University Academic Curriculum Vitae

Personal Information

Name: Stefano Benini
Place and date of birth: Ferrara 19.08.1964
Nationality: Italian

Education:

- 1991 Master in Agricultural Science (Laurea quinquennale) 108/110, University of Bologna (Italy)
- 2001 PhD in Chemistry, EMBL Hamburg (DE) / University of York (UK)

Current Academic Position at UNIBZ:

Assistant Professor in Organic Chemistry at the Faculty of Science and Technology (since 15.03.2009).Teacher of the six credits course "Chimica Organica" for the Bachelor in Agricultural and Agro-Environmental Sciences.

Obtained the habilitation to Associate Professor in 2013

Previous academic positions:

2005-2007 Postdoctoral research assistant in the group of Dr. Alfred Antson (York Structural Biology Laboratory, University of York, York, UK) on the determination of the crystal structure of G1P and G2P. These two proteins are involved in the recognition, processing and insertion of the viral DNA into the capsid of *Bacillus subtilis* bacteriophages SPP1 and SF6. I solved the structure of the DNA binding domain of G1P at 1.58 Å and obtained crystals of the nuclease domain of G2P diffracting to 1.9 Å. I was responsible for the supervision of a technician and of graduate students.

2002-2005 Postdoctoral research assistant (York Structural Biology Laboratory, University of York, York, UK) in the group of Professor Keith Wilson York Structural Biology Laboratory (YSBL) on structural and functional genomics of *Mycobacterium tuberculosis* (MTB) from target selection to structure solution. Despite the solubility problems of MTB proteins I was able to clone several genes and to solve the crystal structures of the FMN binding protein Rv2991 (2.0 Å), and the inorganic pyrophosphatase Rv3628 at pH 5.0 (1.3 Å) and 7.0 (1.5 Å).

2000-2002 Postdoctoral research assistant at the International Centre for Genetic Engineering and Biotechnology (ICGEB) Trieste (Italy) in the group of Professor Arturo Falaschi working on the human DNA binding protein KU. I was responsible for the purification and refolding of KU for structural studies as well as the supervision of graduate students.

1996-2000 PhD student in protein crystallography at the European Molecular Biology Laboratory (Hamburg)-University of York, UK

1992-1996 research assistant in the group of Professor Stefano Ciurli

(University of Bologna). I worked on the purification and characterisation of proteins from different sources (plants and bacteria) and supervising undergraduate students.

Non-academic experience

2007-2009 Protein crystallographer in the pharmaceutical company AstraZeneca in the group lead by Doctor Richard Pauptit.

Teaching

- **Supervision of students´ thesis at UNIBZ**

Joseph Dale Bartho PhD student "PhD Programme in Mountain Environment and Agriculture" (2013-2016)

Ivan Polsinelli PhD student "PhD programme in Mountain Environment and Agriculture" (from 2015)

- **Other teaching activity**

"Junior Uni" (laboratory experiments for children, June and November 2011).

- Acids-bases experiments
- elettrochemistry

Academic responsibilities

- Established the "Bioorganic chemistry and Bio-Crystallography laboratory (B_2Cl)" c/o the Faculty of Science and Technology (2009).
- Tutor for the students of the Bachelor in "Agricultural and Agro-Environmental Sciences", Faculty Science and Technology, Free University of Bolzano (from 2010)
- Elected "Rappresentante dei Lavoratori per la Sicurezza (RLS)" of the Free University of Bolzano (from 2010)
- Responsible for the establishment of a scientific and didactic agreement between doctorate schools: "Mountain Environment and Agriculture/Management of Mountain Environment at the Faculty of Science and Technology and the doctorate school in "Biomolecular science",at the Centro Interdipartimentale per la Biologia Integrata (CIBIO) University of Trento (Prof. Paolo Macchi).
- Prepared the document for the "notifica di impianto per Microrganismi Geneticamente Modificati (MOGM) di classe 1" for the Faculty of Science and Technology thus allowing scientist to use MOGM for molecular biology techniques in their research/teaching.
- Established a Material Transfer Agreement between the Free University of Bolzano and the Arizona State University to obtain and use plasmidic DNA for research (2012).
- Established a Material Transfer Agreement between the "Bioorganic chemistry and Bio-Crystallography Laboratory ", Faculty of Science and Technology, Free University of Bolzano and European Molecular Biology Laboratory (EMBL) to obtain and use plasmidic DNA for research (2012).

- Established a Material Transfer Agreement between the Free University of Bolzano and the John Innes Centre (Norwich , UK) to give and allow to use plasmidic DNA (pETM30::GalE) for research (2016)
- Member of the Council of the Faculty of Science and Technology.
- Member of the Laboratory Commission Faculty of Science and Technology, Free University of Bolzano (from 2010 to 2013)
- Member of the Research Commission Faculty of Science and Technology, Free University of Bolzano (from 2011-2014).
- Member of the Commission for the admission to the Bachelor course "Agricultural and Agro-Environmental Sciences. (L25)" Faculty of Science and Technology, Free University of Bolzano (2010-2012).
- Member of the Commission for the admission to the Erasmus programme Faculty of Science and Technology, Free University of Bolzano (2010-2011)
- Member of the Commission for a research assistant call (November 2010).
- Member of the Commission for a postdoctoral research assistant call (assegno di ricerca, SSD CHIM06, June 2012)
- Member of the PhD Commission "Collegio dei Docenti" in "Management of Mountain Environment" aa. 2010-2011 and della scuola di dottorato in "Mountain Environment and Agriculture" (aa. 2012-2013 e aa. 2013-2014) Faculty of Science and Technology, Free University of Bolzano.
- Member of the Commission for the admission to the PhD programme in "Biomolecular Science" 27° ciclo (aa. 2011-2012), of the University of Trento.
- Coordinator for the Faculty of Science and Technology: "La lunga notte della Ricerca" (2010 and 2012).
-

Research **Summary of significant achievements**

With my research I greatly contributed to a deeper understanding of the role of Nickel in the enzymatic catalysis of urea and to a better understanding of Nickel homeostasis in bacteria (see the list of publications). With the structure solution by X-ray crystallography of the urease from *Sporosarcina pasteurii* (previously known as *Bacillus pasteurii*) in the native form and in complex with several inhibitors I enabled the proposal of a reaction mechanism which is now widely accepted by the scientific community as it reconciles biochemical and structural data. The paper reporting the structure of urease and the proposed reaction mechanism was cited 258 times according to Scopus (S. Benini, W. R. Rypniewski, K. S. Wilson, S. Miletti, S. Ciurli , S. Mangani. A New Proposal for Urease Mechanism Based on the Crystal Structures of the Native and the Inhibited Enzyme from Bacillus pasteurii: Why Urea Hydrolysis Costs Two Nickels. Structure, (1999), 7, 205-216). I solved several crystal structures of proteins from different sources (e.g., *Mycobacterium tuberculosis*, *Bacillus subtilis* bacteriophages SF6, *Rhodoferax fermentans*, *Rubrivivax gelatinosus, Helicobacter pilory*, etc.,) the coordinates and the structure factors are deposited in Protein Data Bank and are accessible to the public (PDB,

http://www.rcsb.org).

In Bolzano I established the "Bioorganic chemistry and Bio-Crystallography laboratory (B_2Cl)", and I am responsible of a research group dealing with the study of proteins from *Erwinia amylovora*, the bacteria responsible for the fire blight disease in apple and pear trees of high importance for South Tyrol. The main line of research deals with a series of pathogenicity factors including the proteins belonging to the biosynthetic pathway of the exopolysaccharide amylovoran. The first results were the complete characterization of the enzymatic properties and product spectrum of the enzyme levansucrase and the determination of its crystal structure at 2.7 Å resolution (see list of publications). At the beginning of January 2014 X-ray data have been collected at the EMBL beamlines of PETRAIII ofsome of our targets. The strucures of the enzyme Glucose-1-phosphate uridylyltransferase (GalU) has been solved to 2.5 Å and the tyrosine phosphatase AmsI involved in the regulation of amylovoran production has been solved at 1.57 Å. GalU and AmsI were biochemically characterized either in our laboratories or in collaborating institutions (John Innes Centre, Norwich UK).
In 2015 we collected data at the DIAMOND synchrotron (UK) and ELETTRA synchrotron (Trieste), and six more structures were solved in our laboratory, the regulator of amylovoran biosynthesis AmyR, the cysteine protease AvrRpt2, the proteins of the siderophore desferrioxamine biosynthetic pathway (DfoJ, DfoA, DofC) and the sorbitol-6-phosphate dehydrogenase SrlD.

Summary of proteins from *Erwinia amylovora* of which the crystal structure has been by us solved so far:

name	function	PDB code
Lsc	levansucrase	4D47
Avrpt2	Effector and Cysteine protease	not deposited yet
AmsI	Amylovoran regulator	4D74
DfoA	Siderofore synthesis	not deposited yet
DfoC	Siderofore synthesis	not deposited yet
DfoJ	Siderofore synthesis	not deposited yet
GalU	Glucose-1-phosphate uridylyltransferase	4D48

SrlD	sorbitol-6-phosphate dehydrogenase	not deposited yet
AmyR	Regulator of amylovoran production	5FR7

List of Research grants and contracts as PI

Date granted	Role	Funding Body	Title	Amount received €
2009	Principal investigator	Facoltà di Scienze e Tecnologie, Libera Università di Bolzano	Molecular basis of chemicals and odorants recognition in the insect model organism *Tribolium castaneum* by structural biology of chemoreceptor proteins	4692
2010	Principal investigator	Libera Università di Bolzano	*Erwinia amylovora*'s Secretome (EraSe). Structural and functional study of the secreted proteins of *E. amylovora*, the causative agent of fire blight	42800
2011	Principal investigator	Provincia Autonoma di Bolzano	La Genomica Strutturale per lo Studio della Virulenza e Patogenesi di *Erwinia amylovora*	179600
2011	Principal investigator	Fondazione Libera Università di Bolzano	A Structural genomics approach for the study of *Erwinia amylovora* virulence and pathogenesis	29600
2012	Principal investigator	Libera Università di Bolzano	Galactose and glucuronic Acid Metabolism in	31822

			Erwinia spp. (GAMEs)	
2012	Principal investigator	Fondazione Libera Università di Bolzano	Galactose and glucuronic Acid Metabolism in *Erwinia spp.* (GAMEs)	29600
2014	Principal investigator	Libera Università di Bolzano	Molecular engineering of the structural and catalytic properties of levansucrase (Mescal)	72000
2016	Principal investigator	Libera Università di Bolzano	Investigating the Molecular Properties of AmsI from *Erwinia amylovora*. Control of fire blight by AmsI inhibition, towards a sustainable phytosanitary strategy (IMPACTS)	38000
2017	Principal investigator (coordinator Stefan Martens FEM-IASMA)	Euregio Science Fund, Interregional Project Network	Exploring the potential of apple dihydrochalcones ExPoApple2	106.050

Citation statistics from Scopus (19/04/2017)
Total number of citations: 1270
Most cited paper (Benini et al. 1999): 267
H-index: 15

ORCID: 0000-0001-6299-888X;

Publications over the last 10 years in chronological order within each category:

- **Articles in international refereed journals**

- Borruso L., Salomone-Stagni M., Polsinelli I, Schmitt A.,O., Benini S. Conservation of *Erwinia amylovora* pathogenicity-relevant genes among *Erwinia* genomes. (2017) Archives of microbiology accepted for publication

- Bartho, J. D., Bellini D., Wuerges J., Demitri N., Toccafondi M,

Schmitt A. O., Zhao Y, Walsh M A., Benini S. The crystal structure of *Erwinia amylovora* AmyR, a member of the YbjN protein family, shows similarity to type III secretion chaperones but suggests different cellular functions. PLoS ONE (2017) 12(4): e0176049 https://doi.org/10.1371/journal.pone.0176049

- Salomone-Stagni, M., Musiani, F. and Benini, S. Characterization and 1.57 Å resolution structure of the key fire blight phosphatase AmsI from Erwinia amylovora Acta Cryst. (2016). F 72, 903-910 https://doi.org/10.1107/S2053230X16018781

- Mazzei, L.; Cianci, M.; Benini, S.; Bertini, L.; Musiani, F.; Ciurli, S. Journal of Inorganic Biochemistry 2016 , 154, 42–49 DOI 10.1016/J.JINORGBIO.2015.11.003

- Wuerges, J., Caputi, L., Cianci, M., Boivin, S., Meijers, R., Benini, S. The crystal structure of *Erwinia amylovora* levansucrase provides a snapshot of the products of sucrose hydrolysis trapped into the active site Journal of Structural Biology 191 (2015), pp. 290-298 DOI: 10.1016/j.jsb.2015.07.010

- *Wagstaff,,B. A.,, Rejzek M., Tedaldi, L.M., Caputi L., O'Neill E.C., Benini S., Wagner G. K., Field R. A. Enzymatic synthesis of nucleobase-modified UDP-sugars: scope and limitations. Carbohydrate Res. In press (2014)*

- *Toccafondi M., Cianci M., Benini S. Expression, purification, crystallization and preliminary X-ray analysis of glucose-1-phosphate uridylyltransferase (GalU) from Erwinia amylovora Acta Crystallographica Section F: Structural Biology Communications, Volume 70, Part 9, pages 1249-1251 (2014).*

- *Benini S., Cianci M., Mazzei L., Ciurli S. Fluoride inhibition of Sporosarcina pasteurii urease: structure and thermodynamics. J. Biol. Inorg. Chem., in press (2014).*

- L. Caputi, S. A. Nepogodiev, M. Malnoy, M. Rejzek, R.A. Field, S: Benini. Biomolecular Characterization of the Levansucrase of *Erwinia amylovora*, a Promising Biocatalyst for the Synthesis of Fructooligosaccharides *J. Agric. Food Chem.,* (2013), 61, 12265−12273,

- L. Caputi, M. Cianci, S. Benini. Cloning, expression, purification, crystallization and preliminary X-ray analysis of EaLsc, a levansucrase from *Erwinia amylovora*. *Acta Cryst.* (2013), F69, 570-573

- S. Benini, M. Chechik, M. Ortiz Lombardìa, S. Polier, A. Leech, M. B. Shevtsov, and J. C. Alonso. The 1.58 Å resolution structure of the DNA-binding domain of bacteriophage SF6 small terminase provides new hints on DNA binding. *Acta Cryst.* (2013), F69, 376-381.

- S. Benini, P. Kosikowska, M. Cianci, L. Mazzei, A. Gonzalez Vara, Ł. Berlicki, and S. Ciurli. The crystal structure of *Sporosarcina pasteurii* urease in complex with citrate provides new hints for inhibitor design. *J. Biol. Inorg. Chem.* (2013), 18, 391-399

- C. R. Büttner, M. Chechik, M. Ortiz-Lombardía, C. Smits, I. Ebong, V. Chechik, G. Jeschke, E. Dykeman, S. Benini, C. V. Robinson, J. C. Alonso, and A. A. Antson. Structural basis for DNA recognition and loading into a viral packaging motor. *PNAS.*, (2012), 109, 811-816

- B. Zambelli, F. Musiani, S. Benini, and S.Ciurli. Chemistry of $Ni^{(2+)}$ in urease: sensing, trafficking, and catalysis. *Accounts of chemical research* (2011**),** 44, 520-530

- S. Benini, M. Cianci, and S. Ciurli. Holo-Ni2+ *Helicobacter pylori* NikR contains four square-planar nickel-binding sites at physiological pH. *Dalton Trans.*, (2011), 40, 7831-7833

- S. Benini, and K. S. Wilson. Structure of the *Mycobacterium tuberculosis* soluble inorganic pyrophosphatase Rv3628 at pH 7.0. Acta Cryst. (2011). F67, 866–870

- S. Benini, W. R. Rypniewski, K. S. Wilson, and S. Ciurli. High Resolution Crystal Structure of *Rubrivivax gelatinosus* cytochrome *c'*. *J. Inorg. Bioch.* (2008), 102, 1322-1328.

- M. Tammenkoski, S. Benini, N. N. Magretova, A. A. Baykov, and R. Lahti. An Unusual, His-dependent Family I Pyrophosphatase from *Mycobacterium tuberculosis*. *J. Biol. Chem.* (2005), 280, 41819-41826.

- S. Benini, W. R. Rypniewski, K. S. Wilson, S. Mangani and S. Ciurli. Molecular Details of Urease Inhibition by Borate: Insights into the catalytic Mechanism. *J. Am. Chem Soc.* (2004), 126, 3714-3715.

Books and contribution to books

- S. Benini, F. Musiani and S. Ciurli (2013). Urease. In: Kretsinger RH, Uversky VN, Permyakov EA (eds). Encyclopedia of Metalloproteins. Springer, New York, pp. 2287-2292, ISBN: 978-1-4614-1532-9 (Print) 978-1-4614-1533-6 (Online)

- S. Benini, (2010), Structure and function of urease and cytochrome c-553. Saarbruecken, DE: ed. LAP Lambert Academic Publishing, ISBN: 978-3-8383-6498-8

Presentations at scientific conferences over last 10 years as invited speaker or as oral presentation (please indicate if keynote or oral and the conference details)

Oral presentations:

Thirteen International Workshop on Fire Blight, Zurich Switzerland 02-05/07/2013, "Investigating the molecular basis of fire blight by structural and functional genomics of *Erwinia amylovora"*.

1st International Workshop: Molecular Basis of Fire Blight, Bolzano 15/10/2014, "Structural and functional characterization of enzymes involved in the biosynthesis of amylovoran",

1st International Symposium on Fire Blight of rosaceous plants (ISFB2016) Girona, Spain 5-8 July 2016, Towards the understanding of iron uptake and siderophore biosynthesis in *Erwinia amylovora*. Ivan Polsinelli, Marco Salomone-Stagni, Joseph Dale Bartho and Stefano Benini

1st International Symposium on Fire Blight of rosaceous plants (ISFB2016) Girona, Spain 5-8 July 2016, The structural biology of *Erwinia amylovora* desferrioxamine biosynthetic pathwayat a glance. Marco Salomone-Stagni, Joseph Dale Bartho and Stefano Benini

Development of international, national local cooperation in research after the beginning of the activity at UNIBZ (provide details)

Dr Michele Cianci European Molecular Biology Laboratory, Hamburg Outstation, Hamburg, Germany.
X-ray data collection and analysis.

Dr Rob Meijers European Molecular Biology Laboratory, Hamburg, Germany.
Protein characterization and crystallization by using robotics.

Lukasz Berlicki Laboratory of Bioorganic Chemistry Faculty of Chemistry, Wroclaw University of Technology, Wroclaw, Poland.
Inhibition study on *Sporosarcina pasteurii* urease and *Erwinia amylovora* AmsI

Dr Mickael Malnoy Fondazione E. Mach IASMA S. Michele all'adige Trento, Italy.
Collaboration on the study of *Erwinia amylovora* proteins

Professor Robert Field, Department of Biological Chemistry, John Innes Centre Norwich Research Park UK.
Characterization of enzymes active on carbohydrates and of their products.

Dr Richard J. Morris, Department of Computational and Systems Biology, John Innes Centre Norwich Research Park UK.
Mathematical modelling of enzymes active on carbohydrates (e.g., levansucrase from *E. amylovora*).

Fabio Rezzonico, Zürcher Hochschule für Angewandte Wissenschaften, Wädenswil, (CH)

Theo Smits, Zürcher Hochschule für Angewandte Wissenschaften, Wädenswil, (CH)

Youfu Zhao, Department of Crop Sciences University of Illinois at Urbana-Champaign (USA).

Andreas Peil, Julius Kuehn-Institute, Federal Research Centre for Cultivated Plants, Dresden (DE)

Organization of conference and workshops (please indicate the conference details and the individual contribution)

Organizer of the:

First International workshop: "Molecular Basis of Fire Blight" Bolzano 15.10.2014

List of speakers:

Joel L. Vanneste, Institute for Plant & Food Research, Hamilton, (NZ)
Fabio Rezzonico, Zürcher Hochschule für Angewandte Wissenschaften,
Theo Smits, Zürcher Hochschule für Angewandte Wissenschaften, Wädenswil, (CH)
Youfu Zhao, Department of Crop Sciences University of Illinois at Urbana-Champaign, (USA)
Heidi Halbwirth, Institute für Verfahrenstechnik, Umwelttechnik und
Roberto Kron Morelli, Agrifutur plc, (IT)
Mickael Malnoy, Fondazione Edmund Mach, San Michele all'Adige, Trento (IT)
Henryk Flachowsky, Julius Kuehn-Institute, Federal Research Centre for Cultivated Plants, Dresden (DE)
Andreas Peil, Julius Kuehn-Institute, Federal Research Centre for Cultivated Plants, Dresden (DE)
Florian P. Seebeck, Department of Chemistry University of Basel (CH)
Robert A. Field Department of Biological Chemistry, John Innes Centre, Norwich (UK)
Stefano Benini, Faculty of Science and Technology, Free University of Bolzano (Italy)
Francesco Spinelli University of Bologna

Speakers invited for the Series of lectures at unibz

- Professor Rob Field, Department of Biological Chemistry, John Innes Centre Norwich Research Park UK 05/03/2013: "Understanding starch metabolism: plant health, food, fuel and the price of beer"
- Dr Melinda Mayer, Food Institute, Norwich Research Park (UK) 26/03/2015: "Exploiting Bacteria in food production and health"

- Dr Emilio Parisini Center for Nano Science and Technology – Istituto Italiano di Tecnologia (Milano), 23/11/2015: "Molecular bases of cadherin-mediated cell-cell adhesion"
- Dr. Fabio Rezzonico, Research Group for Environmental Genomics and Systems Biology, Institute for Natural Resource Sciences, Zürich University of Applied Sciences ZHAW, Wädenswil, Switzerland 13/04/2016 Evolutionary genomics of fire blight pathogen Erwinia amylovora

Third Mission Seminars:

13/02/2015 Lezione: "La cristallografia a raggi X per studiare la struttura delle proteine"
Realgymnasium Meran, Karl Wolfstr. Nr. 36 Meran - Aula Magna

07/12/2015 Seminar: Structural and functional characterization of enzymes and proteins involved in the pathogenicity of *Erwinia amylovora*
Kutateladze Institute of Pharmacochemistry, Tbilisi Georgia

23/02/2016 Lezione: "La cristallografia a raggi X per studiare la struttura delle proteine"
Realgymnasium Meran, Karl Wolfstr. Nr. 36 Meran - Aula Magna

Participation to third Mission initiatives

Lunga note della ricerca 2014: A spasso tra gli atomi
Lunga notte della ricerca 2016: Non è più il tempo degli oracoli!

Coordination of a research team and supervision of post-docs (please indicate details and names).

Coordinator of the "Bioorganic Chemistry and Bio-Crystallography laboratory (B_2Cl)"

Supervisor of the following post-docs:

- Dr Daniela De Luchi, 2011-2012 (project EaSe)
- Dr Lorenzo Caputi, 2012-2013 project: La Genomica Strutturale per lo Studio della Virulenza e Patogenesi di *Erwinia amylovora* (provincia autonoma Bolzano)
- Dr Marco Salomone-Stagni, 2012 -2014 project: La Genomica Strutturale per lo Studio della Virulenza e Patogenesi di *Erwinia amylovora* (provincia autonoma Bolzano and Fondazione Libera Università di Bolzano). 2015- project Mescal (unibz) Dr Mirco Toccafondi, 2013-2015 project Galactose and glucuronic Acid Metabolism in *Erwinia spp.* (GAMEs) Free University of Bolzano and Fondazione Libera Università di Bolzano)
- Dr Jochen Würges, 2014 La Genomica Strutturale per lo Studio della Virulenza e Patogenesi di *Erwinia amylovora* (provincia autonoma Bolzano)

- Luigimaria Borruso 2016-2017 Bioinformatics analysis of *Erwinia amylovora* strains genome sequences (BioinfEa) (unibz)

Other activities (e.g. role in scientific societies; editorial activity for Journals)

- Member of the Commission for the award of the Associazione Italiana di Cristallografia Prize 2016 for the best PhD thesis in crystallography

Referee for the following international peer reviewed scientific Journals:

- *Biochimica Biophisica Acta General Subjects*
- *Journal of Molecular catalysis B: Enzymatic*
- *Molecules*
- *Applied Soil Ecology*
- *Proteins: Structure, Function and Bioinformatics*
- *Acta Crystallographica D. Biological crystallography*
- *Acta Crystallographica F. Structural Biology Communications*
- *PlosOne*
- *Medicinal Chemistry Letters* (American Chemical Society)
- *European Journal of Pharmaceutical Sciences*
- *Bioorganic & Medicinal Chemistry Letters*
- *SciTechnol, VEGETOS*

Referee for the following funding agencies

- Referee for the projects evaluation of the Polish funding agency per la Narodowe Centrum Nauki http://www.ncn.gov.pl
- Referee for the projects evaluation of the Swiss National Science Foundation http://www.snsf.ch

Scientific societies membership

- Associazione Italiana di Cristallografia (AIC)
- Società Chimica Italiana (SCI) Divisione di Chimica dei Sistemi Biologic.
- EMBL alumni association

Language competences	**Language and level (also with indication of any certification)**
In Italian	*Italian Mother tongue*
German and English	*English C1 (City and Guilds C1 certificate 01.09.2012)* *German B2 (Goethe B2 27.05.2014)*

Hobbies:
Plays the clarinet in the Mascagni concert band

Date 09.05.2017

Signature