

## PERSONAL INFORMATION

## Fabrizio Vetica

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Date of birth 25/07/1991 | Nationality Italian

## WORK EXPERIENCE

01/08/2020–present

**Researcher - Assistant Professor (fixed-term)**

Sapienza University of Rome, Rome (Italy)

Tenure track Researcher - Assistant Professor of Organic Chemistry in the Department of Chemistry of the Sapienza University of Rome

15/10/2019–31/07/2020

**Postdoctoral Fellow**

Institute of Organic Synthesis and Photoreactivity (ISOF) - CNR, Bologna (Italy)

Postdoctoral fellow in the Institute of Organic Synthesis and Photoreactivity (ISOF) of the Italian National Research Council (CNR) in Bologna.

Project title: "Reactivity of sulfur containing molecules in delayed-release liposomal forms"

30/01/2020–04/05/2020

**University teaching assistant**

Alma Mater Studiorum - Università di Bologna, Bologna (Italia)

Teaching assistant for the academic year 2019/2020 in the Department of Chemistry "G. Ciamician" for the course of "Organic Chemistry II with Laboratory" for the Bachelor Degree in Chemistry.

30/10/2019–06/12/2019

**University teaching assistant**

Alma Mater Studiorum - Università di Bologna, Bologna (Italia)

Teaching assistant for the academic year 2019/2020 in the Department of Chemistry "G. Ciamician" for the course of "Catalysis in Organic Synthesis" for the Master Degree in Chemistry.

04/01/2019–30/09/2019

**R&D Chemist - Postdoctoral researcher**

Lipinutragen srl, ISOF-CNR, Bologna (Italy)

Lipinutragen srl, Institute of Organic Synthesis and Photoreactivity (ISOF), National Research Council (CNR).

Group of Dr. Chrysostomos Chatgililoglu.

Topic: Radical chemistry in biomimetic conditions and identifications of biomarkers

01/04/2018–30/09/2018

**Research Scientist - Lab Leader**

BASF SE, Ludwigshafen (Germany)

Lab Leader R&D in the department Synthesis & Homogeneous Catalysis

Coordination of 3 technicians, supervising safety, working schedule, yearly evaluation, lab management, project management.

01/02/2016–31/01/2018

**Scientific co-worker**

RWTH Aachen University, Aachen (Germany)

PhD in Organic Chemistry (PhD) at RWTH Aachen University (Aachen, Germany) under the supervision of Prof. Dr. Dieter Enders.

Topic: Organocatalytic Asymmetric Synthesis of Isochromanones, Tetranortriterpenoids and Pyrazolone Derivatives.

Funded by European Research Council (ERC Advanced Grant 320493 "DOMINOCAT")

10/2016–08/2017

**Teaching Assistant**

RWTH Aachen University, Aachen (Germany)

Teaching assistant for the didactic laboratory of Organic Chemistry "Organisch-chemisches Fortgeschrittenenpraktikum für Lehramtskandidaten" RWTH Aachen University

10/2015

**Research fellow**

Università degli Studi Roma Tre, Roma (Italy)

Scholarship as researcher in Università degli studi Roma Tre.

Topic: Organocatalysis applied to the synthesis of pyrrole-benzodiazepines total synthesis of hetero-polycyclic derivatives, which have shown an incredible biological activity against cancer cells. The development and optimization of a 12 steps procedure have led to the target scaffold.

04/2014–10/2014

**Research fellow**

Università degli Studi Roma Tre, Roma (Italy)

Scholarship as researcher.

Topic: Planning and preparation of chemical didactic experiments to introduce in MIUR LSOSA platform

09/2014

**Teaching Assistant**

Università degli Studi Roma Tre, Roma (Italy)

Two seminars for the undergraduate students of Chemistry and Laboratory on:

"Inorganic Compounds in water solution: solubility, fractional precipitation and crystallization"

"Chemical reactions: thermodynamic and kinetic aspects"

**EDUCATION AND TRAINING**


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01/02/2016–09/02/2018

**PhD in Organic Chemistry**

RWTH Aachen University, Aachen (Germany)

 PhD in Organic Chemistry *magna cum laude* at RWTH Aachen University, Aachen, Germany.

Funded by European Research Council (ERC Advanced Grant 320493 "DOMINOCAT")

Thesis: "Organocatalytic Asymmetric Synthesis of Isochromanones, Tetranortriterpenoids and Pyrazolone Derivatives"

Supervisor: Prof. Dr. Dieter Enders

10/2013–16/12/2015

**Master Degree (M.Sc.) in Chemistry**

Sapienza University of Rome, Rome (Italy)

 Master Degree (M.Sc.) *summa cum laude* in Chemistry, major in Organic and Biomolecular Chemistry, at "Sapienza" Università di Roma, Rome, Italy.

Thesis: "Organocatalytic Stereoselective synthesis of new 3-hydroxy-benzofuranones derivatives"

Supervisor: Dr. Tecla Gasperi, Prof. M.A. Loreto, Prof. A. Gambacorta

10/2010–16/07/2013

**Bachelor Degree (B.Sc.) in Chemistry**

Sapienza University of Rome, Rome (Italy)

Thesis: "Synthesis of new 3-hydroxy-2(3H)-benzofuranones"

Supervisor: Dr Tecla Gasperi, Prof. M.A. Loreto, Prof. A. Gambacorta

ADDITIONAL INFORMATION
 

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Publications **h-index 8, 324 citations.** (10/06/2021, WOS and Scopus)

- 19. Martina Bortolami, Leonardo Mattiello, Vincenzo Scarano, **Fabrizio Vetica**, Marta Feroci\*  
 “In Situ Anodically Oxidized BMIm-BF<sub>4</sub>: a Safe and Recyclable BF<sub>3</sub> Source”  
*Journal of Organic Chemistry*, **2021**, accepted.
- 18. Martina Bortolami, Francesca Leonelli, Marta Feroci, **Fabrizio Vetica**\*  
 “Step economy in the Stereoselective Synthesis of Functionalized Oxindoles via Organocatalytic Domino/One-pot Reactions”  
*Current Organic Chemistry*, **2021**, 11, 1321.
- 17. Martina Bortolami, Isabella Chiarotto, Leonardo Mattiello, Rita Petrucci, Daniele Rocco, **Fabrizio Vetica**, Marta Feroci  
 “Organic Electrochemistry: Synthesis and Functionalization of  $\beta$ -Lactams in the 21st Century”  
*Heterocyclic Communications*, **2021**, 32.
- 16. **Fabrizio Vetica**,\* Martina Bortolami, Rita Petrucci, Daniele Rocco, Marta Feroci\*  
 “Electrogenerated NHCs in organic synthesis: ionic liquids vs organic solvents effects”  
*The Chemical Record*, **2021**, DOI: 10.1002/tcr.202000178.
- 15. **Fabrizio Vetica**, Anna Sansone, Cesare Meliota, Gessica Batani, Marinella Roberti, Chryssostomos Chatgililoglu, Carla Ferreri  
 “Free radical-mediated formation of trans-cardiolipin isomers, analytical approaches for lipidomics and consequences for the structural organization of membranes”  
*Biomolecules*, **2020**, 10, 1189.
- 14. **Fabrizio Vetica**,\* Stephen Bailey, Mukesh Kumar, Suruchi Mahajan, Carolina von Essen, Kari Rissanen, Dieter Enders  
 “Palladium Catalyzed [3+2] Cycloaddition of Vinyl Aziridine and Indane-1,3 diones: Diastereo- and Enantioselective Access to Spiro-Pyrrolidines”  
*Synthesis*, **2020**, 52, 2038.
- 13. Katarzyna Taras-Goslinska†, **Fabrizio Vetica**†, Grażyna Wenska, Sebastian Barata-Vallejo, Virginia Triantakostanti, Bronisław Marciniak, and Chryssostomos Chatgililoglu  
 “Converging fate of the oxidation and reduction of 8-thioguanosine”  
*Molecules*, **2019**, 24, 3143.  
 †These authors contributed equally to the paper.
- 12. **Fabrizio Vetica**  
 “Organocatalytic Asymmetric Synthesis of Isochromanones, Tetranortriterpenoids and Pyrazolone Derivatives”  
 ISBN: 978-3-8439-3504-3. Verlag Dr. Hut, Munchen  
*PhD dissertation*, **2018**. (Deutsche Nationalbibliothek, ord. no. 1155056213)
- 11. Dieter Enders, Xiang-Yu Chen, Sun Li, **Fabrizio Vetica**, Mukesh Kumar  
 “N-Heterocyclic Carbene Catalyzed Domino Reactions via Two or More Activation Modes”  
*iScience*, **2018**, 1
- 10. **Fabrizio Vetica**, Pankaj Chauhan, Suruchi Mahajan, Gerhard Raabe, and Dieter Enders  
 “Asymmetric Organocatalytic Friedel-Crafts Hydroxyalkylation of Indoles Using Electrophilic Pyrazole-4,5-diones”  
*Synthesis*, **2018**, 50, 1039.
- 9. Qiang Liu, Xiang-Yu Chen, Sun Li, **Fabrizio Vetica**, Gerhard Raabe, and Dieter Enders

“Twostep synthesis of  $\alpha,\beta$ -unsaturated  $\gamma$ -amino acid esters via *N*-heterocyclic carbene-catalyzed [4+2] cycloaddition of enals and nitroso compounds”  
*Synthesis*, **2018**, 50, 127.

▪ 8. **Fabrizio Vetica**, Stephen Bailey, Pankaj Chauhan, Mathias Turberg, Adjmal Ghaur, Gerhard Raabe, and Dieter Enders

“Desymmetrization of Cyclopentendiones via Organocatalytic Cross-Dehydrogenative Coupling”  
*Advanced Synthesis & Catalysis*, **2017**, 359, 3729.

▪ 7. **Fabrizio Vetica**, Pankaj Chauhan, Simon Dochain, Dieter Enders

“Asymmetric organocatalytic synthesis of tetrahydropyrans and their application in total synthesis”  
*Chemical Society Review*, **2017**, 46, 1661.

▪ 6. Simon Dochain, **Fabrizio Vetica**, Rakesh Puttreddy, Kari Rissanen, and Dieter Enders

“Combining Organocatalysis and Lanthanide Catalysis: A Sequential One-Pot Quadrupole Domino/Diels-Alder Asymmetric Synthesis of Functionalized Tricycles”  
*Angewandte Chemie International Edition*, **2016**, 55, 16153; *Angewandte Chemie*, **2016**, 128, 16387.  
 This paper has been highlighted in: *Synfacts*, **2017**, 13, 0266.

▪ 5. **Fabrizio Vetica**, Jeanne Fronert, Rakesh Puttreddy, Kari Rissanen, and Dieter Enders

“Asymmetric organocatalytic synthesis of 4-amino-isochromanones via a direct one-pot intramolecular Mannich reaction”  
*Synthesis*, **2016**, 48, 4451.

▪ 4. **Fabrizio Vetica**, Renata Marcia de Figueiredo, Emilia Cupioli, Martina Miceli, Augusto Gambacorta, M. Antonietta Loreto, and Tecla Gasperi

“First Asymmetric Organocatalyzed Domino Friedel-Crafts/Lactonization Reaction in the enantioselective synthesis of the GABAB Receptor Modulator (S)-BHFF”  
*Tetrahedron Letters*, **2016**, 750.

▪ 3. **Fabrizio Vetica**, Renata Marcia de Figueiredo, Monica Orsini, Daniela Tofani, and Tecla Gasperi

“Recent Advances in Organocatalytic Cascade Reactions toward the Formation of Quaternary Stereocenters”  
*Synthesis*, **2015**, 47, 2139.

▪ 2. Tecla Gasperi, Monica Orsini, **Fabrizio Vetica**, Renata Marcia de Figueiredo

“Organocatalytic Asymmetric Multicomponent Reactions”  
*Multicomponent Reactions: Concepts and Applications for Design and Synthesis* (Eds Raquel P. Herrera, Eugenia Marquez Lopez), Wiley-VCH, Weinheim, **2015**, Chapter 2

▪ 1. **Fabrizio Vetica**, Alessandra Pelosi, Augusto Gambacorta, M. Antonietta Loreto, Martina Miceli and Tecla Gasperi

“Catalytic Friedel-Crafts/Lactonization Domino Reaction: a Facile Access to 3-Hydroxy-Benzofuran-2-one Scaffold”  
*European Journal of Organic Chemistry*, **2014**, 9, 1899.

## Conferences

▪ 6. Invited Talk at University of l'Aquila, May 2021.

▪ 5. Oral Communication. XXIX European Colloquium on Heterocyclic Chemistry (EHC2021), Virtual event, April 2021.

“Asymmetric organocatalysis and cascade reactions in the stereoselective synthesis of heterocyclic scaffolds”

▪ 4. Oral Communication. Visual Symposium for Young Organic Chemists of the Division of Organic Chemistry of the Italian Chemical Society (SCI-ViSYOChem 2020), Italy, November 2020.

" Asymmetric organocatalysis in the synthesis of heterocyclic scaffolds "

▪ 3. European Symposium on Organic Chemistry (ESOC), K.In (Germany), July 2017. Poster.

“Organocatalytic stereoselective one-pot direct Mannich reaction: access to new 4-amino-isochromanone derivatives

- 2. 9th New Year's Symposium, RWTH Aachen University, January 2017. Organising Committee
- 1. DOMINOCAT 1 Symposium, Aachen (Germany), September 2015. Short Lecture.  
"Asymmetric organocatalyzed domino Friedel-Crafts/lactonization: a direct synthesis of 3-OH-benzofuranone derivatives with a quaternary stereocenter"

## Participation in research projects

- "DOMINOCAT" ERC Advanced Grant 320493
- MIUR project LS-OSA, University of Roma Tre

## Teaching activities

- Appointed Lecturer of the course of the module Bioorganic Reaction Mechanisms of the course Bioorganic Chemistry, for the degree in Biochemistry (LM-9), Sapienza University of Rome, starting from academic year 2021/2022
- Evaluating referee for 1 PhD thesis in Biotechnological, Biocomputational, Pharmaceutical and Pharmacological Sciences XXXIII cycle, Alma Mater Studiorum - University of Bologna, academic year 2019/2020
- Supervisor of 4 master degree theses, Sapienza University of Rome
- Member of the final exam committee for the Bachelor and Master Degree in Chemistry, Sapienza University of Rome, starting from academic year 2020/2021
- Member of the exam committee for the course Organic Chemistry I, for the degree in Chemical Sciences (L-27), Sapienza University of Rome, starting from academic year 2020/2021
- Member of the exam committee for the course Bioorganic Chemistry, for the degree in Chemistry (LM-54), Sapienza University of Rome, starting from academic year 2020/2021
- Appointed Lecturer of the course of Organic Chemistry for the degrees in Environmental Sciences (L-32) and Technology for Conservation and Restoration of Cultural Heritage (L-43), Sapienza University of Rome, starting from academic year 2020/2021
- Teaching assistant with contract for the course of "Laboratory of organic chemistry" (32 hours), Alma Mater Studiorum - University of Bologna, Bologna (Italy), academic year 2019/2020
- Teaching assistant with contract for the course of "Catalysis in organic synthesis" (40 hours), Alma Mater Studiorum - University of Bologna, Bologna (Italy), academic year 2019/2020
- Supervisor of 2 Master Students for their research internships, RWTH Aachen University
- Teaching assistant for the laboratory course of advances organic chemistry "OCF Lehramt Praktikum" RWTH Aachen University, 2017
- Teaching assistant for the laboratory course of advances organic chemistry "OCF Praktikum" RWTH Aachen University, 2016
- Teaching assistant at Università degli studi RomaTre with contract. Two seminars for the undergraduate students of Chemistry and Laboratory on: "Inorganic Compounds in water solution: solubility, fractional precipitation and crystallization"; "Chemical reactions: thermodynamic and kinetic aspects", 2014

## Editorial activities

- Member of the Editorial Board of the journal Symmetry (MDPI) as Topic Editor;
- Guest Editor for the Special Issue "New Frontiers in Asymmetric Organocatalysis" for the journal Symmetry (MDPI), 2021;
- Assistant Editor of the scientific journal "Asymmetric Catalysis", 2013-2017;
- Peer-reviewer for the following scientific journals:  
Synthesis, Thieme; Synlett, Thieme; SynOpen, Thieme; New Journal of Chemistry, RSC; Organic & Biomolecular Chemistry, RSC; Molecules, MDPI; Chemistry, MDPI; Green Chemistry, RSC.

## Honours and Awards

- Scholarship as researcher at Università degli studi Roma Tre. Organocatalysis applied to the synthesis of pyrrole-benzodiazepines. 2015
- "Worthy students scholarship" for the Master Degree studies. Istituto Nazionale Previdenza Sociale. 2015
- Scholarship as researcher at Università degli studi Roma Tre. Planning and preparation of chemical didactic experiments to introduce in MIUR LS-OSA platform. 2014
- "Homo Sapiens Sapiens - Worthy students scholarship" for the Bachelor Degree studies. Istituto Nazionale Previdenza Sociale. 2013

## Memberships

Italian Chemical Society (SCI) 2020 - Division Organ Chemistry, since 2020  
 American Chemical Society 2013-2018  
 Royal Society of Chemistry – Member RSC (MRSC) since 2021, Student Member 2013-2018

## Courses

- "ACS Reviewer Lab", January 2020, American Chemical Society
- "Specific safety training for high risk companies", February 2019, ATENA spa

- "General safety training" , January 2019, ATENA spa
- "Explorative statistical data analysis with JMP" , 2018, BASF SE
- "Leading yourself and others - leadership development" , 2018, BASF SE