EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY

www.cost.eu/mpns

COST Action TD1007 2011 | 2015

Bimodal PET-MRI molecular imaging technologies and applications for in vivo monitoring of disease and biological processes

Materials, Physics & Nanosciences (MPNS)

Participating countries: 22

AT, BE, BG, CH, CY, CZ, DE, DK, EL, ES, FR, HR, HU, IT, LT, NL, NO, PL, PT, RS, SE, UK

Objectives

- Bridge the gap between molecular biologists, detector and tracer developers
- Extensively study new detector materials and geometries
- Design, develop and evaluate bimodal contrast agents and nanoparticles
- Optimize existing methodologies and the decrease systems cost
- Explore new imaging acquisition, processing methods and protocols

Working Groups

- **WG 1: Hardware**; WG leader: Prof. Alberto Del Guerra (IT)
- **WG 2: Software**; WG leader: Prof. Dimitris Visvikis (FR)
- **WG 3: Bimodal Tracers**; WG leader: Dr. Rafael Torres (UK)
- **WG 4: Preclinical Applications**; WG leader: Dr. Carlos Zaragoza (ES)
- **WG 5: Clinical Applications**; WG leader: Prof. Sibylle Ziegler (DE)

Main Achievements

- Approval of two FP7 projects in terms of the Health Innovation call, with strong industrial involvement
  - TRIMAGE: Budget 6M€; Construction of a PET/MR/EEG prototype for schizophrenia; 4 COST members including Chair, WG1 leader and WG5 leader.
  - Mindview: Budget ~5.4M€; Construction of a PET insert MR compatible for Parkinson disease; 3 COST members including Vice Chair and WG2 leader.
- **Scientific results**:
  - First results with the simultaneous PET/MR prototype in terms of SUBLIMA project
  - New generation of SiPMs with improved efficiency and position sensitivity (FBK)
  - Exploitation of multiple MRI sequences during one list mode PET acquisition (Juelich)
  - Large number of PET/MR exams in Karolinska from several Action partners

Gender Balance and Early Stage Researcher

- **Objectives**:
  - Gender Balance Observatory to monitor female researchers involvement in the Action
  - Support the participation of ESRs in the Action Activities
- **Status**:
  - Increased number of female ESRs that participate in STSMs
  - Approval of a Marie Curie IEF for Dr. Liliana Caldeira from University of Lisbon
  - to Forschungszentrum Jülich
  - Participation of one ESR representative to the MC meetings
  - ESR poster session in PSMR2014, supported the participation of 19 ESRs

Dissemination

- **Status**:
  - Publication of PSMR 2012 proceedings in NIMA, including 60 articles on PET/MR
  - PET/MR workshop in Athens, 22 February 2013, Athens, Greece
  - PSMR 2013 Conference, 6-7 May 2013, Aachen, Germany; >180 experts on PET/MR
  - Organization of a PET/MR session during EMIM meeting, 27 May 2013, Torino, Italy
  - Two Action Newsletters
- **Foreseen Support Measures**:
  - PET/MR pre-conference Symposium during EANM 2013 conference in Lyon.
  - PSMR between 19-21 May 2014, in Kos Island, Greece including 3rd ESRs workshop
  - Training School on PET/MR in Athens, May 2014.

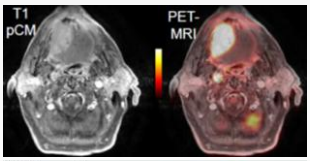
Contact details

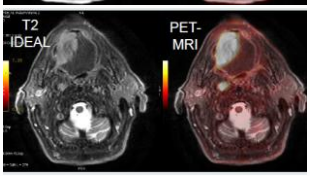
Chair of the Action
George Loudos
gloudos@teiath.gr

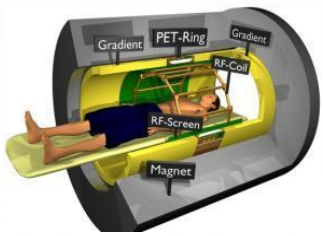
Domain Committee Rapporteur
Ivan Nedkov
nedkovivan@yahoo.co.uk

Science Officer (COST Office)
Caroline Whelan
Caroline.Whelan@cost.eu

Action Website
www.pet-mri.eu







Up: Typical brain MR images (left), and PET/MR images (right) Bottom: Concept of a simultaneous PET/MR scanner.

COST is supported by the EU RTD Framework Programme

ESF provides the COST Office through a European Commission contract