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Forschungsprojekte

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Researchers Want to Create Kidney Atlas

In the years ahead, researchers want to create a three-dimensional (3D) kidney atlas incorporating the latest knowledge about the development and diseases of the kidney. The primary aim of the researchers is to map key genes that play a major role in these processes in order to improve the diagnosis and therapy of renal diseases and to reduce the high cost of treatment. The atlas is part of the European Renal Genome Project (EuReGene), which is funded by the European Union with a budget of more than 10 million Euros. Eighteen research groups from non-university institutes and universities as well as six university clinics in nine European countries* are involved in this project, which is coordinated by the Max Delbrück Center for Molecular Medicine (MDC) Berlin-Buch. On the 3rd of February 2006, the first EuReGene symposium was held at the MDC, with about 150 researchers from Europe and the U.S. attending. Guest speakers included Prof. Gerd Walz of the University Hospital Freiburg, Prof. Adrian S. Woolf of the Institute of Child Health, University College London, Prof. Elizabeth Robertson of the University of Oxford, and Prof. Andy McMahon of Harvard University in Cambridge, MA, USA.

"The kidney is a prototype organ for such an atlas project", said Prof. Thomas Willnow, coordinator of the EU project at the MDC. "It consists of about 20 different kinds of cells. The exact function of each of these cell types is known. This is not the case for other organs", he stressed. Pathologists, developmental and molecular biologists, and geneticists are working on the kidney map, which is based on research done in the various mammalian genome projects. Prof. Willnow is convinced that this kidney atlas will have an important impact on our future understanding of the underlying causes of renal diseases, including common metabolic disorders which lead to kidney damage such as diabetes.

In Europe, about 4.5 million people suffer from renal disease. The elderly are disproportionately affected, as the disease frequently develops as a consequence of hypertension and diabetes. However, renal disease is a condition that also affects children, who are often born with congenital renal anomalies. The number of patients with kidney diseases is rising sharply. With dialysis, patients whose kidneys are no longer functioning can survive for a certain period of time until a transplant organ is available. However, patients have to wait on average 40 months for a transplant due to the small number of available donor kidneys.

In Europe, there are about 225,000 dialysis patients. In Germany alone (statistics dated 31 December 2004), there are about 60,992 dialysis patients. Of these patients, 9,270 were registered on the waiting list, and only 2,478 received a kidney transplant. The number of new registrations for a transplant is higher than the numbers of transplant recipients. For many dialysis patients, the waiting period is too long: 10,975 dialysis patients died in Germany in 2004. In other words, about 20 percent of dialysis patients die each year because they do not receive a donor kidney.

* Belgium, Denmark, Germany, UK, Finland, France, Italy, Poland, Switzerland

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