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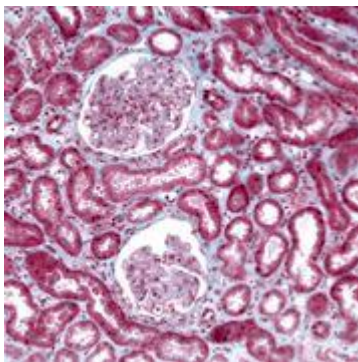
Institut national
de la santé et de la recherche médicale

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Press Release

BIOMARGIN – Increasing the life span of grafted kidneys

The BIOMARGIN (BIOMarkers of Renal Graft INjuries in kidney allograft recipients) research project, coordinated by INSERM, has just received financing from the “health” seventh framework programme of the European Commission to the tune of 6 million euros for a four-year period. The aim of the project is to develop more effective, non-invasive methods to prevent and diagnose lesions in transplanted kidneys so as to improve treatment and the long-term survival of the graft. Thirteen European research teams located in France (Inserm, AP-HP, CEA, CNRS, Université Paris Descartes, CHU de Limoges), Belgium, Germany and Sweden will work together on a so-called “omics” innovative approach involving the simultaneous study of a large number of genes, proteins and metabolites in order to identify biomarkers for these lesions on a large scale.



© INSERM, Biopsy of renal graft prepared for pathological anatomy reading.

Patients who have received kidney transplants in the past twenty years have benefited from a significant decrease in the number of acute rejections in the first months of the transplant but graft survival beyond ten years has only improved slightly. Biopsy of the transplanted kidney remains the examination of reference for the detection of lesions in an allograft. However, this is an invasive technique whose interpretation is often difficult. *“It is thus necessary to develop reliable, non-invasive methods to diagnose allograft lesions in order to improve treatment and thus extend the long-term survival of the allograft”*, explains Prof. Pierre Marquet, Co-ordinator of the BIOMARGIN European project and Director of the UMR 850

Inserm / Université de Limoges / CHU de Limoges entitled “Pharmacology of immunosuppressants and transplantation”. This project will also make it possible to analyse the pathophysiological, immune and non-immune mechanisms involved in the long-term graft survival, at a European level.

In order to set-up these non-invasive diagnostic tools, the BIOMARGIN European project researchers chose an integrated and systematic research approach combining all the currently available “omics” technologies (identification of the expression of nucleic acids, peptides, proteins, lipids, metabolites, etc.) with analysis of blood and urine samples, as well as of graft biopsies for comparison purposes and to enable understanding of the lesion mechanisms.

The purpose of the BIOMARGIN project is to:

- Discover, select and validate biomarkers of lesions in grafted kidneys, as indicated from the blood and/or urine samples of adult and child renal transplant patients.
- Provide doctors with non-invasive and reliable diagnostic tests, as well as interpretation algorithms enabling more accurate and more predictive monitoring of transplant patients than at present.
- Avoid or reduce the use of biopsies and improve treatment, patient quality of life and graft long-term survival.
- Understand the mechanisms involved in the process by which lesions occur in the graft

which, combined with mass spectrometry imaging, should provide pathologists with new molecular targets and tools for analysing renal graft biopsies.

The study will consist of four phases:

Phase 1: retrospective, case-control study of samples stored in the biobanks maintained by the partners (CHU Limoges, Necker Children's Hospital, MHH Hanover, KU Leuven), aimed at finding an extensive list of candidate biomarkers.

Phase 2: selection of biomarkers with good diagnostic performance for histological lesions in the graft.

Phase 3: validation of the diagnostic performance of biomarker candidates in a representative sample of transplant patients.

Phase 4: validation of the biomarker diagnostic and prognostic performance in newly transplanted kidney recipients recruited for the project.

For more information



The 13 partners in the BIOMARGIN project www.biomargin.eu

1. INSERM, France: <http://www.presse-inserm.fr/>
2. INSERM - Transfert SA IT, France: <http://www.inserm-transfert.fr/fr/>
3. Assistance publique - Hôpitaux de Paris (AP – HP), France: <http://www.aphp.fr/>
4. Commissariat à l'énergie atomique et aux énergies alternatives (CEA), France: www.cea.fr/
5. Centre national de la recherche scientifique (CNRS), France: www.cnrs.fr/
6. Katholieke Universiteit Leuven (KU Leuven), Belgium: www.kuleuven.be/
7. Vlaamse Instelling voor Technologisch Onderzoek N.V. (Vito), Belgium: www.vito.be/
8. Mosaiques diagnostics GMBH MOS, Germany: <http://mosaiques-diagnostics.com>
9. Medizinische Hochschule Hannover, Germany: <http://www.mh-hannover.de/>
10. Cardinal Systems CARD, France: <http://www.cardinal-sys.com/>
11. Université Paris Descartes, France: <http://www.univ-paris5.fr/>
12. AcureOmics AB, Sweden: <http://acureomics.com/>
13. Centre hospitalier universitaire de Limoges, France: <http://www.chu-limoges.fr/>

Inserm is the leading provider of European “Health” projects with 26 projects coordinated by the Institute under the FP7 initiative.

Founded in 1964, the French National Health and Medical Research Institute (Inserm) is a public science and technology institute, jointly supervised by the French Ministry of Higher Education and Research and the Ministry of Health.

The mission of its scientists is to study all diseases, from the most common to the most rare, through their work in biological, medical and public health research.

With a budget of 905 million euros in 2011, Inserm supports more than 300 laboratories across France. In total, the teams include nearly 13,000 researchers, engineers, technicians and administrative staff, etc.

Inserm is a member of the National Alliance for Life and Health Sciences, founded in April 2009 with CNRS, Inserm, the CEA, INRA, INRIA, the IRD, the Pasteur Institute, the Conference of University Presidents - Conférence des Présidents d'Université (CPU) and the Conference of Chairmen of The Regional and University Hospital Centres - Conférence des directeurs généraux de centres hospitaliers régionaux and universitaires. This alliance forms part of the policy to reform the research system by better coordinating the parts played by those involved and by strengthening the position of French research in this field through a concerted plan.

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