

FAMOS

FP7 Project Overview

Name

Organisation

Objective of FAMOS

FAMOS will develop a new generation of light sources with step-changes in performance beyond the state-of-the-art to radically transform biophotonic technologies for point-of-care diagnosis and functional imaging.

This will enable optical diagnostics with superior sensitivity, specificity, reliability and clinical utility at reduced cost, heralding an imaging renaissance in Europe.

Why?

*“Lasers and light-based methods have long promised to deliver benefits to clinicians through **faster, more accurate, more sensitive, and more cost-effective** diagnosis of cancer and other important diseases, but so far most optical diagnostic instruments are expensive, complex and have limited performance.*

*A key reason for this is that the lasers and light sources they use, are adapted from other industrial and scientific applications, and have **not been optimized** for these new clinical uses.*

*Now in FAMOS, we will develop and demonstrate the next generation of light sources to produce **step changes in cost/performance** that will trigger development of a whole new world of non-invasive clinical diagnostic tools ”*

- Prof Wolfgang Drexler, Medical University of Vienna, Project Leader

Example un-met clinical needs targeted by FAMOS:

- Replacing surgery with non-invasive treatments as the standard for the commonest type of skin cancer, by better monitoring of tumour response and clearance
- Reducing mortality from melanoma and colorectal cancers by earlier detection and accurate non-invasive diagnosis
- Reducing blindness from the increasingly common diseases such as diabetes and age-related macular degeneration (AMD) by earlier detection and better monitoring of novel emerging drug treatments
-and many others!

How?

- FAMOS will develop new light sources and photonic technology with step-change in performance over existing state-of-the-art
- FAMOS will develop & build prototype instruments based on these new devices
- FAMOS will perform preliminary clinical evaluation of the prototypes, to demonstrate new capability
- FAMOS will disseminate the results and seek commercial exploitation

FAMOS Key Facts:

- FAMOS is a 4-year project, started in October 2012
- FAMOS consortium has 10 SMEs and 7 academic organisations with world-leading expertise in laser physics, optical engineering, signal and image processing, medical physics and biophotonic instrument design
- FAMOS is funded by €10.1M from the European Commission and €3.2M from the partner's resources
- FAMOS is led by Professor Wolfgang Drexler of the Medical University of Vienna

FAMOS Consortium Members

- 7 Photonics research & technology supply partners
 - Who will develop the new light sources and photonic technology
- 6 Biomedical and translational research partners (including clinical expertise)
 - Who will provide expertise for applying the new sources/photronics to unmet clinical needs
- 4 Medical instrument manufacturers
 - Who will develop & build prototype instruments based on the new sources/photronics

Photonics Research & Technology Supply Partners

- Technical University of Denmark
 - Biophotonic sources and instruments
- Ferdinand Braun Institute, Germany
 - Compound semiconductor devices, components and systems
- EXALOS AG, Switzerland
 - Swept-source lasers
- NKT Photonics, Denmark
 - Ultrabroadband supercontinuum light sources
- Femtolasers Productions GmbH, Austria
 - Ultra-fast pulsed laser systems
- Elforlight Ltd, UK
 - Diode-pumped solid state lasers
- InnoLas
 - Pulsed YAG lasers

Biomedical and translation research partners

- Medical University of Vienna (PROJECT LEADER), Austria
 - Biomedical science and engineering
- University College London, UK
 - Photoacoustic imaging
- Helmholtz Zentrum Muenchen, Germany
 - Imaging technology
- Weizmann Institute of Sciences, Israel
 - Coherent Anti-Raman Stokes spectroscopy
- University of St Andrews, UK
 - Light manipulation and imaging
- XVUE Ltd, Greece
 - Imaging and image processing

Medical Instrument Manufacturers

- Michelson Diagnostics Ltd, UK
 - OCT scanners for dermatology
- Imagine Eyes SA, France
 - Ophthalmic instruments
- iThera Medical, Germany
 - Photoacoustic instruments
- JenLab GmbH, Germany
 - Multiphoton tomography systems for dermatology

FAMOS Clinical Advisory Board

Advising the FAMOS consortium on clinical needs are:

- Professor Dr. Gregor Jemec, Chair of Dept. of Dermatology, University of Copenhagen, Roskilde Hospital, Denmark
- Professor Dr. Alain Gauderic, Department of Ophthalmology, Hôpital Laribosière, Paris, France
- Professor Dr. J Bergman, Director of Endoscopy, Dept. of Gastroenterology & Hepatology, University of Amsterdam, Netherlands
- Professor Dr. James G Fujimoto, Dept. of Electrical Engineering and Computer Science, MIT, USA
- Professor Dr. Leonard Fass, Department of Bioengineering, Imperial College, UK

Contacts:

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 - Imagine-Eyes
- Endoscopy Application Group
 - iThera