

# Marseille Imaging

**amU** Marseille imaging  
Institute  
Aix Marseille Université



*Forming a community*

*Training through and for research*

*Connecting disciplines*

*Strengthening partnerships*

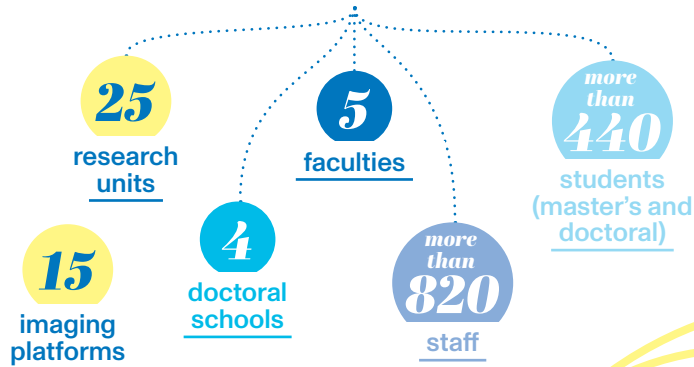
*Acting internationally*

# Marseille Imaging

**Our main objective: to unite and promote the imaging strengths of the Aix-Marseille site on the international stage**

Aix Marseille Université's imaging strengths represent excellence in many biological and medical imaging modalities. It is exceptional to have so many key facilities and research teams of such high calibre on the same site. The priority areas for research and training are ultimate imaging, imaging therapy, imaging for all and emerging and disruptive techniques (AI). The Marseille imaging institute was set up in 2019, bringing together and supporting all the players involved in training and research, with the aim of increasing international visibility and facilitating exchanges with industrial and socio-economic partners. Co-design is the core of our concerns, facilitating interdisciplinarity ranging from instrumental and technological design to medical applications, with data science and image processing as common threads.

## Forming a community



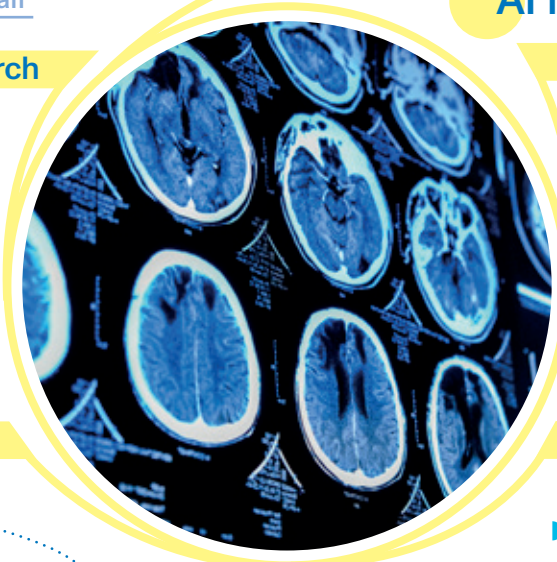
- Nuclear imaging
- Magnetic resonance imaging
- Optical imaging
- Acoustic imaging
- X-ray imaging
- AI for imaging

## Training through and for research

- ▶ Imaging specialised schools
- ▶ Laboratory immersion internships
- ▶ Imaging-specific training (AI, MRI physics, etc.)

## Acting internationally

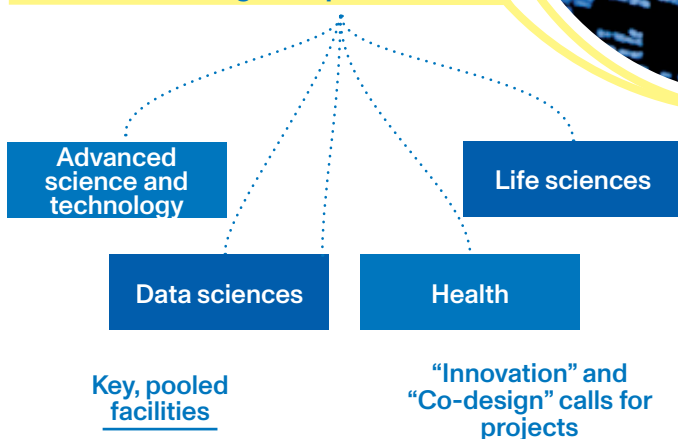
- ▶ Societal chair and international cooperation
- ▶ Student mobility
- ▶ Biomedical Imaging School

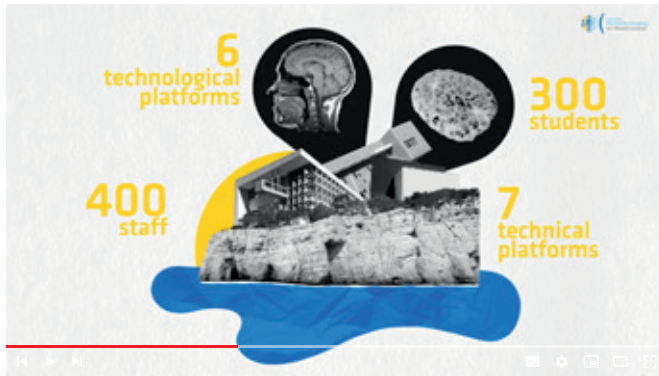


## Strengthening partnerships

- ▶ Multiwave Imaging
- ▶ Siemens Healthineers
- ▶ General Electric
- ▶ Olea Medical
- ▶ France Life Imaging
- ▶ France Bio Imaging
- ▶ ...

## Connecting disciplines





Watch the institute's animated film



The institute as seen by its members



## Meet our executive office



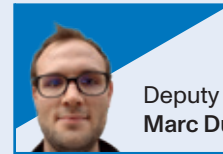
Deputy research director:  
**Christian Bénar**



Director:  
**Monique Bernard**



Project manager:  
**Cécile Lavoûte**



Deputy training director:  
**Marc Dubois**

Discover the entire governance team:  
<http://url.univ-amu.fr/institut-marseilleimaging-gouvernance>

## Focus on our technology platforms

The Marseille imaging institute brings together a large number of key clinical and preclinical facilities in the field of biological and medical imaging, together with around fifteen accredited platforms and technical centres. They are a major strength of the site, providing a focus for research, education and links with the socio-economic world. The platforms benefit from close links with research in instrumentation, chemistry and image processing, on the one hand, and with biology research units and clinical departments on the other.

These platforms and technical centres provide access to cutting-edge equipment for observation of cells and human multi-organ systems under normal and pathological conditions for all existing modalities, including high-field and ultra-high-field magnetic resonance imaging (MRI), nuclear imaging methods (PET CT, SPECT CT), spectral scanning (SPCCT), ultrafast X-ray imaging, magnetoencephalography (MEG), ultrasound and all optical methods (microscopy, non-linear optics, spectral biphoton imaging, endoscopy, etc.).

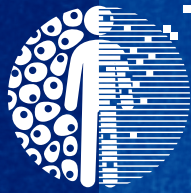


## Contact

Director: Monique Bernard  
Project manager: Cécile Lavoûte

[marseille-imaging@univ-amu.fr](mailto:marseille-imaging@univ-amu.fr)

[www.univ-amu.fr/marseille-imaging](http://www.univ-amu.fr/marseille-imaging)



# Training at Marseille Imaging

**amU** Marseille imaging  
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*Training for, through and in research,  
with continuity from master's to doctorate level*

*Training for, through and in research,  
with continuity from master's to doctorate level*

## Our ecosystem

more than  
**290**  
master's students<sup>1</sup>

around  
**150**  
PhD students<sup>2</sup>

**5**  
partner faculties

**4**  
partner doctoral schools

- ▶ Faculty of medical and paramedical sciences (SMPM)
- ▶ Faculty of sciences
- ▶ Faculty of pharmacy
- ▶ Aix-Marseille institute of technology (IUT)
- ▶ Marseille polytech

- ▶ Life and health sciences (ED 62)
- ▶ Marseille mathematics and computer sciences (ED 184)
- ▶ Physics and science of matter (ED 352)
- ▶ Engineering sciences (ED 353)

**5**  
key master's

- ▶ Signal and image processing, "Biomedical Signals and Images" (SIBIOM)
- ▶ Signal and image processing, "Signals and Image Physical Interactions" (IPSI)
- ▶ Physics, Europhotonics
- ▶ Health engineering, "Innovative diagnostic and therapeutic drug design" (NewDEAL)
- ▶ Polytech engineering curriculum, "Biomedical Engineering" specialisation

**1**  
interdisciplinary doctoral programme

Consult all master's degree specialisations:



<sup>1</sup> students enrolled on master's specialisations attached to the institute  
<sup>2</sup> doctoral students enrolled in our partner doctoral schools

## Our key actions

- ▶ Biennial specialised school for biomedical imaging
- ▶ Biennial R&D seminar for biomedical imaging
- ▶ Immersion laboratory internships lasting from 4 to 6 months
- ▶ Interdisciplinary theses
- ▶ Specific training in artificial intelligence for imaging

2020-2023

**380**  
participants in specialised schools

**250**  
participants in R&D seminars

**180**  
lab internships

**5**  
theses

**160**  
students receiving specific training

*"A invaluable grant from the Institute enabled me to take part in a training camp that let me acquire useful knowledge about biomedical imaging technologies and their application for research. I was also able to present my doctoral work and discuss it with other highly motivated doctoral students from different fields of research."*



Quang Hieu Duong

## Our international training

**CIVIS alliance**  
European civic university

**1 Erasmus Mundus Master**

**FairEmbo societal chair**  
cooperation with Cambodia, Senegal, Côte d'Ivoire, Chad and Cameroon

**Mobility**  
(missions, conferences, internships) to Europe, US, UK, Canada, Thailand, Vietnam, Colombia

**Imaging specialised school**  
Fully English-speaking with more than 10 nationalities

## Contact

Deputy training director: Marc Dubois

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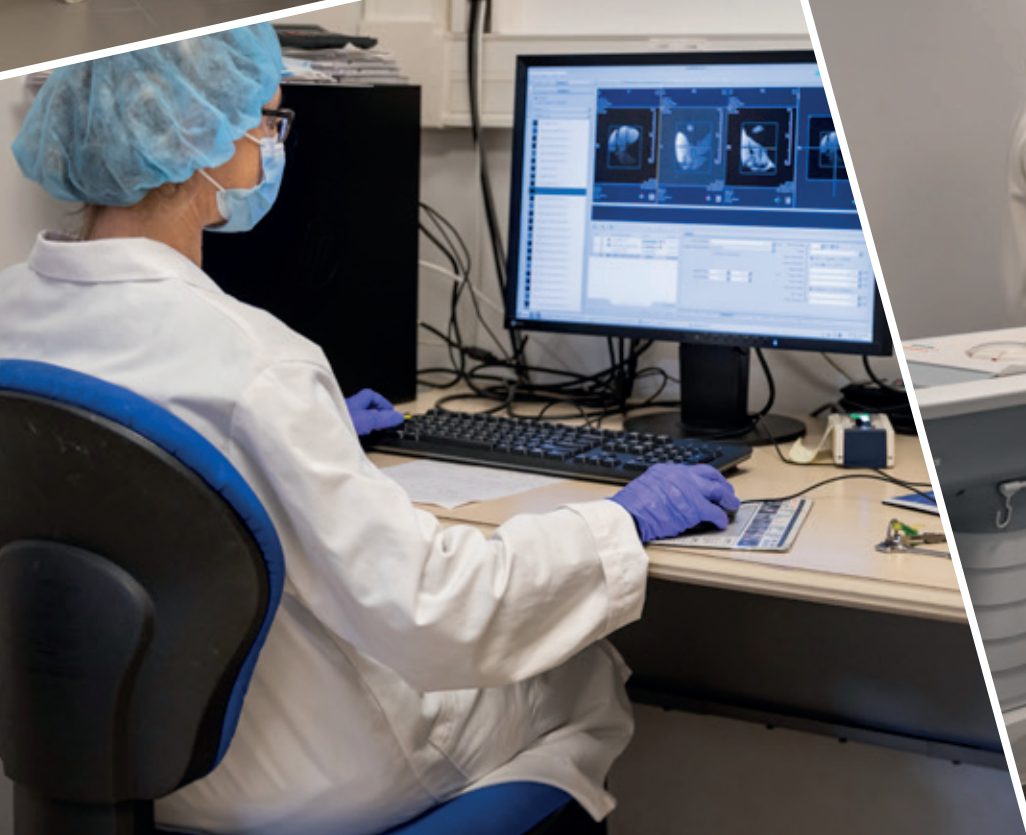




# Research at Marseille Imaging

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*Bringing together the biological and medical imaging strengths of the Aix-Marseille site to consolidate our international scientific position*



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## Research ecosystem

**25**  
research  
units

### Advanced science and technology

- ▶ Fresnel institute (FRESNEL)
- ▶ Institute for radical chemistry (ICR)
- ▶ Provence institute for materials, microelectronics and nanosciences (IM2NP)
- ▶ Mechanics and acoustics laboratory (LMA)
- ▶ Marseille astrophysics laboratory (LAM)
- ▶ Centre for biological and medical magnetic resonance (CRMBM)
- ▶ European research centre for medical imaging (CERIMED)
- ▶ Marseille interdisciplinary centre for nanoscience (CINaM)
- ▶ Laboratory for plasma lasers and photonic processes (LP3)
- ▶ Marseille centre for particle physics (CPPM)
- ▶ Computer science and systems laboratory (LIS)
- ▶ Marseille institute for mathematics (I2M)

### Health and life sciences

- ▶ Institute for neurophysiopathology (INP)
- ▶ Centre for cardiovascular and nutrition research (C2VN)
- ▶ Institute for systems neuroscience (INS)
- ▶ Timone neuroscience institute (INT)
- ▶ Laboratory for experimental interventional imaging (LIIE)
- ▶ Marseille centre for cancer research (CRCM)
- ▶ Bacterial chemistry laboratory (LCB)
- ▶ Marseille-Luminy centre for immunology (CIML)
- ▶ Marseille institute for developmental biology (IBDM)
- ▶ Mediterranean institute for neurobiology (INMED)
- ▶ Laboratory for Adhesion and inflammation (LAI)
- ▶ mRNA, Nanomedicine and Theranostics (RNAoTher)
- ▶ Dynamics and nanoenvironment of biological membranes (DyNaMo)



## Our main areas of research

- ▶ **Ultimate imaging:** Development and improvement of imaging techniques to achieve the highest possible resolution, enabling detailed and precise observation.
- ▶ **Imaging therapy:** Exploring ways of using imaging to target and treat specific areas of the body with specific therapies. For example: precisely guiding surgical operations or targeting specific therapies on precise areas of the body.
- ▶ **Imaging for all:** Make imaging accessible to everyone, everywhere, by equipping and training low-income countries, areas with no medical facilities and emergency rooms.
- ▶ **Emerging and disruptive techniques:** Development of innovative new imaging technologies with the potential to revolutionise the fields of medical and scientific imaging through novel, high-performance approaches.

## Our key actions

- ▶ Support for the structuring and funding of innovative & inter-laboratory research projects
- ▶ Support for imaging platforms
- ▶ Scientific events
- ▶ Coordination of purchases for key facilities

2020-2023

“Research” call for projects

€450  
thousand

19

awardee  
projects

“Platform” call for projects

€350  
thousand

20

awardee  
projects

19

Conferences and  
seminars organised  
or supported

€18  
million

In purchases  
for key facilities

*“We are coordinators of the RANKnanodyn project, awardee of the “Research 2022” call for projects, which focuses on the molecular dynamics of the immunological synapse during leukemogenesis using videonanoscopy. The incentive provided by Marseille Imaging has enabled us to successfully apply for the call for projects ITMO Cancer Aviesan PCSI, and INCA PLBIO (currently in progress). A review and an article are currently being written.”*

**Arnauld Sergé**  
Teacher-researcher  
at LAI

**Magali Irla**  
Research director  
at the CIML

## Contact

Deputy research director: Christian Bénar

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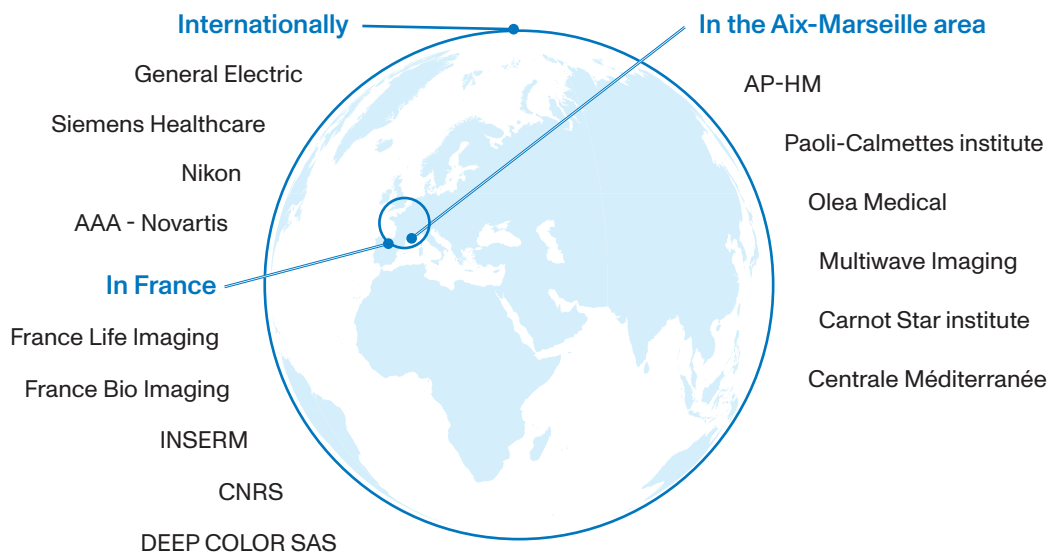
*Strengthening and developing special links with academic and institutional players and the socio-economic and cultural world*

*"Multiwave Imaging has benefited from a partnership with the Marseille imaging institute since 2021 through two industrial chairs (2021-2023 and 2024-2028) supported by the A\*midex foundation. Our projects focus on the design and validation of breakthrough technologies to democratise access to medical imaging, and more specifically magnetic resonance imaging, for as many people as possible."*





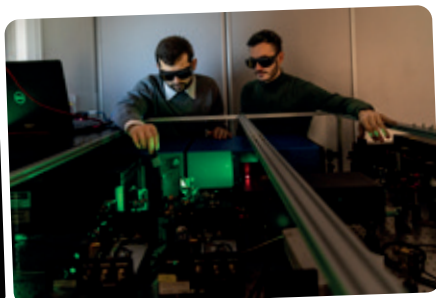
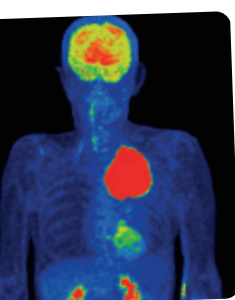
**Panos Antonakakis**  
Chairman of Multiwave technologies



## Our key partners include



## Our key actions

2020	2020
 <p><b>SIEMENS</b> industrial chair</p>	 <p><b>FairEmbo</b> societal chair</p>



2021 & 2023	2022
 <p><b>MULTIWAVE</b> industrial chair</p>	 <p><b>R&amp;D seminar</b></p>

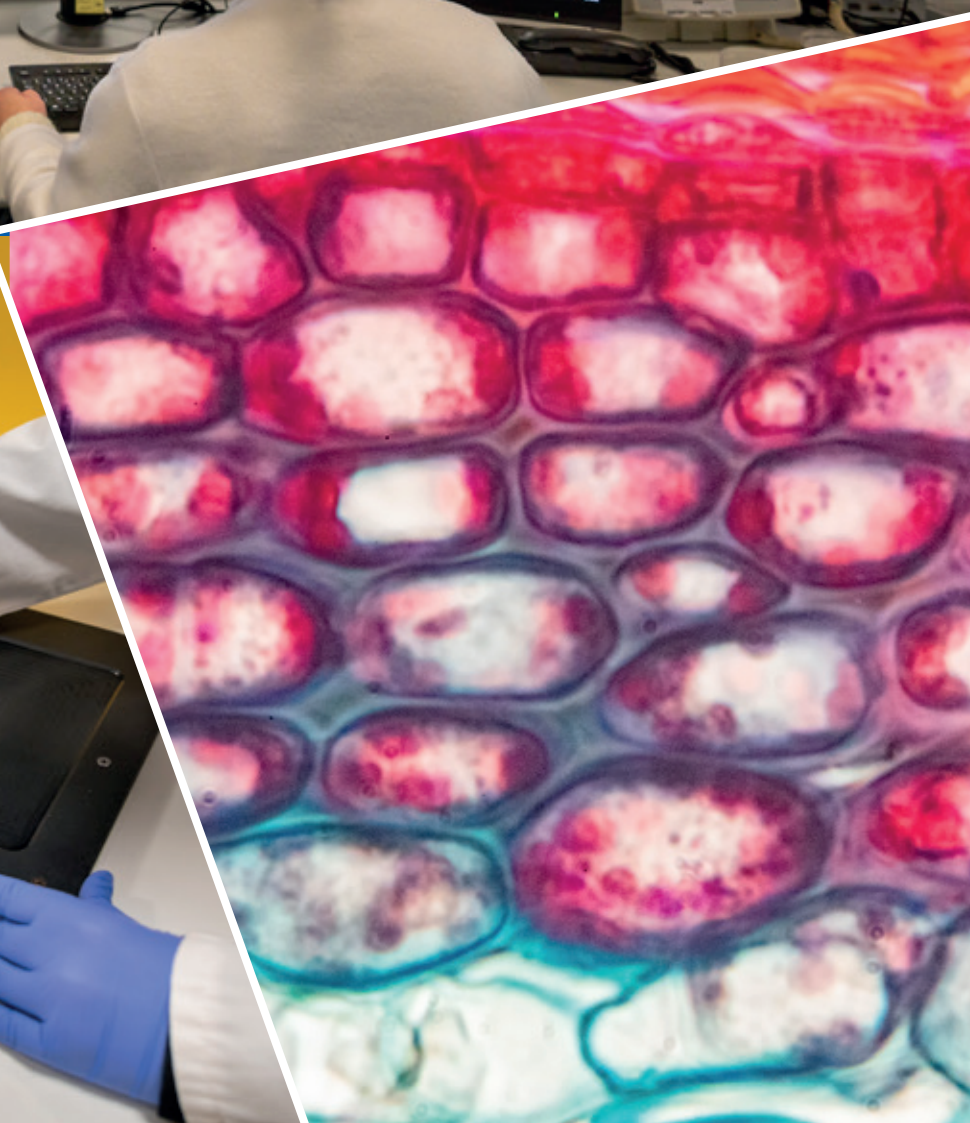
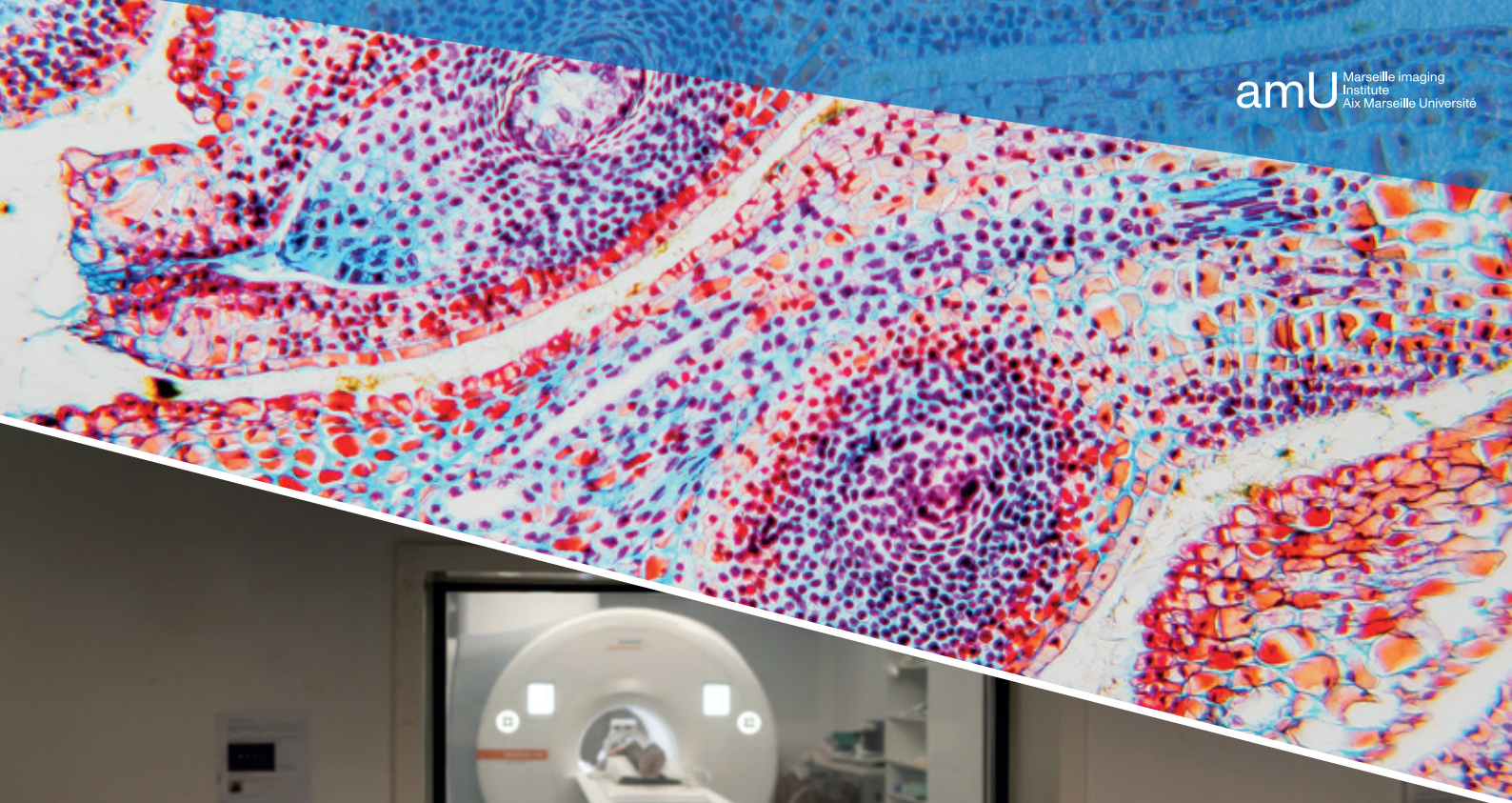
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*The Marseille Imaging institute brings together teams  
on 7 university and scientific sites*



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The Aix Marseille Université institutes are coordinated by the Amidex foundation



The Aix-Marseille Excellence Initiative, a consortium between Aix Marseille Université and 8 partners

