OTTO VON GUERICKE UNIVERSITÄT MAGDEBURG

HypOrth

HypOrth - New approaches in the development of Hypoallergenic implant material in Orthopaedics: Steps to personalis medicine

Collaborative Project: 7th Framework Programme

Coordinator: Prof. Christoph H. Lohmann, Otto-von-Guericke-University Magdeburg

Project start: August 1, 2013

Funding period: 5 years

The European collaborative project HypOrth aims to develop hypoallergenic material for endoprotheses, pursuing two major goa HypOrth intends to improve the understanding and diagnosis of complications associated with an implant, primarily focussing on adverse immune reaction and infection. Based on these insights the project will develop innovative approaches for renewals in orthopaedic arthroplasty with improved biocompatibility.

Overall Objectives

The aims of HypOrth in brief are the following:

- Identification of adverse immune reactions (AIR) to implant material and differentiation of AIR from low-grade infection in the context of prosthesis loosening; inclusion of epidemiological and clinical expertise and the finding of diagnostic biomarkers fo AIR
- Understanding of mechanisms of adverse immune reaction and develop predictive computational models
- Finding of predictive biomarkers for application in personalised medicine
- Testing of conventional and new material combinations for implant and coating on different cell systems: bone cells and immune cells for biocompatibility, antibacterial properties and evoking immunological parameters including the newly identifie biomarkers
- Evaluation of data, production of prototypic hypoallergenic implant

The HypOrth Group

The HypOrth project is built upon the cooperation of leading specialists in their field: orthopaedic surgeons, immunologists, molecular biologists, modellers and data analysts together with material scientists and a prosthesis manufacturer connecting medical, scientific and technical areas. The Consortium consists of eight partner organisations from seven European countries.

The project team is supported by the Scientific Advisory Board, which consists of 5 experts representing the key aspects of activities of the project. This boards shall not only ensure the highest standard of research and monitor the progress of the proje by taking part in the annual meetings, but will also ensure the compliance with all necessary ethical regulations. Whenever appropriate, they will consult the consortium and make recommendations on how to best improve project performance.

The Consortium

The HypOrth Consortium consists of 8 partners from 6 different EU member states as well as Switzerland. The collaboration between research institutions, industry and SME partners is essential for this project.

Project Coordinator - University of Magdeburg

Prof. Dr. med. Christoph Hubertus Lohmann
Chairman, Department of Orthopaedics
Phone: +49-391-6714001
Fax: +49-391-6714006
› E-Mail (mailto:christoph.lohmann@med.ovgu.de)
Leipziger Str. 44
39120 Magdeburg
› Website (https://www.med.uni-magdeburg.de/)

Project Partners

Research Institutions

› University of Tartu (https://www.kliinikum.ee/et/) (Estonia)

› Instytut Obróbki Plastycznej - Metal Forming Institute (http://inop.poznan.pl/) , Poznan (Poland)

› Hungarian Academy of Sciences (https://www.energia.mta.hu/en) , Budapest (Hungary)

› Danish Technological Institute Centre for Chemistry and Biotechnology (https://www.dti.dk/) , Aarhus (Denmark)

SME and Industry Partners

› Progenika (http://www.progenika.com) , Derio (Spain)

› Mathys AG (http://www.mathysmedical.com/startseite.html) , Bettlach (Switzerland)

› ARTTIC (http://www.arttic.eu/pages/en/home.php) , Munich (Germany)

HypOrth Scientific Advisory Board

The Scientific Advisory Board consists of 5 experts representing the key aspects of activities of the project, as indicated by the Work Packages. As such, the Advisory Board Members represent leaders in the field of immunology, implantology and medical companies. The Scientific Advisory Board ensure a high standard of research and monitor the progress of the project from the beginning of HypOrth on.

The Members of the HypOrth Scientific Advisory Board are:

- Prof. Dr. med. Hermann-Josef Rothkötter: Dean of Medical Science at the OVGU Magdeburg, highly respected anatomist an scientist with excellent expertise in immunology
- Prof. Dr. Zvi Schwartz: Professor of Periodontology, professorship in the Department of Biomedical Engineering at the Georg Institute of Technology (Atlanta, USA), with long standing expertise of tissue responses at the bone or soft tissue biomaterial interface. He is an internationally respected scientist, has received many international awards, and he also has a lot of experience in technology transfer projects.
- Prof. Dr. h.c. Georg-Ludwig Braun: He was the former CEO of BBraun Melsungen a worldwide medical company and has retired 1 year ago. He is also internationally well-known and accepted as one of the most successful and influential Europear entrepreneurs and scientific supporters.
- Prof. Dr. Pärt Peterson: Professor of molecular immunology and is head of the Institute of Biomedicine of University of Tartu. He is an internationally renowned immunologist and has very good experience with international collaboration.
- Dr. Lechoslaw Ciupik: CEO of LfC (R&D center) Company; Instiute of BioEngineering for Medicine. He is a highly experience scientist and company owner with respect to R&D, innovative developments and solutions in spinal implants.

Further Information

Further information can be found on › CORDIS (https://cordis.europa.eu/project/rcn/109462/factsheet/en) .

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