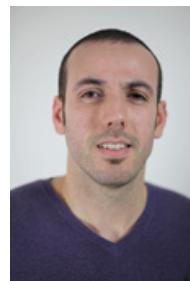


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**RESEARCH INTERESTS**

Nucleic acids Biochemistry, enzymology, molecular Biophysics and structural biology

- Post-transcriptional RNA modifications
- Structural Enzymology
- Enzyme's mechanisms, kinetics and biophysics
- Protein/protein and protein/RNA interactions
- Redox biochemistry, flavinologie

**SUMMARY**

I study the structures and mechanisms of enzymes implicated in several important redox-dependent post-transcriptional RNA modifications in bacteria and human. I employ a variety of approaches including RNA biochemistry, X-Ray crystallography, FRET, absorbance, circular dichroism spectroscopy, fast kinetics in order to provide compelling evidence regarding enzyme/RNA interactions that play a key role in substrate binding and catalysis.

**SELECTED PUBLICATIONS:**

- An enzymatic activation of formaldehyde for nucleotide methylation. Bou-Nader C, Stull FW, Pecqueur L, Simon P, Guérineau V, Royant A, Fontecave M, Lombard M, Palfey BA, Hamdane D. *Nature communications*. 2021, 12, 4542-4548.
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- Structural, biochemical and functional analyses of tRNA-monoxygenase enzyme MiaE from *Pseudomonas putida* provide insights into tRNA/MiaE interaction. Carpentier P, Leprêtre C, Bassat C, Douki T, Torelli S, Duarte V, Hamdane D, Fontecave M, Atta M. *Nucleic Acids Res.* 2020 Sep 25;48(17):9918-9930. doi: 10.1093/nar/gkaa667.
- Reductive Evolution and Diversification of C5-Uracil Methylation in the Nucleic Acids of Mollicutes. Sirand-Pugnet P, Brégeon D, Béven L, Goyenvalle C, Blanchard A, Rose S, Grosjean H, Douthwaite S, Hamdane D, Crécy-Lagard V. *Biomolecules*. 2020 Apr 10;10(4):587. doi: 10.3390/biom10040587.

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- A robust zirconium amino acid metal-organic framework for proton conduction. Wang S, Wahiduzzaman M, Davis L, Tissot A, Shepard W, Marrot J, Martineau-Corcos C, Hamdane D, Maurin G, Devautour-Vinot S, Serre C. *Nat Commun*. 2018 Nov 22;9(1):4937.
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