

**UNIVERSITÀ DEGLI STUDI DI MILANO**

selezione pubblica per n. 1 posto di Ricercatore a tempo determinato in tenure track (RTT) per il settore concorsuale 03/C1 - Chimica Organica, settore scientifico-disciplinare CHIM/06 - Chimica Organica, presso il Dipartimento di SCIENZE FARMACEUTICHE, (avviso bando pubblicato sulla G.U. n. 73 del 26/09/2023), Codice concorso 5389

## **Fabio Morana**

### **CURRICULUM VITAE**

#### **INFORMAZIONI PERSONALI**

<b>COGNOME</b>	<b>MORANA</b>
<b>NOME</b>	<b>FABIO</b>
<b>DATA DI NASCITA</b>	<b>11/05/1986</b>

#### **Work experience**

Dates	09/2018 – to date
Occupation or position held	R&D Group Leader – Generics & Custom Synthesis
Dates	02/2017 – 08/2018
Occupation or position held	R&D Scientist (Project Leader) – Generics & Custom Synthesis Procos S.p.A. Cameri (NO), Italy
	Design of novel synthetic routes (patentable or non-patent infringing) of APIs, new chemical entities (NCEs) and advanced intermediates, laboratory feasibility and scale-up optimization for R&D and industrial plants.
Dates	06/2015 – 02/2017
Occupation or position held	R&D Scientist – Asymmetric Organic Synthesis Chemessentia srl – Chemo Group Novara, Italy
	Design of novel synthetic routes (patentable or non-patent infringing) of APIs, laboratory feasibility.
Dates	09/2014 – 06/2015
Occupation or position held	Post-doctoral Research Assistant “Activation Modes in Asymmetric Catalysis” Department of Organic Chemistry – Faculty of Chemistry and Pharmacy, University of Regensburg, Germany Supervisor: Prof. Dr. Ruth M. Gschwind
	Synthetic and mechanistic investigation of the most common activation modes in asymmetric organocatalysis by NMR spectroscopy.
Dates	03/2013 – 09/2014
Occupation or position held	Post-doctoral Research Assistant “Novel Syntheses of Molecules with Pharmaceutical Activity” Department of Chemistry and Industrial Chemistry, University of Genova, Italy Supervisor: Prof. Dr. Renata Riva Novel asymmetric patentable synthesis of an API.

Education	
Dates	01/2010 – 01/2013
Occupation or position held	<p>Ph.D. in “Chemical Sciences and Technologies”  Department of Chemistry and Industrial Chemistry, University of Genova, Italy  Supervisor: Prof. Luca Banfi  Thesis title: “Preparation of Optically Active Building Blocks <i>via</i> Asymmetric Organocatalysis and Their Application in Innovative Synthetic Strategies”  The commission evaluated the thesis and the overall activity as EXCELLENT</p> <p>Asymmetric organocatalysis, isocyanide-based multicomponent reactions, one-pot cascade reactions, phase-transfer catalysis</p>
Dates	06/2011 – 03/2012
Occupation or position held	<p>Visiting Ph.D. student  Department of Chemistry, Aarhus University, Denmark  Supervisor: Prof. Karl Anker Jørgensen</p> <p>Asymmetric synthesis, organocatalysis, formal total synthesis, domino reactions</p>
Dates	10/2007 – 10/2009
Title of qualification awarded	<p>Master degree (2-years degree) in Chemistry (Organic and Biomolecular)  Supervisors: Dr. Patrizia Gentili – Dr. Roberta Bernini  Thesis title: “Chemoselective oxidation of catechins and epicatechins by the Laccase/mediator system: synthetic and mechanistic aspects”</p> <p>05/2009  1 month in the Department of Agro-Biology and Agro-Chemistry, “University of Tuscia”, Viterbo, Italy</p>
Principal subjects/occupational skills covered	<ul style="list-style-type: none"> <li>• Organic synthesis</li> <li>• Bioorganic chemistry</li> <li>• Organic stereochemistry</li> <li>• Pharmaceutical chemistry</li> <li>• Spectroscopic techniques</li> </ul>
Name and type of organisation providing education and training	“Sapienza” University of Rome
Level in national or international classification	<b>110/110 cum laude</b>
Dates	10/2004 - 07/2007
Title of qualification awarded	<p>Bachelor degree (3-years degree) in Chemistry (Organic and Biomolecular)  Supervisor: Prof. Armandodoriano Bianco  Thesis title: “New polar chains for the synthesis of new water-soluble coronene and perilene derivatives as telomerase inhibitors”</p>
Principal subjects/occupational skills covered	<ul style="list-style-type: none"> <li>• General chemistry</li> <li>• Organic chemistry</li> <li>• Biochemistry</li> <li>• Physics</li> </ul>
Name and type of organisation providing education and training	“Sapienza” University of Rome

Level in national or international classification	<b>110/110 cum laude</b>
Dates	09/1999 - 07/2004
Title of qualification awarded	General Certificate of Education (Diploma di maturità)
Name and type of organisation providing education and training	Scientific High School "L.B. Alberti" (Naples)
Level in national or international classification	<b>100/100</b>

**Personal skills and competences**

Mother tongue(s) **Italian**

Other language(s)

<i>European level (*)</i>	<b>Understanding</b>		<b>Speaking</b>		<b>Writing</b>
	Listening	Reading	Spoken interaction	Spoken production	
<b>English</b>	Excellent	Excellent	Excellent	Excellent	Excellent
<b>French</b>	Basic	Good	Basic	Basic	Basic

Skills and competences

- Thinking outside the box
- Tenacity, clear motivation and focus on achieving results (problem solving)
- Ability of working with high workload and tight timelines
- Marked propensity to coordinate project teams
- Collaborative spirit and excellent relationship and communication skills
- High reliability, attention to details and timelines on assignments
- Capacity of autonomously planning work projects and delivery times (reports, proposals)
- Strong tendency to the interdisciplinary collaboration
- Public speaking
- Interacting with individuals from diverse backgrounds
- Team building

Technical skills and competences

- NMR
- IR
- GC-MS
- GC (both achiral and chiral stationary phase for the separation of enantiomers)
- HPLC (both achiral and chiral stationary phase for the separation of enantiomers)
- UV spectroscopy
- Glove-box facilities
- Ionic exchange resins
- Polarimetry
- Flash chromatography

Computer skills and competences

- Microsoft Office Package (Word, Excel, Powerpoint, Publisher)
- Molecular drawing programs (ChemDraw)
- Reaxys (Beilstein)
- SciFinder
- Espacenet
- NMR softwares (Mestrenova, Topspin)

Driving licence

European B driving licence

All the papers are published in leading and high-quality peer-reviewed scientific journals.

**Scientific Publications**

*Original Publications on ISI Journals & Patents*

- 1) "Organocatalytic Asymmetric Synthesis of  $\beta$ -Aryl- $\beta$ -isocyanoesters" F. Morana, A. Basso, M. Bella, R. Riva, L. Banfi, *Adv. Synth. Catal.*, **2012**, 354 (11-12), 2199.  
<https://doi.org/10.1002/adsc.201200140>
- 2) "The *Homo*-PADAM Protocol: Stereoselective and Operationally Simple Synthesis of  $\alpha$ -Oxo- or  $\alpha$ -Hydroxy- $\gamma$ -acylaminoamides and Chromanes" F. Morana, A. Basso, R. Riva, V. Rocca, L. Banfi, *Chem. Eur. J.*, **2013**, 19 (14), 4563.  
<https://doi.org/10.1002/chem.201300023>
- 3) "Organophosphorus Reagents in Organocatalysis: Synthesis of Optically Active  $\alpha$ -Methylene- $\delta$ -lactones and  $\delta$ -Lactams" A. Albrecht, F. Morana, A. Fraile, K. A. Jørgensen, *Chem. Eur. J.*, **2012**, 18 (33), 10348.  
<https://doi.org/10.1002/chem.201201325>
- 4) "Asymmetric Synthesis of  $\gamma$ -Nitroesters by an Organocatalytic One-Pot Strategy" K. L. Jensen, P. H. Poulsen, B. S. Donslund, F. Morana, K. A. Jørgensen, *Org. Lett.*, **2012**, 14 (6), 1516; highlighted by Synfacts, **2012**, 8 (5), 561.  
<https://doi.org/10.1021/ol3002514>
- 5) "Selective Access to Both Diastereoisomers in an Enantioselective Intramolecular Michael Reaction by Using a Single Chiral Organocatalyst and Application in the Formal Total Synthesis of (-)-Epibatidine" K. L. Jensen, C. F. Weise, G. Dickmeiss, F. Morana, R. L. Davis, K. A. Jørgensen, *Chem. Eur. J.* **2012**, 18 (38), 11913.  
<https://doi.org/10.1002/chem.201202353>
- 6) "Chemoselective C-4 Aerobic Oxidation of Catechin Derivatives Catalyzed by the *Trametes villosa* Laccase/1-Hydroxybenzotriazole System: Synthetic and Mechanistic Aspects" R. Bernini, F. Crisante, P. Gentili, F. Morana, M. Pierini, M. Piras, *J. Org. Chem.*, **2011**, 76 (3), 820.  
<https://doi.org/10.1021/jo101886s>
- 7) "Unexpected Different Chemoselectivity in the Aerobic Oxidation of Methylated Planar Catechin and Bent Epicatechin Derivatives Catalyzed by the *Trametes villosa* Laccase/1-Hydroxybenzotriazole System" P. Gentili, R. Bernini, F. Crisante, S. Menta, F. Morana, M. Pierini, *RSC Adv.*, **2014**, 4 (16), 8183.  
<https://doi.org/10.1039/C3RA47753C>
- 8) "Remote-Stereocontrol in Dienamine Catalysis: Z-Dienamine Preferences and Electrophile-Catalyst Interaction Revealed by NMR and Computational Studies" A. Seegerer, J. Hioe, M. M. Hammer, F. Morana, P. J. W. Fuchs, R. M. Gschwind, *J. Am. Chem. Soc.*, **2016**, 138 (31), 9864.  
<https://doi.org/10.1021/jacs.6b04008>
- 9) "Brønsted Acid Catalysis – Structural Preferences and Mobility in Imine/Phosphoric Acid Complexes" J. Greindl, J. Hioe, N. Sorgenfrei, F. Morana, R. M. Gschwind, *J. Am. Chem. Soc.*, **2016**, 138 (49), 15965.  
<https://doi.org/10.1021/jacs.6b09244>
- 10) "NMR Spectroscopic Characterization of Charge Assisted Strong Hydrogen Bonds in Brønsted Acid Catalysis" N. Sorgenfrei, J. Hioe, J. Greindl, K. Rothermel, F. Morana, N. Lokesh, R. M. Gschwind, *J. Am. Chem. Soc.*, **2016**, 138 (50), 16345.  
<https://doi.org/10.1021/jacs.6b09243>
- 11) "Enzymatically Promoted Release of Organic Compounds Linked to Magnetic Nanoparticles" C. Lambruschini, S. Villa, L. Banfi, F. Canepa, F. Morana, A. Relini, P. Riani, R. Riva, F.

Silvetti, *Beilstein J. Nanotechnol.*, **2018**, 986.  
<https://doi.org/10.3762/bjnano.9.92>

- 12) "Unprecedented Mechanism of an Organocatalytic Route to Conjugated Enynes with a Junction to Cyclic Nitronates" V. Streitferdt, M. H. Haindl, J. Hioe, F. Morana, P. Renzi, F. von Rekowski, A. Zimmermann, M. Nardi, K. Zeitler, R. M. Gschwind, *Eur. J. Org. Chem.*, **2019**, 328. Highlighted as Very Important Paper.  
<https://doi.org/10.1002/ejoc.201801153>
- 13) "Internal acidity scale and reactivity evaluation of chiral phosphoric acid with different 3,3'-substituents in Brønsted acid catalysis" K. Rothermel, M. Melikian, J. Hioe, J. Greindl, J. Gramüller, M. Žabka, N. Sorgenfrei, T. Hausler, F. Morana, R. M. Gschwind, *Chem. Sci.*, **2019**, 10, 10025.  
<https://doi.org/10.1039/C9SC02342A>
- 14) "Processes for the Preparation of Diastereomerically and Enantiomerically Enriched Oxazolines" G. Barreca, M. Rasparini, L. Carcone, F. Morana, WO2017081206A1.
- 15) "Racemic Beta-Aminosulfone Compounds" G. Barreca, G. Marras, F. Morana, WO2018184933A1.
- 16) "Process for the Preparation of the Crystalline Form III of Tipiracil Hydrochloride" F. Morana, S. Gobbato, L. Cozzi, J. Roletto, P. Paissoni, WO2019086292A1.
- 17) "Process for the Synthesis of 6-Chloromethyluracil" F. Morana, S. Gobbato, J. Roletto, P. Paissoni, WO2019166901A1.
- 18) "Process for Asymmetric Synthesis of (*R*)-4-propyldihydrofuran-2-(3*H*)-one" F. Morana, J. Roletto, P. Paissoni, WO2019239341A1.
- 19) "Process for the Synthesis of Carglumic Acid" F. Morana, V. Grande, S. Gobbato, J. Roletto, P. Paissoni, WO2020075082A1.
- 20) "New Process for Preparing Sugammadex" F. Morana, J. Roletto, P. Paissoni, WO2020217207A1.
- 21) "Novel Process for Preparing Solriamfetol Hydrochloride" D. Gornati, F. Morana, J. Roletto, P. Paissoni, WO2022084834A1.
- 22) "Process for Preparing SHP2 Inhibitors" F. Morana, D. Gornati, J. Roletto, WO2023192112A1.

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### Communications at Conferences

#### Oral communications

"Organocatalytic asymmetric synthesis of  $\beta$ -aryl- $\beta$ -isocyanoesters", Giornate Italo-Francesi della Chimica 2012, Marseille (France), 16-17/4/2012

#### Posters

"Organophosphorus Reagents in Organocatalysis: Synthesis of Optically Active  $\alpha$ -Methylene- $\delta$ -lactones and  $\delta$ -Lactams", IASOC 2012, Ischia (Italy), 22-26/9/2012

"Reduction of an ester to aldehyde in CSTR: from laboratory to industrial plant", SCS Seminar on Flow Chemistry 2022, Freiburg (Switzerland), 27-29/06/2022

### Congresses attended

- CATAFLU. OR, Bologna, 24-25/3/2011
- Giornate Italo-Francesi della Chimica 2012, Marseille (France), 16-17/4/2012
- 27<sup>th</sup> European Colloquium on Heterocyclic Chemistry, Amsterdam (The Netherlands), 03-06/07/2016
- Scientific Update: Catalysis in the Fine Chemicals Industry, Lucerne (Switzerland), 14-15/05/2019

**National and International Schools or Workshops**

- XXV Scuola Estiva di Sintesi Organica "A. Corbella", Gargnano (BS), 14-18/6/2010
- X Laboratorio di Metodologie Sintetiche in Chimica Farmaceutica, Siena, 13-17/2/2011
- Ischia Advanced School of Organic Synthesis (IASOC) 2012, Ischia (NA), 22-26/9/2012
- Ischia Advanced School of Organic Synthesis (IASOC) 2018, Naples (NA), 22-25/9/2018

**Teaching Assistance**

- "Organic Chemistry 2 with Laboratory" (Bachelor Degree in Chemistry and Chemical Technologies, 2010/2011)
- "Organic Chemistry with Laboratory" (Bachelor Degree in Biotechnologies, 2011/2012)
- "Organic Chemistry 2 with Laboratory" (Bachelor Degree in Chemistry and Chemical Technologies, 2012/2013)

I have several interests outside the working field: I played the lead electric guitar in a rock band and I studied piano for four years. I like to run, to travel and to spend my spare time with the people I love.

I agree to the processing of personal data according to the D. lgs 196/2003