The 2 Minute Guide

TRANS FUSIMO

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Consortium

The **FUSIMO** and **TRANS-FUSIMO** consortium comprises 13 partners, led by **Fraunhofer MEVIS**, Institute for Medical Image Computing, Bremen, Germany.

- Fraunhofer MEVIS
- ETH Zurich
- GE Medical Systems Israel Ltd
- IBSmm
- IMSaT, University of Dundee
- University of Frankfurt
- Insightec Limited
- Medri GmbH
- Medis Foundation
- Universita La Sapienza
- Stiftelsen SINTEF
- Technische Universiteit Delft
- University of Palermo

TRANS FUSIMO

FUSIMO has developed a planning system for MR guided focused ultrasound (MRgFUS) that copes with the challenges in the treatment of moving abdominal organs: motion due to breathing and shielding of the target by the rib cage. TRANS-FUSIMO will translate the FUSIMO demonstrator into a clinically applicable system spanning the full clinical workflow of planning, conducting and assessing as well as learning from the procedure.

Aims

This will be a major step in making FUS treatment in the abdomen a competitive alternative to the surgical gold standard. A step that will bring focused ultrasound closer to becoming a safe and successful non-invasive procedure for tissue ablation in moving abdominal organs.

Challenges of FUS Therapy

- Heat transfer within the body
- Movement of the target
- Acoustic shielding of the target by the ribcage
- The physiology of the organs
- Energy deposition in the tissue
- Vicinity of the target to risk structures

How does it work?

The system consists of several models which describe biophysical processes and their interaction:

Abdominal organ model

Simulate motion of target and relevant structures and its influence on ultrasound application.

Microscopic tissue model

Simulate direct heat ablation, energy distribution, tissue heating and cooling.

Target organ or tumour model

Capture organ or tumour physiology, and organ/tumour reaction to therapy.

Long-term impact

Higher quality treatment of the patients at lower financial demand for health insurance and social welfare.

Improving the treatment of cancer and metastases in a variety of organs and for a wide range of patients.

Reducing the estimated 1.7 million cancer related deaths in Europe each year.

Find out more about the project by visiting our website at **www.trans-fusimo.eu**