

No.	K23-2090	
Project Title	Genome stability and DNA methylation	
Principal Investigator	Pierre-Antoine Defossez (CNRS/Univ Paris · Professor)	
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	Project Member (s)	Kousuke Yamaguchi (National Institute of Genetics · Associate Profesor)
	Project Member (s)	Atsuya Nishiyama (Cancer cell Biology · Associate Professor)
	Project Member (s)	Kyohei Arita (Yokohama City University/Stuructural Biology Laboratory · Professor)
	Project Member (s)	Laure Ferry (CNRS/Univ. of Paris · permanent technical staff)

**IMSUT International Joint Usage/Research Center Project <International>
Joint Research Report (Annual/Project Completion)**

Project Completion Report

Report

Project Completion Report — IMSUT International Joint Usage/Research Center

*Collaboration between the Defossez laboratory (Université Paris Cité, CNRS, Paris, France)
and the Nakanishi laboratory (IMSUT, University of Tokyo, Japan)*

We are extremely grateful to IMSUT for their support. This project supported the scientific collaboration between the laboratory of Dr. Pierre-Antoine Defossez (Epigenetics and Cell Fate, Université Paris Cité, CNRS, Paris, France) and the laboratory of Prof. Makoto Nakanishi (Institute of Medical Science, University of Tokyo, Japan), both focused on the mechanisms and functions of DNA methylation. Over the three fiscal years of the project (April 2023 – March 2026), the grant enabled two laboratory visits to Japan, multiple video conference exchanges, and a range of scientific interactions that have proven highly productive for both teams and for the broader Franco-Japanese research community.

Scientific outcomes of the collaboration

The exchanges with Prof. Nakanishi and Dr. Fuyuki Nishiyama were central to the progress of a major project in our laboratory on DNA methylation and cellular senescence. The discussions held during visits and remote meetings helped shape the experimental design and interpretation of this work, which was ultimately published in Nature Communications (Yamaguchi et al., 2025; Chen et al., 2026). These publications represent a direct and tangible scientific output of the collaboration enabled by this grant.

A second major outcome has been the joint design of a systematic screening strategy for UHRF1, a key regulator of DNA methylation maintenance that is a central focus of both laboratories. Building on our discussions, we have established a systematic mutant library for this protein and are currently sharing experimental approaches and data between Paris and Tokyo. This ongoing exchange is expected to generate important insights into UHRF1 function and represents a foundation for deeper collaborative work in the coming years.

Broader impact on Franco-Japanese scientific relations

Beyond the direct collaboration with the Nakanishi laboratory, this grant has had a broader and lasting impact on scientific relations between France and Japan in the field of epigenetics. The two visits to Japan — one of three weeks and one of one week — allowed extensive interactions with the Japanese epigenetics community well beyond IMSUT.

In particular, the visits led to a productive new collaboration with Prof. Kyohei Arita, a colleague and collaborator of Prof. Nakanishi. This interaction has developed into a full scientific partnership: a collaborative manuscript is currently in preparation, an international joint grant application has been submitted (result pending), and we are actively planning a Franco-Japanese epigenetics conference. This conference, if realized, will benefit the Nakanishi laboratory and the Japanese epigenetics community at large, and will create lasting institutional ties between French and Japanese research groups.

Benefits to IMSUT

The collaboration has also brought direct benefits to IMSUT. During the visits, Dr. Defossez was able to provide scientific input on experiments and manuscripts being prepared by Dr. Nishiyama, contributing to the quality of work produced within the institute. In addition, Dr. Defossez has actively promoted the research carried out at IMSUT within the French and European scientific communities, helping to raise the international visibility of the institute and its researchers.

Conclusion

We are extremely grateful to IMSUT for its support over these three years. The funding was essential in making laboratory visits possible and in sustaining the scientific dialogue between our two groups. The outcomes —an active data-sharing collaboration on UHRF1, a new partnership with Prof. Arita, a joint grant application, and a planned bilateral conference — demonstrate that this investment has had a significant and lasting impact, both scientifically and in terms of building durable ties between France and Japan in biomedical research. We hope to continue and deepen this collaboration in the years to come.