

Ornella Bimaï
(Postdoctoral Fellowship- Marie
Skłodowska-Curie Action)

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RESEARCH INTERESTS

The anaerobic ribonucleotide reductase (aRNR) long range activation mechanism

- Protein expression and purification
- Spectroscopic characterisation
- Protein crystallisation and X-ray diffraction
- Protein CryoEM

EDUCATIONAL BACKGROUND

- 2015-2018 **PhD degree in Biochemistry**-Collège de France, Paris. (PSL research University)
- 2013-2015 **Master degree in Protein Biochemistry** – Paris-Diderot 7 University, Paris, France.
- 2012-2013 **Bachelor degree in Life science**– Lorraine University, Nancy, France.
- 2009-2011 **Technical degree in Biotechnology**-Lycée Stanislas, Nancy, France

PREVIOUS RESEARCH ACTIVITY

- 2024-current **Postdoctoral researcher** - Marie Sk Skłodowska-Curie Action
Collège de France, Paris, France.
Supervisor: Marc Fontecave.
- 2019-2023 **Postdoctoral researcher** – Department of Biochemistry and Biophysics, Stockholm
University, Sweden.
Supervisor: Britt-Marie Sjöberg.
- 2015-2018 **PhD studies** at the Laboratoire de Chimie des Processus Biologiques, Collège de France,
Paris. (PSL research University)
Supervisor: Béatrice Golinelli-Pimpaneau.

2011

Technical degree internship in the laboratory iMoPa, Nancy, France

Supervisor: Arnaud Gruez.

SUMMARY

Ornella began her academic journey with a two-year technical degree in Biotechnology, followed by a Bachelor's in Life Sciences, and a Master's in Protein Biochemistry in Paris. She then pursued a PhD at the Laboratory of Chemistry of Biological Processes, Collège de France, focusing on the "TtcA-TtuA enzyme family involved in tRNA thiolation". After completing her PhD in 2018, she continued her research as a Postdoctoral Fellow at Stockholm University under Prof. Britt-Marie Sjöberg, "studying ribonucleotide reductases (RNRs) and their transcriptional regulator, NrdR". In 2024, she received a Marie Skłodowska-Curie Postdoctoral Fellowship to explore the activation mechanisms of anaerobic ribonucleotide reductases in Fontecave's research group.

PUBLICATIONS

- Rozman Grinberg, I*, **Bimai, O***, Lundin, D., Sjöberg, BM., Logan, D.T., NrdR - an allosterically regulated global transcriptional repressor of ribonucleotide reductase in E. coli. (*Shared first author) Under revision at FEBS LETTER.
- **Bimai, O.**, Banerjee, I., Rozman Grinberg, IR., Huang, P., Lundin, D., Sjöberg, BM., Logan, D.T., Activity modulation in anaerobic ribonucleotide reductases: nucleotide binding to the ATP-cone mediates long-range order-disorder transitions in the active site. (2024) eLife: <https://doi.org/10.7554/eLife.89292.1>
- **Bimai, O.**, Legrand, P., Ravanat, J-L., Touati, N., Zhou, J., He, N., Lénon, M., Barras, F., Fontecave M., Golinelli-Pimpaneau, B., The thiolation of uridine 34 in tRNA, which controls protein translation, depends on a [4Fe-4S] cluster in the archaeum Methanococcus maripaludis, Scientific Report.(2023).
- He, N*, Zhou, J*, **Bimai, O.**, Oltmanns, J., Ravanat, J-L., Velours, C., Schünemann, V., Fontecave, M., Golinelli-Pimpaneau, B., A subclass of archaeal U8-tRNA sulfurases requires a [4Fe-4S] cluster for catalysis. Nucleic Acids Research (2022).
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- Zhou, J*, **Bimai, O***, Arragain, S., Pecqueur, L., Golinelli-Pimpaneau, B., TtuA and TudS, two [4Fe-4S]-dependent enzymes catalyzing nonredox sulfuration or desulfuration reactions, Encyclopedia of Inorganic and Bioinorganic Chemistry (review, 2022), cited by 1.
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- Rozman Grinberg, I*, Martinez-Carranza, M*, **Bimai, O.**, Nouaïra, G., Shahid, S., Lundin., D., Logan, D.T., Sjöberg, B-M., Stenmark, P., A nucleotide-sensing oligomerization mechanism that controls NrdRdependent transcription of ribonucleotide reductases. Nat Commun. (2022). Impact factor 17.69, cited by 1.
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- **Bimai, O.**, Arragain, S., Golinelli-Pimpaneau, B., Structure-based mechanistic insights into catalysis by tRNA thiolation enzymes, Current Opinion in Structural Biology (2020) Impact factor 7.786, cited by 21.
- Aymé, L., Arragain, S., Canonge, M., Baud, S., Touati, N., Bimai, O., Jagic, F., Louis-Mondésir, C., Briozzo, P., Fontecave, M., Chardot, T., Arabidopsis thaliana DGAT3 is a [2Fe-2S] protein involved in TAG biosynthesis, Scientific Report (2018)
- Arragain, S*, **Bimai, O***, Legrand, P., Caillat, S., Ravanat, J-L., Touati, N., Binet, L., Atta, M., Fontecave M., Golinelli-Pimpaneau, B., (2017) Non-redox thiolation in tRNA occurring via sulfur activation by a [4Fe-4S] cluster, Proc. Natl. Acad. Sci. USA. (*Shared first author)