



Diagnosis and Monitoring of Inflammatory and Arthritic diseases
using a COmbined approach Based on Ultrasound,
optoacoustic and hyperSpectral imaging

FP7 Collaborative Project no. 305760

IACOBUS press release

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Arthritic diseases, including rheumatoid arthritis, psoriatic arthritis and osteoarthritis, have a prevalence between 2 and 3% and lead to joint destruction and deformation resulting in a loss of function. The joints of the fingers and hands are frequently affected, and progression of the arthritic diseases severely affects the patients' quality of life. Different studies on rheumatoid arthritis have shown that a therapeutic window of opportunities exists in the first year and particularly in the first 3 months after the onset of the disease, during which a treatment has a higher likelihood for improving the course of this devastating disease.

In order to make use of this window of opportunity, the FP7 funded project IACOBUS has been launched on January 1, 2013. In IACOBUS, a European research consortium coordinated by the Fraunhofer Institute for Biomedical Engineering (Fraunhofer IBMT) is developing a new multimodal imaging system which will facilitate the early diagnosis of arthritis affecting the hands. Fraunhofer IBMT possesses more than 25 years of experience in the field on non-invasive imaging methods especially ultrasound technology. For the IACOBUS approach, the project partners NTNU and NEO will develop a hyperspectral imaging system for overview scanning of the hands and identifying potential sites of joint inflammation. In a second step, a high-resolution 3D joint imaging platform will be developed by the project partners Fraunhofer IBMT, EKSPILA and Vermon. This system combining optoacoustic and ultrasound imaging will allow a detailed investigation of the inflamed joints identified by the hyperspectral imaging tool. Opto-acoustic imaging is a functional technology using laser-generated acoustic waves for visualizing the internal structures of soft tissue and therefore opens a broad field of applications in clinical assessment as well as serving a research tool in basic life sciences. After a development and certification phase of 2 years, this novel diagnostic imaging tool will be evaluated in a clinical study by the Department of Internal Medicine and Rheumatology of the Justus-Liebig University Giessen and the Department of Rheumatology and Clinical Immunology at the renowned Kerckhoff-Klinik GmbH Bad Nauheim.

The IACOBUS Consortium:

Coordinator:

- Fraunhofer-Institut für Biomedizinische Technik IBMT - St. Ingbert, Germany

Partners:

- Ekspla UAB - Vilnius, Lithuania
- Justus-Liebig-Universität Giessen - Giessen, Germany
- Norwegian University of Science and Technology NTNU - Trondheim, Norway
- Norsk Elektro Optikk AS - Lørenskog, Norway
- tp21 GmbH - Saarbrücken, Germany
- Vermon SA - Tours, France

More information about IACOBUS can be found online at www.iacobus-fp7.eu

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