

[PRESS RELEASE – ORSAY – 5 February 2024](#)

## Abbelight, CNRS and Universit  Paris-Saclay join forces to advance imaging of living organisms

On Friday 2 February 2024, the company Abbelight, specialised in the development of microscopy and nanoscopy solutions, the French National Centre for Scientific Research (CNRS), and Universit  Paris-Saclay officially signed the creation of a joint research laboratory specialised in nano-scale imaging.

The scale-up company, Abbelight, the CNRS and Universit  Paris-Saclay have recently strengthened their partnership with the launch of a joint laboratory – Nanolife. Bringing together Abbelight and the Orsay Institute of Molecular Science (ISMO<sup>1</sup>), the joint laboratory aims to solve the main technological and scientific challenges in fluorescence nanoscopy of living cells, via a major scientific project.

Nanolife’s objective draws on ISMO and Abbelight’s capacities to develop imaging of living organisms, which remains limited today.

ISMO has patented and considerable expertise in conventional and super-resolution fluorescence microscopy, as well as sample preparation and related data processing.

In addition to ISMO’s scientific expertise, Abbelight’s super-resolution imaging technique - Single Molecule Localisation Microscopy (SMLM), will play a key role in improving the temporal resolution needed for the observation of living organisms.

SMLM is an optical imaging solution that provides 3D nanometric spatial resolution, which is similar to that of electron microscopy. While the inventors of SMLM were awarded the Nobel Prize in Chemistry in 2014, the solution currently remains limited to the imaging of fixed biological samples and presents several drawbacks. These include: acquisition times ranging from a few minutes to several hours, which is far from the temporal resolution needed for the observation of living organisms; particularly phototoxic light excitation samples, especially during long acquisition times; and SMLM probes attached to immunolabeling antibodies which cannot penetrate living cells.

The purpose of the Nanolife joint laboratory is to tackle these challenges. The project “*will help to improve our knowledge about the photo-blinking process of SMLM probes, as well as the development of a new SMLM instrument covering the entire value chain, from sample preparation to image analysis,*” said Nicolas Bourg, CTO and co-founder of Abbelight. Nanolife will also give SMLM nanoscopy the chance to become the microscopy of the future and consolidate Abbelight’s position as a leader on the SMLM nanoscopy market. The new laboratory will also allow ISMO to reinforce its excellence, reputation and expertise in this particular field, whilst continuing to develop new knowledge.

The development of SMLM imaging techniques will contribute to research in life sciences, and a vast array of areas, including cancer, genetics, biophysics, microbiology and neuroscience.

“*The CNRS is very pleased that our relationship with Abbelight has continued to grow over time, as the company first emerged from laboratories jointly run by the CNRS. The creation of Nanolife is a reminder of why the economic world and public research must maintain close links. In fluorescence nanoscopy –*

*an area which we both have in common, the Orsay Institute of Molecular Science possesses expertise and knowledge which meet a key industry need. It is also a powerful symbol because the partnership demonstrates that public-private research collaborations are both desirable and possible with all types of companies, from start-ups to large corporate groups,”* said Jean-Luc Moullet, Deputy Managing Director for Innovation at the CNRS.

*“It is incredibly satisfying to see public-private partnerships like this, related to work from our research laboratories, becoming a reality. Advancing the frontiers of basic knowledge whilst promoting the role this knowledge has to play in innovation and value creation for society is at the heart of university missions, and of Université Paris-Saclay’s in particular. We are delighted about the creation of Nanolife, which will combine top-level academic and technological expertise whilst contributing to the training of students and young researchers, to help overcome the technological obstacles in the imaging of living organisms,”* said Estelle Iacona, President of Université Paris-Saclay.

The creation of a joint laboratory is the continuation of a shared past between Abbelight and ISMO. The company first emerged at ISMO from the research of one of its founders, Nicolas Bourg, during his thesis as part of the NanoBio team, supervised by Sandrine Lévêque-Fort, also co-founder, and Guillaume Dupuis, director of the Nanolife laboratory. During his thesis, Nicolas Bourg designed a 3D isotropic nanoscope to improve our understanding of neurodegenerative diseases and the cell migration of human macrophages.

An official signing ceremony marking the creation of the Nanolife joint laboratory took place on 2 February at ISMO. The event was attended by Jean-Luc Moullet, Deputy Managing Director for Innovation at the CNRS, Estelle Iacona, President of Université Paris-Saclay, Jean-Baptiste Marie, CEO of Abbelight and the teams involved in the project. The signing was followed by a demonstration of the Abbelight™ SAFE bioimaging platform.

<sup>1</sup> Institut des Sciences Moléculaires d’Orsay - ISMO (CNRS/Université Paris-Saclay), located in Orsay.



The joint laboratory Nanolife was inaugurated on 2 February 2024. From left to right: Jean-Baptiste Marie, CEO of Abbelight, Jean-Luc Moullet, Deputy Managing Director for Innovation at the CNRS, and Thierry Doré, Vice President for Research and Development at Université Paris-Saclay.  
© Christophe Peus

#### **About Abbelight**

Founded in 2016, Abbelight is a fast-growing company specializing in the development of complete microscopy and nanoscopy (SMLM) solutions. Its portfolio incorporates constantly evolving expertise combining chemistry, optics and computer engineering. The company's bio-imaging platform enables researchers at public research institutes and

biotech companies to optimise their sample preparation, data acquisition and management thanks to a range of advanced techniques adapted to different applications. Abbelight is a French company founded by four passionate researchers, who are committed to contributing to the improvement of human health in a wide range of fields, including bacteriology, extracellular vesicles, neuroscience and structural biology. Today, Abbelight employs around 60 people, all driven by the desire to provide innovative research solutions and to support its customers around the world.

[www.abelight.com](http://www.abelight.com)

### **About the CNRS**

The French National Center for Scientific Research is one of the most recognised and renowned public research institutions in the world. For more than 80 years, it has continued to attract talent at the highest level and to nurture multi-disciplinary and interdisciplinary research projects at the national, European and international levels. Geared towards the public interest, it contributes to the scientific, economic, social and cultural progress of France. The CNRS is above all 33,000 women and men, more than 1,000 laboratories in partnership with universities and other higher education institutions bringing together more than 120,000 employees and 200 professions that advance knowledge by exploring the living world, matter, the Universe, and the functioning of human societies. The CNRS ensures that this mission is carried out in compliance with ethical rules and with a commitment to professional equality. The close relationship it establishes between its research missions and the transfer of acquired knowledge to the public makes it today a key player in innovation in France and around the world. Partnerships with companies are at the heart of its technology transfer policy, and the start-ups that have emerged from CNRS laboratories bear witness to the economic potential of its research. The CNRS provides also access to research findings and data, and this sharing of knowledge targets many audiences: scientific communities, the media, decision-makers, economic players and the general public.

[www.cnrs.fr](http://www.cnrs.fr)

### **About Université Paris-Saclay**

Université Paris-Saclay was born from the shared ambition of French universities, *grandes écoles* and national research organisations. As a leading university in Europe and the world, it covers the fields of science and engineering, life sciences and health, and humanities and social sciences. The university's science policy closely intertwines research and innovation, incorporating both basic and applied science to tackle major societal challenges. Université Paris-Saclay offers a varied range of undergraduate to doctorate level degrees, including programmes with its *grandes écoles*, all of which are focused on achieving student success and employability. The university prepares students for an ever-changing world where the ability to think critically, remain agile and renew one's skills are crucial. Université Paris-Saclay also offers a comprehensive range of lifelong learning courses. Located to the south of Paris, the university extends across a vast and rich local area. Its location strengthens both its international visibility and its close ties with its socio-economic partners (major companies, SMEs, start-ups, local authorities, charities).

[www.universite-paris-saclay.fr](http://www.universite-paris-saclay.fr)

### **Press contacts**

---

**CNRS** | Damien Guimier | T +33 1 69 82 32 40 | [damien.guimier@cnrs.fr](mailto:damien.guimier@cnrs.fr)

**Abbelight** | Dassine Zouaoui | [dzouaoui@abelight.com](mailto:dzouaoui@abelight.com).

**Université Paris-Saclay** | Gaëlle Degrez | T +33 6 21 25 77 45 | [gaelle.degrez@universite-paris-saclay.fr](mailto:gaelle.degrez@universite-paris-saclay.fr)