



## Neurodis Foundation

### Project Call: Simultaneous PET-MR in Neuroscience

#### Background

The Neurodis Foundation (Chairman: François Mauguière) is a not-for-profit organisation supporting Neuroscience research projects in the Rhône-Alpes-Auvergne region of France. Neurodis is structured as a network of 800 scientists and clinicians in the cities of Lyon, Grenoble, Clermont-Ferrand and St Etienne. Neurodis supports basic neuroscience projects as well as applied brain research aiming at accelerating the development of innovative therapies and diagnostic tools with the prospect of a clinical use in patients.

Neurodis is a partner in *LILI – Lyon Integrated Life Imaging – hybrid PET-MR*. LILI is an equipment of excellence (national EQUIPEX project) that led to the installation of the first simultaneous Positron Emission Tomography - Magnetic Resonance Imaging (PET-MR, Siemens Biograph mMR) in France at Lyon's multimodal imaging centre CERMEP in late 2014.

Neurodis also contributes to radiochemistry equipment and several posts enabling the smooth running of the PET-MR via an ANR (National Research Council) funded Academic Health Sciences Centre, the CESAME Institute (IHU-B, Brain and Mental Health Institute).

#### Funding aim

Neurodis wishes to kick-start research using the PET-MR equipment. Pump-priming funding for scanning costs (excluding human resources) will be provided for studies being planned on the Lyon PET-MR equipment (LILI) and utilising the capacity of acquiring data from the two modalities simultaneously. It is expected that funded projects will start in 2015 and that they will lead to further grant applications.

The research themes will be in basic Neurosciences, Neurology, or Psychiatry.

#### Funding available: 250 K€

Neurodis aims at funding projects comprising 10-40 scans each. Scanning costs (approx. 1500 € TTC for a standard PET-MR scans including radiotracer), subjects' travel expenses and subjects' cash-compensation can be requested.

#### Who can apply?

This bid is open to academic, clinical and/or research teams.

#### How to apply?

Please submit your project, in English, on the attached form. The scientific description includes:

1. A description of the objective and originality of the project in max. 750 words,
2. The study protocol of max. 750 words, including type and number of scans, methods and practical organization of the experiments, human resources.
3. Planning, implementation and budget

Submissions not respecting the formatting will not be evaluated.

The **deadline for applications is the 18<sup>th</sup> of May 2015**. Decisions will be communicated in July 2015.

Projects will be expected to **start before the end of 2015** and to be completed before the end of 2017.

### Evaluation and follow-up process

Neurodis will convene an international panel of experts to rate the proposals. A progress report at the end of 2016 and a final report not later than December 2017 will be requested.

Evaluation, made by the Expert Panel, will be based on the following criteria:

	<b>Extraordinary - 3 points</b>	<b>Excellent – 2 points</b>	<b>Good – 1 point</b>	<b>Unsatisfactory – 0 points</b>
<b>Criterion 1: Scientific merit and quality of the proposed research</b>	Innovative research and will have a great impact in the research field; launching new areas of research.	Well-conceived, original, strong potential for important contribution to research field.	Routine study in well-worked area of research	Scientific merit and / or quality found insufficient
<b>Criterion 2: Likelihood of future external support to fund a long term prolongation of the project</b>	Highly likely to obtain external support shortly	Very good potential for attracting external support	Likely to obtain external support	Unlikely to obtain external support
<b>Criterion 3: Originality, relevance of simultaneous acquisition of PET and MR imaging</b>	First use in man, or in disease condition, or in animal model of simultaneity in PET-MR likely to lead to high impact publication or clinical application	Combining PET and MRI data to evidence new findings in Neuroscience	Routine use of the PET tracer or MR method for imaging	Inappropriate use of the hybrid PET-MR imaging
<b>Criterion 4: Feasibility</b>	The most suitable PET tracer and/or MR sequences are proposed; appropriate resources are provided to carry out the project	The tracer or MR methods are well characterised but have drawbacks. Appropriate resources have been requested	Questionable choice of PET tracers and/or MR sequences <u>or</u> insufficient resources	Questionable choice of PET tracers and/or MR sequences <u>and</u> insufficient resources

The minimum score is 0, and the maximum score 12. The decision will be communicated to the applicant.

Information regarding the equipment and software available at CERMEP can be obtained from [costes@cermep.fr](mailto:costes@cermep.fr) and [villien@cermep.fr](mailto:villien@cermep.fr).

## Radiotracers available at CERMEP

### Current radiotracers produced at CERMEP (other tracers on request)

Radiopharmaceuticals	Isotope	Target	Examples of applications
<b>MPPF</b>	<sup>18</sup> F	Serotonin 5HT1A receptor antagonist	Epilepsy, psychiatry, eating disorders
<b>NaF</b>	<sup>18</sup> F	Sodium Fluorine	Bones, atherosclerosis <b>(animal only)</b>
<b>F13640</b>	<sup>18</sup> F	5HT6	Psychiatry <b>(animal only)</b>
<b>Raclopride</b>	<sup>11</sup> C	Dopamine D2/D3 receptors antagonist	Parkinson, psychiatry
<b>PE2I</b>	<sup>11</sup> C	Dopamine re-uptake inhibitor	Parkinson
<b>DASB</b>	<sup>11</sup> C	Serotonin transporter	Depression
<b>Diprenorphine</b>	<sup>11</sup> C	Opioid receptors antagonist	Pain, addiction
<b>Flumazenil</b>	<sup>11</sup> C	Benzodiazepines/GABA receptors antagonist	Depression, anxiety, epilepsy
<b>PK11195</b>	<sup>11</sup> C	Benzodiazepines peripheral ligand (TSPO)	Inflammation
<b>PIB</b>	<sup>11</sup> C	Amyloid plaque marker	Alzheimer's disease
<b>Methionine</b>	<sup>11</sup> C	Protein synthesis	Neuro-oncology
<b>Acetate</b>	<sup>11</sup> C	Krebs cycle	Oncology, cardiology
<b>MQNB</b>	<sup>11</sup> C	Muscarinic receptors	Cardiology
<b>MHED</b>	<sup>11</sup> C	Adrenergic receptors	Cardiology
<b>SB207145</b>	<sup>11</sup> C	5HT4	Psychiatry <b>(animal only)</b>
<b>H<sub>2</sub>O</b>	<sup>15</sup> O	Blood flow	Stroke, cardiology, brain activations

## Current radiotracers that can be bought in for human use

Radiopharmaceuticals	Isotope	Target	Examples of applications	Approx. price
<b>FDG (Fluorodeoxyglucose)</b>	<sup>18</sup> F	Glucose metabolism	Oncology, epilepsy, cardiology	250€
<b>Fluoro-dopa</b>	<sup>18</sup> F	Presynaptic dopamine marker	Parkinson, oncology	1500€
<b>NaF</b>	<sup>18</sup> F	Sodium Fluorine	Bones, atherosclerosis	250€
<b>Fluoro-choline</b>	<sup>18</sup> F	Cellular membrane	Oncology	1500€
<b>Amyloid tracers (AV45, florbetapir, flutemetamol, ...)</b>	<sup>18</sup> F	Amyloid plaque marker	Alzheimer's disease	1500€

**Neurodis foundation Project Call 2015: Simultaneous PET-MR in Neuroscience**

**Deadline for application: [May 18 2015](#)**

**Decisions will be communicated in July 2015**

**To be sent to the Neurodis Foundation at [contact@fondation-neurodis.org](mailto:contact@fondation-neurodis.org)**

**INVESTIGATORS**

<b>Principal investigator</b>	Name Affiliations email
<b>Person in charge of the experiment</b>	Name Affiliations email
<b>Associated investigators (add lines if needed)</b>	Name Affiliations email

<b>Authorizations</b>	<i>Ethics / CPP</i>	<input type="checkbox"/> In progress (please give submission date if applicable) <input type="checkbox"/> Obtained (please give details)	<input type="checkbox"/> Not applicable (e.g. phantom experiments for example)
	<i>Radiotracer authorization / ANSM</i>	<input type="checkbox"/> In progress (please give submission date if applicable) <input type="checkbox"/> Obtained (please give details)	

## SCIENTIFIC DESCRIPTION

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### Project title

### Project description

*(Aim; local/national/international context, importance and novelty of the project, future developments expected. Likelihood of future external support to fund a long term prolongation of the project)*

**Max. 750 words**

### Five most relevant publications of the PI and/or person in charge of the experiment

### Study protocol

*Description of the protocol (population, tracer, healthy controls / patient groups, organization during the experiments, number and type of scans, feasibility and local collaborations where applicable, expected subject availability, data processing, etc.)*

**Max 750 words**

### TIMESCALE

Expected beginning of the project:

Duration of the project (months):

### PROJECT IMPLEMENTATION AND FEASIBILITY

*Resources including human, equipment, image analysis software provided by the applicant or expected from other grant applications:*

### BUDGET

**Requested budget (including all taxes) :**

	<b>Number</b>	<b>Total</b>
Research scans	1 500 €	€
Subject compensation (for time, travel, etc.)		€
<b>Total</b>		€

**Global budget of the complete study (salaries, equipment, data analysis, travel, PET-MR scans and subject compensation) :**