

Phelinet

Polarized Helium Lung Imaging Network

Innovative, non-invasive lung MRI techniques for clinical diagnosis and validation of lung therapy



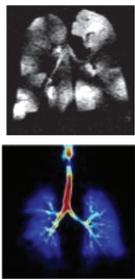
Research & Training Network (RTN) – Marie Curie Actions
6th Framework Program (2007-2010)



Project overview

Eleven European academic research groups with trans-disciplinary expertise, three SME's, and three major European industrial groups have created a network for the development and the application of **innovative, non-invasive lung MRI techniques for clinical diagnosis and validation of lung therapy**. This European network, called **PHELINET** (Polarized Helium Lung Imaging Network), will address the increasing demand on active co-operation and transfer of knowledge, from the centres where high expertise in hyperpolarized (HP) Helium3 lung MRI has been developed by both academic and industrial parties. Driven by end-users needs, it is devoted to co-ordination of straightforward upgrades and applications of the existing tools of HP Helium3 lung MRI (for clinical diagnosis and drug development), and to the dedicated adaptation of new leading-edge imaging and management techniques of the HP inhaled tracer (for further development and more widespread use of this innovative, powerful, non-invasive technique).

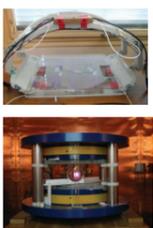
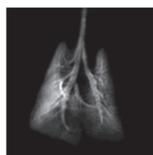
Research objectives



- **He3 imaging medical applications**, aiming at applying HP Helium3 to human studies, for diagnosis and treatment monitoring of lung diseases.



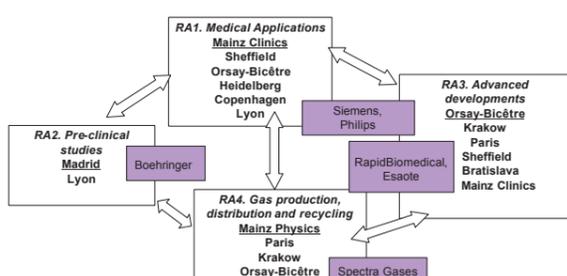
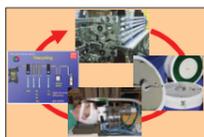
- **He3 and proton pre-clinical studies**, for the development and applications of pre-clinical Helium3 imaging protocols in animal models of lung diseases.



- **Advanced technological and methodological developments for HP He3 imaging**, for instrumental and methodological MRI developments of new research and routine medical applications using Helium3.



- **HP He3 gas production and management**, dedicated to the implementation and dissemination of techniques for polarization, delivery, and recycling of Helium3.

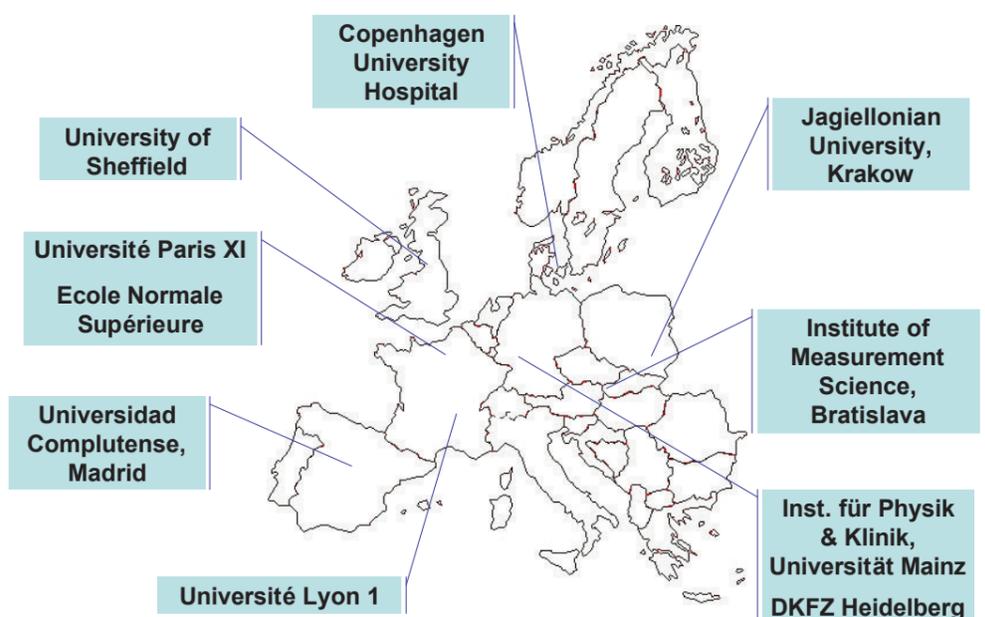


The PHELINET Research Activities

The PHELINET network

65 scientists/medical doctors from 11 academic laboratories in 7 countries
18 recruited research fellows (11 PhD students + 7 post-docs)

6 industrial partners: **Siemens, Philips, Boehringer Ingelheim Pharma, RapidBiomedical, Easote, SpectraGases**



Training program

Network-wide Training / Transfer-of-knowledge Activities

- Organization of **tutorial schools on Clinical lung imaging techniques, Animal experimentation techniques, HP Helium3 MR imaging techniques, MR instrumentation, Polarization and HP gas management.**

- **On-site visits** to partners institutions, organization and participation to **international workshops, web-based networking activities, complementary training for recruited early stage researchers** in local languages courses, intellectual property rights (IPR), ethics in human and animal studies, project management, communication techniques, etc.

ESR/ER activities	Year 1 months 6 12	Year 2 months 18 24	Year 3 months 30 36	Year 4 months 42 48
Network Meeting	✓ Kick-off meeting	✓ Network Annual Meeting	✓ Network Annual Meeting	✓ Annual / final Meeting
Training school	✓ General Tutorial school	✓ Advanced (✓) and Specific (★) Training school		
Non scientific school (IPR, ethics, etc.)		✓		
Transfer of knowledge sessions	✓	✓	✓	✓
Laboratory Visits At least 1/year	■	■	■	■
International Workshops At least one			■	✓ ESR/ER organized workshop
PhD programs and language courses	■	■	■	■

The PHELINET Training/ToK Activities

Contact

Yannick Crémillieux, Network coordinator
Laboratoire de RMN, Université de Lyon
yannick.cremillieux@univ-lyon1.fr



Developing Non-Invasive Lung MRI Techniques for Clinical Diagnosis and Validation of Therapy

Respiratory diseases impose a huge burden on society. The top five respiratory diseases account for 17.4% of all deaths and 13.3% of disability-adjusted life years. Chronic obstructive pulmonary diseases (COPD), lung cancer, lower respiratory tract infections and tuberculosis are among the 10 leading causes of death. Asthma affects about 150 million people worldwide and is the most prevalent chronic disease in childhood.

The **PHeLINet** consortium, financed by the European Union, aims at developing, applying and disseminating MRI (Magnetic Resonance Imaging) lung diagnosis techniques using Helium gas as an inhaled magnetic tracer.

Clinical and pre-clinical investigations include COPD and cystic fibrosis diagnosis, lung transplantation follow-up, in-vivo assessment of air pollutant impact, non-invasive and longitudinal drug and therapy validation in animal models. The biomedical applications are sustained by methodological and technological developments in the field of magnetic resonance imaging and optical pumping of Helium gas.

The **PHeLINet** network gathers 11 academic partners from the University of Bratislava, Copenhagen, Heidelberg, Krakow, Lyon, Madrid, Mainz, Paris-Orsay, Sheffield and 6 industrial partners (Boehringer, Esaote, Philips, Siemens, RapidBiomedical, Spectra Gases).

For more information:

www.phelinet.eu

Contact:

Project coordinator,
Dr. Yannick Crémillieux,
yannick.cremillieux@univ-lyon1.fr,
Creatis-LRMN, CNRS, Université Lyon 1

Scientific Management Assistant,
Dr Frédérique Foulon,
frederique.foulon@univ-lyon1.fr,
Creatis-LRMN, CNRS, Université Lyon 1

