



A dedicated **TR**imodality (PET/MR/EEG)  
**imaging tool for schizophrenia**

Call: FP7-COOPERATION. FP7-HEALTH-2013-INNOVATION-1

A European Collaborative project supported through the Seventh Framework Programme for  
Research and Technological Development



## The problem

Schizophrenia affects about 7 per 1000 of the adult population but because the disorder is chronic the overall incidence is high, at around 1% of the population. The cost per person with psychotic disorders is close to 20.000 € per year on average. The earlier the treatment is initiated, the more effective it is, however the majority of people with schizophrenia do not receive treatment, which has the effect of prolonging their illness.

TRIMAGE aims to create a trimodal, cost-effective imaging tool consisting of PET/MR/EEG using cutting edge technology with performance beyond the state of the art. The tool is intended for broad distribution and will enable effective early diagnosis of schizophrenia and possibly other mental health disorders.

## TRIMAGE Objectives

TRIMAGE goals will be achieved by the scientific and technological developments in both the medical and technological fields, as detailed by the following three strongly correlated S&T sub-objectives:

- Find new biomarkers and define a suitable multimodal paradigm with already available PET, MR, EEG and PET/MR systems that provides clinical evidence on the feasibility of advanced schizophrenia diagnosis.
- Construct and test an optimized cost-effective trimodality imaging instrument (brain PET/MR/EEG) for diagnosis, monitoring and follow-up of schizophrenia disorders.
- Validate the trimodal imaging device built by this Consortium with regard to the results and the clinical data obtained from objective 1.

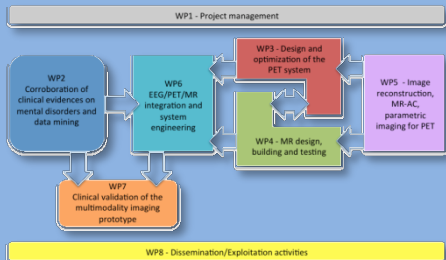
The TRIMAGE project will bring the possibilities in the diagnosis of schizophrenia to an unprecedented level, thus representing a big step beyond the state of the art.



Fingerprint diagrams giving an overview of the strengths of MR, PET and hybrid MR/PET, and hybrid MR/PET/EEG

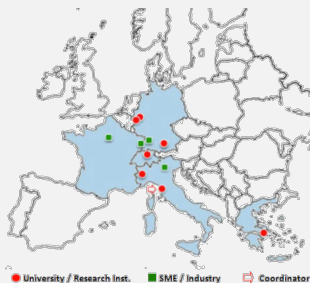
## Methodology and Work flow

The project is split into eight Work Packages. The total duration of the project is 4 years. The WPs are closely interlinked and are schematically described in the next diagram.



## The Consortium

The TRIMAGE consortium brings together 11 multi-disciplinary partners from 5 European countries, and is based on high-level scientific expertise from Universities, Research Centres and SMEs.



The partners from academia and research institutions represent excellence in the research in Europe in their respective fields of expertise at this time, with an optimal balance between physics, applied technology, clinical neuroimaging and psychiatry.

### Project Partners

University of Pisa (UNIFI)
Technological Educational Institute of Athens (TEIA)
Forschungszentrum Juelich GmbH (FZJ)
JARA BRAIN, RWTH (JRB)
Technische Universität Munich (TUM)
University of Zurich (PUK)
Istituto Nazionale di Fisica Nucleare (INFN)
AdvanSiD (ASD)
WeeROC (WRC)
Raytest GmbH (RAY)
RS2D (RS2D)

### Role in the project

Coordinator & PET system development
Dissemination & Monte Carlo simulations
Coil design & PET/MR/EEG integration
Clinical application
Image quantification & clinical application
Patient recruitment & clinical data analysis
PET system development & characterization
SiPMs and chip-scale package development
PET modules production & testing
Mechanical parts design & market strategy
1.5 MR scanner design & development

## Acknowledgment

The TRIMAGE project is supported by the European Commission through the Seventh Framework Programme for Research & Development. The 4 year project will run from 1<sup>st</sup> December 2013 until 30<sup>th</sup> November 2017.

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