OUR OBJECTIVES

GLINT aims to develop a potentially disruptive new diagnostic tool and a set of technologies for in vivo cancer imaging which will allow for earlier, more accurate and more reliable cancer diagnosis.

The GLINT project develops a new MRI method that will bring the combination of native D-glucose and 3-O-methyl-D-glucose (3OMG) as a combined exam to European clinical oncology practice to assess cancer glucose uptake and metabolism in various cancer types, thereby providing a non-invasive, radiation-free method for cancer assessment.

PROJECT FACTS

Coordinator: Prof. **Xavier Golay**
University College London
Duration: 48 months
Runtime: 01/01/16 - 31/12/19
Total EU Funding: €6,454,612

CONSORTIUM

University College London UK
Tel Aviv University IL
University of Torino IT
Max Planck Gesellschaft DE
University of Zurich CH
Olea Medical FR
Bracco SpA IT
European Institute for Biomedical Imaging Research AT

For more information visit **www.glint-project.eu**
or contact the Project Office at **kkrischak@eibir.org**

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GLINT

GLUCOCEST IMAGING IN NEOPLASTIC TUMOURS

www.glint-project.eu

OUR MOTIVATION

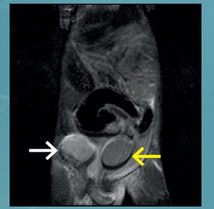
„What we hope to do with the technology developed through GLINT is to establish an MRI method that would not use any ionizing radiation. This would allow patients to have several exams within days of each other to assess whether the treatment is working.“

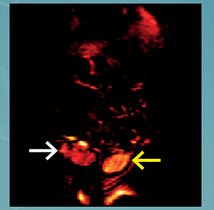
Xavier Golay
GLINT Scientific Coordinator

PROJECT OUTCOMES

- An advanced MR imaging technique for robust detection of small exchange-related signals
- Pharmacokinetic analysis for quantification of GlucoCEST effect *in vivo*
- Assessment of potential biochemical pathways and sources of the GlucoCEST signal for native and methylated glucose analogues
- Validated detection thresholds and therapy response of glucose analogues in animal models
- Regulatory approvals for all used tracers, including toxicology, biodistribution and pharmacokinetics of 3OMG
- Assessment of the sensitivity, specificity staging, early prediction to therapy and evidence of treatment effects in glioma, head and neck squamous cell carcinoma, or lymphoma as cancer models in patient studies

THE FIRST RESULTS





- Detection of tumours using 3OMG in several breast cancer animal models
- Detection of *in vivo* changes in tumour acidosis using CEST-pH imaging
- Improved analytical equations of CEST quantification, which allow more accurate exchange rate determination of glucoCEST signal
- A new method, radiometric approach, for accurate estimation of pH change
- New data acquisition technique, snapshot-CEST, for fast and robust volumetric CEST imaging

T2 MRI (top) and 3OMG CEST MRI (bottom) of mice bearing 4T1 cells. 3OMG CEST MRI visualises the tumour (indicated by white arrows). Yellow arrows indicate the urinary bladder.
Courtesy of Dr. M. Rivlin and Prof. G. Navon, Tel-Aviv University, IL