



EU-MIND

EUropean Meeting on Imaging
of Neurodegenerative Diseases
1ST EDITION > CAEN, FRANCE 2024

PROGRAM

**please note that this is a preliminary program,
changes might be applied in the final program*

WEDNESDAY, SEPTEMBER 25

THURSDAY, SEPTEMBER 26

FRIDAY, SEPTEMBER 27

08:00	Preconference : Educational Workshop	
12:00		
12:45		Welcome of participants
13:15		Opening remarks
13:30		Plenary - Gemma Salvado (Lund University) Recent Advancements in European Research
14:15		New imaging techniques and innovative approaches
15:15		Datablitz
15:45		Coffee break Poster Session
16:45		AD clinical subtypes and non-AD dementia
18:00		
19:00		Welcome receptions & Public Event

08:30	
09:00	Plenary - Jonathan Schott (UCL) Using imaging to detect and understand preclinical dementia: insights from the British 1946 birth cohort
10:00	Coffee break
10:20	Opportunities and Challenges in Data Sharing in European Neuroimaging
11:45	Datablitz
12:05	Lunch
13:05	The present and future of PET imaging
14:20	Coffee break Poster Session
15:20	Neuroimaging correlates of biofluids and neuropathology
16:20	
16:45	Social activity & Gala

08:30	
09:00	Plenary - Renaud La Joie (UCSF) Neuroimaging in the era of anti-amyloid therapies
10:00	Coffee break
10:30	Modifiable risk and protective factors and non-pharmacological interventions
11:45	Awards
12:30	Closing remarks

FOCUS ON PLENARY SESSIONS



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PLENARY 1

Wednesday, September 25, 01:30 p.m. to 02:15 p.m.

Gemma Salvado: « Recent Advancements in European Research »



/ Biography

Gemma Salvadó, PhD, is currently a post-doctoral researcher at Lund University (Sweden).

She was awarded the prestigious Marie Skłodowska-Curie post-doctoral fellowship for her outstanding research. Gemma completed her PhD at the Barcelonaβeta Brain Research Center (Spain), where she focused on understanding the preclinical stages of Alzheimer's disease through the use of neuroimaging and fluid biomarkers.

During her training she also spent some months at the Vrije Universiteit Amsterdam (Netherlands) thanks to a competitive personal fellowship from Alzheimer Nederland (Dutch Alzheimer's Association). Her current work involves studying plasma and cerebrospinal fluid biomarkers to gain insights into the disease progression.

Throughout her career, she has received several fellowships, with two particularly notable ones: the Alzheimer's Association Research Fellowship and the Alzheimerfonden (Swedish Alzheimer's Association) Fellowship. She has presented her research at esteemed conferences in the field, including the Alzheimer's Association International Conference (AAIC), the Human Amyloid Imaging conference (HAI) and the International Conference on Alzheimer's and Parkinson's Disease (AD/PD), for which she received the Junior Faculty Award. She has actively contributed to two large European-funded (IMI) projects, namely EPAD and AMYPAD. Finally, Gemma has been engaged in teaching activities for the Human Biology bachelor's program at Pompeu Fabra University (Spain).

/ Abstract

Background: Neuroimaging has become a pivotal tool in the diagnosis and research of neurodegenerative diseases, particularly Alzheimer's disease (AD). In Europe, concerted efforts through collaborative networks and large-scale initiatives have propelled advancements in this field, providing deeper insights into disease mechanisms and potential therapeutic targets. This review aims to synthesize recent developments in neuroimaging technologies and methodologies used in Europe for studying Alzheimer's disease and other neurodegenerative conditions.

Methods: A comprehensive literature search was conducted, covering peer-reviewed articles, clinical trials, and reports from major European neuroimaging consortia published over the last years. Key areas of progress, including innovations in imaging modalities, the integration of multimodal data, and the application of advanced analytical techniques were reviewed.

Results: PET imaging, particularly with novel tracers for amyloid and tau proteins, has enhanced the understanding of pathological progression in vivo. The integration of multimodal imaging data with genetic and biofluid markers has improved diagnostic accuracy and disease prediction. Additionally, the application of machine learning algorithms to neuroimaging data has facilitated the identification of subtle disease signatures and the development of individualized predictive models.

Conclusions: Europe's contributions to neuroimaging in neurodegenerative diseases have been substantial, driven by collaborative research and technological innovation. These advancements are crucial for early diagnosis, monitoring disease progression, and evaluating therapeutic efficacy. Ongoing efforts to harmonize imaging protocols and share data across borders are expected to further accelerate progress in this field.

Keywords: Review, Imaging, Neurodegenerative diseases, Machine learning.

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PLENARY 2

Thursday, September 26, 09:00 a.m. to 10:00 a.m.

Jonathan Schott: « Using imaging to detect and understand preclinical dementia: insights from the British 1946 birth cohort »



/ Biography

Jonathan Schott is Professor of Neurology at the Dementia Research Centre, UCL Institute of Neurology, and Honorary Consultant Neurologist at Queen Square.

His clinical practice and research centre on the dementias, with particular interests in how clinical and cognitive data, imaging and fluid biomarkers, and genetics can be used and combined to improve differential diagnosis and identify pre-symptomatic dementia.

He co-leads the mental ageing programme of the MRC British 1946 birth cohort.

He has published >350 papers on dementia and ageing, and co-edited the award winning Oxford Textbook of Cognitive Neurology and Dementia. He is Senior Fellow of the Higher Education Academy, Fellow of the European Academy of Neurology, Fellow of the American Academy of Neurology, and an MRC Investigator. He is Chair Emeritus of the ISTAART advisory council and serves as Chief Medical Officer for Alzheimer's Research UK, Europe's largest dementia.

/ Abstract

Neuroimaging allows for the in vivo identification of a range of pathologies relevant to late life cognitive impairment, and a means of tracking progression over time. When applied to preclinical populations this provides a means of identifying individuals at risk of developing late life cognitive impairment and examining risk factors for developing specific pathologies and cognitive decline. Insight 46 is a longitudinal neuroimaging study embedded within the world's oldest continuously running birth cohort – the MRC National Survey of Health and Development 1946 British birth cohort, initially comprising 5362 individuals all born in mainland Britain in one week in 1946. Between 2015-2018, i.e. at age ~69-72yrs, n=502 individuals were recruited for comprehensive clinical and biomarker assessment including multi-modal MRI and Florbetapir amyloid PET; n=440 were seen for a second visit between 2018-2021; and we have currently seen ~n=150 (our of a planned n=350) of these for a third visit including MK6240 tau PET; and a further n=300 individuals not previously seen, for Florbetaben amyloid PET. In this talk I will discuss some of the key findings of the study thus far, exploring the extent, causes and consequences of β -amyloid deposition, cerebrovascular disease and microstructural changes, as well as presenting preliminary findings relating to rates of β -amyloid accumulation, tau PET, and image-derived metrics of brain age.

Keywords: Multi-modal MRI, Amyloid PET, Tau PET, Life course epidemiology, Brain age

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PLENARY 3

Friday, September 27, 09:00 a.m. to 10:00 a.m.

Renaud La Joie: « Neuroimaging in the era of anti-amyloid therapies »



/ Biography

Dr. Renaud La Joie originally trained in Neuroscience, Neuropsychology, and Neuroimaging in Caen, France before moving to California for his post-doctoral fellowship at UC Berkeley and then at UCSF.

In his research, he combines multimodal neuroimaging techniques, fluid biomarkers, and neuropsychological measures to study the natural history of Alzheimer's disease and other age-associated neurodegenerative diseases. He has established strong collaborations with neuropathologists to help bridge in vivo and post-mortem measures of brain pathology and guide a rigorous interpretation of in vivo biomarker data. His overarching goal is to understand the drivers of clinical heterogeneity and improve our ability to provide patients with a precise diagnosis and prognosis.

Dr La Joie's research is supported by the Alzheimer's Association, NIA/NIH, and the US department of defense. His work has been awarded the de Leon award in neuroimaging, and the Christopher Clark at the Human Amyloid Imaging Conference.

/ Abstract

Patients with sporadic early-onset Alzheimer's disease (EOAD) are commonly excluded from large-scale observational and therapeutic studies due to their young age, common non-amnesic presentations, or absence of pathogenic mutations. To fill in this gap in knowledge, the multi-center Longitudinal Early onset Alzheimer's Disease Study (LEADS) was launched in 2018; data acquisition is similar to the Alzheimer's Disease Neuroimaging Initiative (ADNI) dataset to allow a direct comparison to late-onset AD. In this presentation, I will summarize the findings from the first 525 patients.

As of July 2024, 23% of patients with a clinical diagnosis of early-onset MCI or AD dementia included in LEADS are amyloid-PET positive. These patients have high tau-PET levels, which strongly correlates with clinical severity and clinical phenotypes (e.g. amnesic, language predominant, ...). Importantly, patient with EOAD have higher tau-PET burden than their older-onset counterparts from the ADNI cohort, even when matching on clinical stage and amyloid-PET levels.

LEADS includes annual visits with clinical, cognitive, MRI, and PET examinations for 4 years. Available data suggests that both amyloid and tau-PET are dynamic in patients with MCI and dementia, with significant increases over time in both modalities. Yet, regional variability is important for tau-PET: accumulation in the frontal lobe immediately precedes cognitive decline and tracks closely with clinical progression, while temporoparietal tau-PET is prominent at clinical onset and plateaus as dementia worsens.

Amyloid-PET-negative patients, aka patients who were clinically diagnosed with EOAD but do not have PET evidence for underlying AD are a very heterogeneous group. Using FDG-PET to characterize different subgroups, we identified that 52% of these patients have a normal FDG scan, suggestive of non-degenerative conditions or very early disease stages; this group have elevated rates of depressive symptoms and sleep apnea. The other half of amyloid-negative patients have significant hypometabolism but various regional patterns can be found, suggestive of Lewy Body Disease or Fronto-Temporal Lobar Degeneration subtypes.

Finally, I will discuss new developments in the LEADS cohort, including the inclusion of patients receiving anti-amyloid therapies as part of their clinical care, and the upcoming inclusion of additional LEADS sites in Europe and Latin America.

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FOCUS ON SYMPOSIUM SESSIONS



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SYMPOSIUM 1

Wednesday, September 25, 02:15 p.m. to 03:15 p.m.

New imaging techniques and innovative approaches

#1

Meera Srikrishna
University of Gothenburg, Sweden

« CT-based imaging markers for idiopathic normal pressure hydrocephalus obtained using deep learning: association with MRI-based radiological markers and diagnosis »

#2

Heidi Jacobs
Maastricht University & Massachusetts General Hospital,
The Netherlands /USA

« Locus coeruleus imaging to identify pre-preclinical Alzheimer's disease »

#3

Mitsuko Nakajima
University College London, United-Kingdom

« Differential cortical layer vulnerability in premanifest Huntington's disease »

#4

Joana Pereira
Karolinska Institutet, Sweden

« Understanding the role of the neuromodulatory nuclei in brain connectivity in aging and neurodegeneration »

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SYMPOSIUM 2

Wednesday, September 25, 04:35 p.m. to 06:00 p.m.

AD subtypes and differential diagnosis

#5

Jacob Vogel
Lund University, Sweden

« An update on Alzheimer's disease tau subtypes:
clinical and biological insights »

#6

Rik Ossenkoppele
VU Amsterdam & Lund University, The Netherlands/Sweden

« AT(N) imaging in atypical variants of Alzheimer's disease »

#7

Alexandre Bejanin
IIB Sant Pau, Spain

« Neuroimaging of Alzheimer's and vascular pathologies in Down
syndrome »

#8

Gérard Bischof
University Hospital Cologne, Germany

« 18F-PI2620 Tau PET in AD and Non-AD
Neurodegenerative Diseases »

#9

Michela Pievani
RCCS Centro San Giovanni di Dio, Italy

« Brain networks connectivity in AD and FTD »

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SYMPOSIUM 3

Thursday, September 26, 10:20 a.m. to 11:45 a.m.

Opportunities and Challenges in Data Sharing in European Neuroimaging

#10

Julia Neitzel

Erasmus MC University Medical Center Rotterdam,
The Netherlands

« Data sharing strategies in the Rotterdam Study »

#11

Oliver Speck

Otto-von-Guericke University Magdeburg, DZNE
Magdeburg, Germany

« Opportunities and Challenges in multicenter
MR neuroimaging studies »

#12

Ludovica Griffanti

University of Oxford, United Kingdom

« From 'big data' to the clinic: implementing the UK Biobank imaging
framework for memory clinic patients »

#13

Lyduine Collij

Amsterdam UMC & Lund University, The Netherlands/Sweden

« From AMYPAD to EuroPAD – creating a multi-cohort preclinical
database to model AD disease trajectories »

#14

Kristine Walhovd

University of Oslo, Norway

« Longitudinal neuroimaging studies- Lifebrain and beyond »

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SYMPOSIUM 4

Thursday, September 26, 01:05 p.m. to 2:20 p.m.

The present and future of PET imaging

#15

Agneta Nordberg

NVS, Center for Alzheimer Research, Division of Clinical Geriatrics, Karolinska Institutet, Sweden

« PET imaging markers in neurodegenerative diseases
- the present and future »

#16

Bernard Hanseuw

Cliniques Universitaires Saint-Luc, UCLouvain, Belgium /
Massachusetts General Hospital, Harvard Medical School, USA

« Tau-PET imaging: From research data to
Appropriate Use Criteria »

#17

Maura Malpetti

Department of Clinical Neurosciences and Cambridge University
Hospitals NHS Trust, University of Cambridge, UK

« PET imaging of synaptic health across
neurodegenerative diseases »

#18

Julien Lagarde

Hôpital Sainte-Anne, Université Paris-Cité,
Université Paris-Saclay, France

« PET imaging of neuroinflammation in AD and potential
implications in therapeutic trials »

#19

Ruben Smith

Lund University / Skåne University Hospital, Sweden

« Alpha-synuclein PET imaging »

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SYMPOSIUM 5

Thursday, September 26, 3:20 p.m. to 4:20 p.m.

Neuroimaging correlates of biofluids and neuropathology

#20

Laura Jonkman
Amsterdam UMC, the Netherlands

« MRI signatures of neuropathology »

#21

Valentina Perosa
Massachusetts General Hospital, Harvard Medical School, USA

« Leveraging high-resolution ex vivo neuroimaging to gain insight into the pathophysiology of cerebral small vessel disease »

#22

Marc Suárez-Calvet
Barcelonaβeta Brain Research Center, Spain

« New plasma biomarkers related to PET imaging »

#23

Alexa Pichet Binette
Lund University, Sweden

« Associations between misfolded alpha-synuclein aggregates and Alzheimer's disease pathology in vivo »

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SYMPOSIUM 6

Friday, September 27, 10:30 a.m. to 11:45 a.m.

Modifiable risk and protective factors and non-pharmacological interventions

#24

Federica Agosta
Vita-Salute San Raffaele University, Italy

« Amyloid Related Imaging Abnormalities (ARIA) in Amyloid Modifying Therapies: risk factors, symptomatology and monitoring recommendations »

#25

Emrah Düzel
Otto-von-Guericke University Magdeburg,
DZNE Magdeburg, Germany

« Targeting dysfunction in episodic memory circuitry in Alzheimer's disease »

#26

Gaël Chételat
Inserm-Université de Caen, France

« Enhancing Brain Health: The Preventive Potential of Meditation against Neurodegenerative Diseases »

#27

Simon Cox
University of Edinburgh, Scotland

« Dementia and Cognitive Ageing in the Lothian Birth Cohorts »

#28

Eider Arenaza-Urquijo
Barcelona Institute for Global Health, Spain

« From the individual to the environment: understanding cognitive and brain resilience in aging »

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FOCUS ON ACTIVITIES



EU-MIND

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PRECONFERENCE

Wednesday, September 25, 8:00 a.m. to 12:00 p.m.

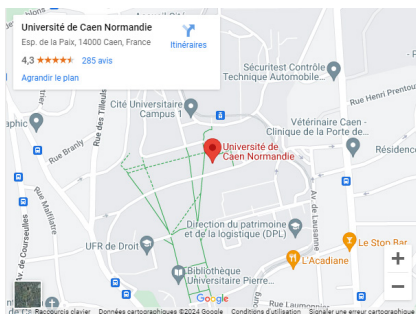
Educational Workshop



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Localization:

Université de Caen Normandie
– Campus 1
Esplanade de la Paix
14000 Caen, France



Educational workshop

As part of the inaugural European Meeting on Imaging of Neurodegenerative Diseases (EU-MIND), we will be working towards convening a **pre-conference workshop entitled « Getting Started with Neuroimaging Analysis »**. The workshop will be held on Wednesday, September 25 2024 in Caen, Normandy, France, before the beginning of the conference.

The main goal of this workshop is to give new and early-career researchers an entry point to neuroimaging methods and research that will make this field more accessible and give them research-ready skills to not only process neuroimaging data, but also accurately interpret neuroimaging findings in the greater context of aging and dementia research topics.

This workshop will provide **hands-on training on the basics of neuroimaging to 30-40 attendees**. The target audience is trainees and early-career researchers who are interested in neuroimaging research but have not had sufficient opportunity for formal training working with neuroimaging data. However, any attendees interested in learning more about neuroimaging analysis and how to use it in their research are welcome to apply.

The workshop will cover basic concepts in neuroimaging data formats, coordinate systems, data visualization and image processing software. Introductory webinars are available on-demand and recommended for viewing before attending the workshop. There are interactive hands-on lessons that cover structural, functional, and diffusion magnetic resonance imaging (MRI) and positron emission tomography (PET). The format consists of a general introduction, followed by brief (~5 min) introductions on each of the tutorial lessons. Attendees will then have three one-hour, self-paced working sessions, with organizers moving around the classroom to provide assistance.

The **expected learning** outcomes from this work are for attendees to:

- Evaluate the different elements of imaging data structure and their respective functions
- Employ common neuroimaging processing methods on various MRI and PET data used in clinical aging and dementia research.
- Review results from neuroimaging processing steps and pipelines to ensure data quality and to interpret results in a research context.

Organizers / Instructors:

- **Tobey Betthausen**, University Wisconsin-Madison:
« Expert on PET acquisition and analysis of amyloid and tau PET images »
- **David Cash**, University College London Institute of Neurology:
« Expert on cross-sectional and longitudinal structural MRI analysis in dementia and application to clinical trials »
- **Ludovica Griffanti**, University of Oxford:
« Expert on data visualization and segmentation of white matter lesions from FLAIR MRI, data harmonization and large multimodal MRI data sets in aging and neurodegeneration »
- **Alexa Pichet Binette**, Lund University:
« Expert on applying advanced diffusion imaging methods in at-risk populations and individuals living with cognitive impairment and dementia »
- **Luigi Lorenzini**, VUMC Amsterdam:
« Expert on imaging processing and analysis using fMRI and advanced modalities, issues in quality control and multi-site studies »
- **Tavia Evans**, Erasmus MC Rotterdam:
« Expert in neuroimaging acquisition and analysis in worldwide studies of neurodegeneration »

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WELCOME RECEPTION

Wednesday, September 25, 7:00 p.m.

Cocktail & Public event

Join us on September 25, 2024, as EU-MIND, in collaboration with the University of Caen, hosts a captivating evening of discovery and engagement for all EU-MIND attendees and the public alike. Held at the Campus 1 of the University of Caen, this special event promises to be an unforgettable experience.

Here's what you can expect:

7:00PM – Welcome reception, Aula Magna

Step into the grandeur of the Aula Magna at the University of Caen, where EU-MIND speakers and attendees will be warmly welcomed. Enjoy an elegant cocktail reception and be inspired by a special address from University President, Lamri Adoui.

8:00PM – Public event, Pierre Daure Theater

Following the welcome reception, the evening unfolds with an exclusive public event at the Pierre Daure Theater. We invite you to join us for the screening of the thought-provoking documentary film, "Golden Seniors."



Synopsis:

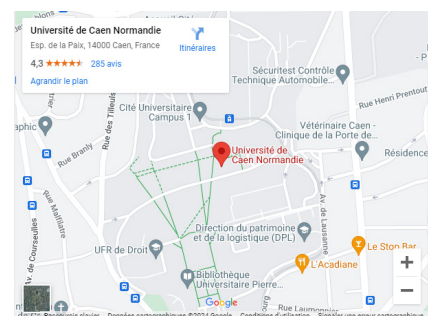
Witness the extraordinary journey of five senior citizens as they embark on a transformative mental training program. Their experiences are part of a groundbreaking scientific study, the SilverSante Study / Medit-Ageing European project, exploring the profound effects of meditation on aging.

Stay tuned after the screening for an enlightening discussion with Swiss film director François Kohler and Dr. Gaël Chételat, the co-director of the NeuroPresage team and coordinator of the European Medit-Ageing project.

Don't miss this opportunity to be part of a remarkable evening of exploration, insight, and connection. Mark your calendars and join us for an unforgettable event!

Localization:

Université de Caen, Aula Magna – Amphi
Pierre Daure, Esplanade de la Paix
14000 Caen FRANCE



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SOCIAL ACTIVITY AND GALA

Thursday, September 26, bus leaves at 4:45 p.m.

Join us for an Unforgettable Gala Dinner at Ferme de Billy!



Prepare for an enchanting evening at Ferme de Billy, a historic cider apple farm nestled between the picturesque towns of Caen and Bayeux. For over five generations, the Ferme de Billy has been renowned for its rich cider apple production and traditional expertise.

Immerse yourself in the essence of Normandy as you explore the lush orchards, verdant woods, and enchanting 13th-century chapel that grace the Ferme de Billy estate. Discover a delightful array of artisanal beverages crafted from locally sourced cider apples, including apple juice, cider, ice cider, pommeau, and Normandy calvados.

Program

Your evening begins with a captivating tour of the farm, where you'll wander through the orchards and delve into the secrets of cider production in the farm's historic cellars. Indulge your senses with a tantalizing cider tasting experience, sampling the farm's finest creations.

Following the tour, delight in a sumptuous cocktail dinner featuring a delectable selection of culinary delights inspired by the flavors of Normandy.

Prepare for a night of festivities, networking, and laughter as you join fellow attendees for a fun-filled evening under the stars. Get ready to celebrate, mingle, and create lasting memories in a vibrant and welcoming atmosphere.

To reserve your place for the farm tour and gala dinner, please register when you sign up for the EU-MIND conference.

Complimentary shuttle buses will be available for your convenience, departing from Le Dôme and returning to Caen city center at the conclusion of the dinner.



Transportation

Join us for an unforgettable evening of celebration and camaraderie at Ferme de Billy. Don't miss this opportunity to experience the essence of Normandy hospitality in the heart of the French countryside.

Localization

Ferme de Billy, Rots (between Caen and Bayeux)

Get your tickets!

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