,000 years. An antigen is a substance that causes an immunity reaction.

The scientist said that the prospect of tracing races and peoples by their tissue types has inspired some researchers to seek out isolated groups like Eskimos and determine their tissue profiles. The appearance of these tissue types in other parts of the world might indicate a major movement of people in history.

The tissue types of the Peruvian mummies (from Paracas on the southern coast) match accepted history of these people from pre-Inca times.

The Dallas professor is expecting to receive some parts of Egyptian mummies soon so that he can do further testing.

"Everybody agrees that rejection of transplants is an immunologic factor and that success must come from immunologic methods," he said, adding, "The strength of the immune response is regulated by the degree of antigenic disparity and the vigor of the response--both factors seeming to play a role.

"The major antigenic system is what we call 'Human Histocompatibility Locus A' or 'HL-A' for short. The standard tray of 60 sera represent a little over 30 HL-A factors."

He explained that some of these factors might be considered the historical remnants of entire peoples' encounter with disease. For instance, the hemoglobin profile of those with sickle-cell anemia could represent the battle of black races against malaria. Persons with sickle-cell anemia seem to be resistant to the later disease.

So far, in preliminary local studies, the correlating between HL-A typing and transplant function "looks very good," according to Dr. Stastny.

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