

CV of the researcher

Lucas PETITPOISSON

02/09/1998

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Current position

February 2025-on going – Postdoc position at UGOT

Karl Börjesson group – **Gothenburg** – Sweden

“Synthesis of organic dyes for strong coupling and TTA-UC application”

Supervisor: Dr Karl Börjesson (Prof.)

Education

2021-2024 – **PhD degree** at UMR CNRS 7178 – Institut Pluridisciplinaire Hubert Curien / Université de Strasbourg – **Strasbourg** – France

Title: Synthesis of bispidines based ligands for complexation and application in nuclear medicine

2019-2021 – **Master's degree** in organic chemistry and renewable resources – University of Québec at Chicoutimi – **Chicoutimi** – Canada

Title: Site-selective catalytic carbamoylation of pyranosides

2016-2019 – **Bachelor's degree** in organic and analytical chemistry – Université Moselle-Est / University of Québec at Chicoutimi – **Metz / Chicoutimi** – France / Canada

Majors: organic chemistry, analytical chemistry, electrochemistry, spectroscopy

Work Experiences

February 2025-on going – Postdoc position at UGOT – Karl Börjesson group – **Gothenburg** – Sweden

Title: Synthesis of organic dyes for strong coupling and TTA-UC application

Supervisor: Dr Karl Börjesson (Prof.)

- Multi-step synthesis of organic dyes
- Drafting a grant proposal

November 2021-December 2024 – **PhD student** at UMR CNRS 7178 – Institut Pluridisciplinaire Hubert Curien / Université de Strasbourg – **Strasbourg** – France

Title: Synthesis of bispidines based ligands for complexation and application in nuclear medicine

Supervisor: Dr Aline NONAT

- Multi-step synthesis
- Metallic complexes synthesis (Scandium, Terbium)
- Radiolabeling with ^{89}Zr , ^{44}Sc , ^{64}Cu
- DFT guided molecular design
- Kinetic inertness study by luminescence and radioTLC
- Thermodynamic properties of ligand and metal complexes (pK_a , pM , $\log \beta$)
- Determination of luminescence properties (Quantum yield, Q number, luminescence lifetime)

January-July 2021 – **Internship student** at UMR CNRS 7285 – Institut de Chimie des Milieux et Matériaux de Poitiers – **Poitiers** – France

Title: Synthesis of therapeutic vectors using multimodal platforms

Supervisor: Dr Sebastien PAPOT

- Multi-step synthesis
- Enzymatic reaction monitoring (HPLC/LC-MS)
- Measurement of light polarization
- Purification by chiral FPLC

September 2019-December 2020, Student researcher at Laboratoire d'analyse et de séparation des essences végétales – University of Québec at Chicoutimi – **Chicoutimi** – Canada

Tile: Site-selective catalytic carbamoylation of pyranosides

Supervisor: Dr Jérôme Alsarraf

- Carbamoylation by catalytic reaction with boronic acid catalyst
- Synthesis of several intermediates from carbohydrate with a *cis*-diol motif
- Purification and characterization of organic compounds (NMR, $[\alpha]^{20}\text{D}$, Mass spectroscopy, Chromatography)

Skills

Practical

- Organic and inorganic synthesis
- Knowledge in DFT calculation
- Purification and characterization
- Radiolabeling with metallic radioisotopes
- Analytical techniques: NMR, Mass spectrometry, HPLC, Spectroscopy (UV-vis, photoluminescence), Elemental analysis, Potentiometric titration
- Adapt the synthesis pathway to the problems
- Flash chromatography maintenance

Personal

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|--------------------------------------|----------------------|
| • Work in research team | • Time management |
| • Adapt quickly to a new environment | • Work independently |
| • Manage stocks | • Helps others |

IT skills

Windows, Pack Office, Chemdraw, MestReNova, Zotero, Origin, Mercury, Avogadro, Specfit, HyperQuad, HYSS

Languages

English (scientific), German (scholar), French (mother language)

Hobbies

Climbing / bouldering, swimming, hiking, video games

Communications

Oral

“Octadentate chelates based on bispidines for use in nuclear medicine”

International Symposium on Thermodynamics of Metal Complexes, Nice (France), **June 10th-13th 2024**

“Tb(III) octadentate bispidine-based complexes for potential application in radiotherapy and PET imaging”

16th International Workshop, Cancéropôle Grand-Ouest, Erquy (France), **October 4th-7th 2023**

Poster

“Two novel octadentate bispidine chelators for Tb(III) complexation: a competition between pyridine carboxylate and pyridine phosphonate donors”

The 11th International Conference on f Elements, Strasbourg (France), August 22nd-26th 2023

“Bispidine chelators for Ln(III) complexation: pyridine carboxylate versus pyridine phosphonate donors”

European Molecular Imaging Meeting (EMIM), Salzburg (Austria), March 14th-17th 2023

“Octadentate bispidine chelators for Tb(III) complexation: pyridine carboxylate versus pyridine phosphonate donors”

4th Scientific days of GDR AIM, International University Center for Research, Orléans (France), October 3rd-5th 2022

Award for the best poster

Teaching

2019-2020 Practical lesson of first-year bachelor students in Organic chemistry (10h)

2021-2022 Supervisor of two first-year master students for research project (30h)

2022-2023 Practical lesson of first-year master students in Organic chemistry (64h)

2024 Supervisor of second-year master student for research project during 6 months

Publications

“Catalytic Site-Selective Carbamoylation of Pyranosides” (*Org. Lett.*, 2021, 23, 15, 6052-6056)

Jérôme Alsarraf, Lucas Petitpoisson, André Pichette*

“Towards better syntheses of partially methylated carbohydrates?” (*Org. Chem. Front.*, 2022, 9, 19, 5415-5425)

Lucas Petitpoisson, André Pichette, Jérôme Alsarraf*

“Octadentate bispidine chelators for Tb(III) complexation: pyridine carboxylate versus pyridine phosphonate donors” (*Inorg. Chem.*, 2024, 63, 48, 22829-22844)

Lucas Petitpoisson,[†] Anli Mahamoud,[†] Valérie Mazan, Maryame Sy, Olivier Jeannin, Eva Tóth, Loïc J. Charbonnière, Mourad Elhabiri, Aline M. Nonat,*

“An Octadentate Bispidine Ligand Enables Efficient Scandium(III) Complexation and Radiolabelling with ^{44/47}Sc” (to be submitted to *Angew. Chem. Int. Ed.*)

Lucas Petitpoisson, Théo Demartinecourt, Boris Le Guennic, Valérie Mazan, Mourad Elhabiri, Sandrine Huclier, and Aline M. Nonat*

“Clipping effect” and conformational changes in Ln(III)-complexes with bispidine-based pyridine phosphonate chelators (to be submitted to *Chem. Commun.*)

Lucas Petitpoisson,[†] Anli Mahamoud,[†] Boris Le Guennic, Valérie Mazan, Eva Tóth, Mourad Elhabiri, and Aline M. Nonat*

“Upconversion Luminescence through Heteropolynuclear Lanthanide Complexes featuring Bispidine Ligands” (in preparation)

Anli Mahamoud, Léna Godec, Lucas Petitpoisson, Frédéric Przybilla, Loïc J. Charbonnière,* Aline M. Nonat,*

References

Dr Karl Börjesson (Prof.), Postdoc supervisor

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Dr Aline NONAT (DR-CNRS), PhD-director

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Dr Jérôme ALSARRAF (Assoc. Prof.), MSc-supervisor

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Dr Sébastien PAPOT (Prof.), MSc internship supervisor

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