

Curriculum Vitae

Mattia Lazzarotto, PhD

Address: Jakoministrasse 7a/8, 8010, Graz (Austria).

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Date of birth: 31/10/1993

Place of birth: MOTTA DI LIVENZA (TV), Italy

Nationality: Italian

Gender: Male



Work experience:



Enzyan Biocatalysis GmbH

CEO and Co-founder

March 2022 - present

Start up in the field of industrial biotechnology that offers the design and the fast optimization of bioprocesses for the chemical industry.



University of Graz

Post-doctoral researcher, Chemistry (Biocatalysis)

November 2021-December 2022

- Development of a machine learning assisted workflow for the optimization of biocatalytic cascades.

Education:



University of Graz

PhD, Chemistry (Biocatalysis)

June 2018- August 2021

- PhD Thesis title: Enantioselective Allylation Catalyzed by Chiral Phosphoric Acids and α -Ketoglutarate Dependent Dioxygenases (2-ODD-PH and AsqJ) for Organic Synthesis.
Supervisors: Prof. Dr. Wolfgang Kroutil and Dr. Michael Fuchs.



Delft University of Technology (Delft, The Netherlands)

February – July 2017 (6 months)

Visiting Student, European Union program (ERASMUS + Traineeship)

Internship at the Biocatalysis and Organic Chemistry laboratory.



Università degli Studi di Trieste

Master's degree, Chemistry (Curriculum: Organic biomolecular)

Final degree mark: 110/110 cum laude

2015–2017

- Master thesis title: Hydroxynitrile lyase (HNLs) for the production of enantiopure cyanohydrins.
Supervisors: Prof. Gardossi Lucia (Trieste) and Prof. Hanefeld Ulf (TUDelft).
- 2012–2015: Bachelor's degree, Chemistry, Università degli Studi di Trieste, 110/110 cum laude

Language skills:

Italian: Native language

English: CEFR Level C1. IELTS: (20/01/2018) overall Band 7.5.

German: B1

Relevant technical skills:

Microbiology and Biochemistry: DNA and RNA extraction and quantification, liquid and solid culture of bacteria, isolation and transformation, enzymatic assays, SDS PAGE, enzymes purification, plate reader assays.

Analytical methods: spectrophotometry, chromatography (thin layer, HPLC, GC...), theoretical knowledge and interpretation of most analysis techniques [NMR techniques including 2D-NMR (HSQC, HMBC, COSY, NOESY), LC-MS, GC-MS, IR, HRMS, UV-Vis, optical rotation, CD,].

Biocatalysis: enzyme immobilization, biocatalytic reaction in non-conventional medium, enzymatic assays, enzymes kinetics.

Organic Chemistry: classical organic synthesis, characterization of organic compounds, knowledge of mechanisms, retrosynthetic analysis, asymmetric synthesis, transition metal catalysis, Schlenk technique, crystallization of organic molecules.

Inorganic Chemistry: synthesis of coordination compounds.

Relevant scientific attended courses:

- Data Visualisation in the Life Sciences – The Good, the Bad and the Ugly Graph. Verena Resch, Medical University of Graz (2019).
- 3D-Rendering Course in Blender for Biochemists (2020, Luminous Lab, <https://luminous-lab.com/>)
- 3D-Rendering Course in Blender for Chemists (2020, Luminous Lab, <https://luminous-lab.com/>)

Relevant experiences:

- Participation in the 3 minutes thesis competition (<https://doctoral-academy.uni-graz.at/en/events/three-minute-thesis-competition-3mt/>)
- Organization of DocDays2020 in Graz

List of publications

Lazzarotto M., Hartmann P., Pletz J., Belaj F., Kroutil W., Payer S. E., Fuchs M. Asymmetric Allylation Catalyzed by Chiral Phosphoric Acids: Stereoselective Synthesis of Tertiary Alcohols and a Reagent-Based Switch in Stereopreference. *Adv. Synth. Catal.* (2021), 363, 12, 3138–3143.

Grimm C., Lazzarotto M., Pompei S., Schichler J., Richter N., Farnberger J. E., Fuchs M., Kroutil W. Oxygen-Free Regioselective Biocatalytic Demethylation of Methyl-phenyl Ethers via Methyltransfer Employing Veratrol-O-demethylase. *ACS Catal.* (2020), 10, 18, 10375–10380.

Hartmann P. E., Lazzarotto M., Pletz J., Tanda S., Neu P., Goessler W., Kroutil W., Boese A. D., Fuchs M. Mechanistic Studies of the TRIP-Catalyzed Allylation with Organozinc Reagents. *J. Org. Chem.* (2020), 85, 15, 9672–9679.

Colomba J., Lugtenburg T., Afendi M., Lazzarotto M., Bracco P., Hagedoorn P., Gardossi L., Hanefeld U. Immobilization of *Arabidopsis thaliana* Hydroxynitrile Lyase (AtHNL) on EziG Opal. *Catalysts* (2020), 10(8), 899.

Lazzarotto M., Hammerer L., Hetmann M., Borg A., Schmermund L., Steiner L., Hartmann P., Belaj F., Kroutil W., Gruber K., Fuchs M. Chemoenzymatic Total Synthesis of Deoxy-, epi -, and Podophyllotoxin and a Biocatalytic Kinetic Resolution of Dibenzylbutyrolactones. *Angew. Chem. Int. Ed.* (2019), 58, 8226- 8230.

Hartmann P., Lazzarotto M., Steiner L., Cigan E., Poschenrieder S., Sagmeister P., Fuchs M. TRIP-Catalyzed Asymmetric Synthesis of (+)-Yatein, (–)- α -Conidendrin, (+)-Isostegane, and (+)-Neoistegane. *J. Org. Chem.* (2019), 84, 9, 5831-5837.

Conference Oral Presentations

“Chemoenzymatic Total Synthesis of Deoxy-, epi- and Podophyllotoxin via Biocatalytic C-H activation by 2-Oxoglutarate Dependent Dioxygenases”. International Symposium on Biocatalysis and Biotransformations (BioTrans 2019), Groningen (The Netherlands).

“Organo and Biocatalysis for the Synthesis of Lignan Natural Products”. European Symposium on Organic Chemistry (ESOC 2019), Vienna (Austria).

03/10/2023

Mattia Lazzarotto