

Elisa Bianconi

WORK EXPERIENCES

October 2022 – January 2023

Winner of the call for applications for conducting tutoring activities.

Pharmaceutical Analytical Chemistry II. Degree in Chemistry and Pharmaceutical Technologies.
Prof. Emidio Camaioni (University of Perugia). 40 h

EDUCATION AND TRAINING

November 2020 – October 2023

PhD Fellow in Early Phase Drug Discovery

Research Project "**Biophysical Approaches to Study Ligand-Protein and Protein-Protein Interactions for the Design of Next Generation Immunotherapies**"

Supervisor: Prof. Antonio Macchiarulo

University of Perugia – Department of Pharmaceutical Sciences, via del liceo n.1, 06123Perugia.
www.unipg.it

October 2017-May 2020

Graduation in Pharmaceutical Biotechnology (*cum laude*)

Research Project "**Biophysical studies of ligand binding and cooperativity in Intestinal Fatty Acids Binding Protein (FABP6)**"

Supervisor: Prof. Antonio Macchiarulo

University of Perugia – Department of Pharmaceutical Sciences, via del liceo n.1, 06123Perugia.
www.unipg.it

October 2012-April 2017

Graduation in Biotechnology

Research Project "**Singlet oxygen sensitization by organic compounds.**"

Supervisor: Fausto Elisei

University of Perugia – Department of Chemistry, Biology and Biotechnology, via Elce di Sotto, 8, 06123Perugia. www.unipg.it

September 2004-July 2009

High school Diploma in Scientific Studies

Liceo scientifico R. Casimiri, Gualdo Tadino (PG), Italy

TEACHING AND MENTORING EXPERIENCE

November 2020 – today

Mentoring activity for 5 undergraduate students in biophysical studies during PhD work

Department of Pharmaceutical Sciences, University of Perugia, Via del liceo n.1, 06123Perugia.

Academic year 2020/21,
2021/22, 2022/23

Teaching support activity for the course entitled "Chimica Farmaceutica Avanzata".

Degree in Pharmaceutical Biotechnology (Department of Pharmaceutical Sciences, University of Perugia, Italy). Prof. Antonio Macchiarulo

Academic year 2020/21

Teaching support activity for the course entitled "Chimica Farmaceutica III".

Degree in Chemistry and Pharmaceutical Technologies (Department of Pharmaceutical Sciences, University of Perugia, Italy). Prof. Antonio Macchiarulo

Academic year 2022/23

Teaching support activity for the course entitled "Chimica Farmaceutica e Tossicologia I".

Degree in Pharmacy (Department of Pharmaceutical Sciences, University of Perugia, Italy). Prof. Antonio Macchiarulo

PERSONAL SKILLS and COMPETENCES

Mother tongue(s)

Italian

Foreign languages

- Independent user of English.

Job related Skills

- Expertise in developing and performing biophysical assays of MicroScale Thermophoresis using Monolith NT.115 instrument (NanoTemper Technologies, Munich, Germany) to investigate protein-small molecules interaction and protein-protein interaction.
- Expertise in developing and performing of Label-free Thermal Shift assays using Tycho NT.6 instrument and Prometheus NT.48 (NanoTemper Technologies, Munich, Germany) to investigate protein stability and protein-ligand interaction.
- Expertise to perform assays to determinate pKa, logP, logD and solubility of ionizable drugs and small molecules using Sirius T3 instrument (Pion Inc., United Kingdom).
- Good ability in developing and performing Second-Harmonic Generation (SHG) assays.
- Expertise in performing of assays using Thermo Scientific™ NanoDrop™ One instrument, UV-Vis spectrophotometer.
- Ability to work with cell colonies and perform laboratory techniques such as DNA and RNA extraction, Electrophoresis assays, western blotting, PCR.

Digital Skills

- Good command in using Database like Protein data Bank; PubMed; PubChem; UniProt, DrugBank; and in web software for the analysis and alignment of nucleotide and amino acid sequences such as BLAST, Jpred, CLUSTAW, RNAalifold.
- Good ability in using chemical drawing softwares: ChemDraw, Marvin.
- Expertise in Microsoft Office™ tools (Word™, Excel™ and PowerPoint™).

SCIENTIFIC ACTIVITIES

Publications

- Desantis J, Bazzacco A, Eleuteri M, Tuci S, Bianconi E, Macchiarulo A, Mercorelli B, Loregian A, Goracci L, Design, synthesis, and biological evaluation of first-in-class indomethacin-based PROTACs degrading SARS-CoV-2 main protease and with broad-spectrum antiviral activity, *Eur. J. Med. Chem.* 2024, 268, 116202.
- Bianconi E, Gidari A, Souma M, Sabbatini S, Grifagni D, Bigiotti C, Schiaroli E, Comez L, Paciaroni A, Cantini F, Francisci D, Macchiarulo A, The hope and hype of ellagic acid and urolithins as ligands of SARS-CoV-2 Nsp5 and inhibitors of viral replication. *J. Enzyme Inhib. Med. Chem.* 2023, 38(1), 2251721.
- Carotti, A, Varfaj, I, Pruscini, I, Abualzulof, GWA, Mercolini, L, Bianconi E, Macchiarulo A, Camaioni E, Sardella R, Estimating the hydrophobicity extent of molecular fragments using reversed-phase liquid chromatography. *J Sep Sci.* 2023; 2300346.
- Rossini S, Gargaro M, Scalisi G, Bianconi E, Ambrosino S, Panfili E, Volpi C, Orabona C, Macchiarulo A, Fallarino F, Mondanelli G, A back-door insight into the modulation of Src kinase activity by the polyamine spermidine *eLife*, 2023,12, e85872.
- Ragavan VN; Nair P, Jarzebska N, Angom R S, Ruta L, Bianconi E, Tararova N D, Ryazanskiy D, Lentz S, Tommasi S, Martens-Lobenhoffer J, Rubets E, Chau S, Chen Y, Weiss N, Bornstein S, Mukhopadhyay D, Bode-Böger S M, Maas R, Wang Y, Macchiarulo A, Mangoni A A, Cellini B, Rodionov R N, A multicentric consortium study demonstrates that dimethylarginine dimethylaminohydrolase 2 is not a dimethylarginine dimethylaminohydrolase. *Nat Commun* 2023, 14, 3392.
- Cerofolini L, Vasa K, Bianconi E, Salobehaj M, Cappelli G, Bonciani A, Licciardi G, Pérez-Ràfols, A, Padilla-Cortés L, Antonacci S, Rizzo D, Ravera E, Viglianisi C, Calderone V, Parigi G, Luchinat C, Macchiarulo A, Menichetti S, Fragai M, Combining Solid-State NMR with Structural and Biophysical Techniques to Design Challenging Protein-Drug Conjugates. *Angew. Chem. Int. Ed.* 2023, 62, e202303202.
- Paciaroni A, Libera V, Ripanti F, Orecchini A, Petrillo C, Francisci D, Schiaroli E, Sabbatini S, Gidari A, Bianconi E, Macchiarulo A, Hussain R, Silvestrini L, Moretti P, Belhaj N, Vercelli M, Roque Y, Mariani P, Comez L, Spinozzi F. Stabilization of the Dimeric State of SARS-CoV-2 Main Protease by GC376 and Nirmatrelvir. *Int. J. Mol. Sci.* 2023; 24(7), 6062.
- Bianconi E, Riccio A, Ruta L, Bigiotti C, Carotti A, Moretti S, Cerra B, Gioiello A, Ferlin S, Puxeddu E, Macchiarulo A, Turning a Tumor Microenvironment Pitfall into Opportunity: Discovery of Benzamidoxime as PD-L1 Ligand with pH-Dependent Potency. *Int. J. Mol. Sci.* 2023, 24, 5535.
- Mammoli A, Bianconi E, Ruta L, Riccio A, Bigiotti C, Souma M, Carotti A, Rossini S, Suvieri C, Pallotta MT, Grohmann U, Camaioni E, Macchiarulo A. Critical Assessment of a Structure-Based Screening Campaign for IDO1 Inhibitors: Tips and Pitfalls. *Int J Mol Sci.* 2022 2;23(7), 3981.
- Mammoli A, Riccio A, Bianconi E, Coletti A, Camaioni E, Macchiarulo A. One Key and Multiple Locks: Substrate Binding in Structures of Tryptophan Dioxygenases and Hydroxylases,

ChemMedChem 2021, 16, 2732.

Communications

- **Bianconi E**, Exploring the impact of enzymatic inhibitors on ido1 conformation and the potential implication on protein signalling activity, European School of Medicinal Chemistry ESMEC, Urbino, 2th-6th July 2023.
- Varfaj I, Abualzulof G W A, Bonafè S, Bianconi E, Zatini L, Ianni F, Carotti A, Sardella R, Development of a multiple heart-cutting two-dimensional HPLC-UV achiral-chiral method for the environmentally friendly analysis of branched-chain amino acids in food supplements, Interregional Meeting of the Italian Chemical Society – Section Toscana, Umbria, Marche and Abruzzo (TUMA 2023) Francavilla al Mare, 22th-23th June 2023.
- **Bianconi E**, Coletti A, Mondanelli G, Macchiarulo A, Different enzymatic inhibitors trigger different IDO1 conformations that can influence its signaling functions, 2nd MOSBRI Scientific Conference, Zaragoza, 5th-7th June 2023.
- **Bianconi E**, Bigiotti C, Gargaro M, Fallarino F, Macchiarulo A, Insights on Aryl hydrocarbon Receptor interactions using a biophysical approach, Winter school on Biotechnology 9th edition, Perugia, 23th-30th January 2023.
- **Bianconi E**, Souma M, Cirasella A, Grifagni D, Cantini F, Francisci D, Paciaroni A, and Macchiarulo A, "Screening of natural compounds against SARS-COV-2 targeting the main protease NSP5 using a biophysical approach", Interregional Meeting of the Italian Chemical Society – Section Toscana, Umbria, Marche and Abruzzo (TUMA 2022), Perugia, 1th-2th September 2022.
- **Bianconi E**, Coletti A, Cerra B, Gioiello A, Macchiarulo A, "Biophysical studies of ligand binding and cooperativity in Intestinal Fatty Acid Binding Protein-6 (FABP-6)", Winter school on Biotechnology, Virtual, 18th-22th January 2021.

Posters

- Riccio A, Bianconi E, Bigiotti C, Souma M, Moretti S, Puxeddu E, Macchiarulo A, "Beyond conventional anti-cancer agents in immunotherapy: how a tumor microenvironment limitation could be turned into an advantage", XXVII EFMC International Symposium on Medicinal Chemistry, Nice, 4th-8th September 2022.
- Bigiotti C, Bianconi E, Riccio A, Souma M, Carotti A, Macchiarulo A, "Computational and biophysical assessment of DDAH-1 and DDAH-2 affinity for asymmetric n,n-dimethylarginine", Interregional Meeting of the Italian Chemical Society – Section Toscana, Umbria, Marche and Abruzzo (TUMA 2022), Perugia, 1th-2th September 2022.
- **Bianconi E**, Riccio A, Santandrea S, Ruta L, Bigiotti C, Souma M, Moretti S, Puxeddu E, Macchiarulo A, "pH as drug resistance mechanism: the case of an anti pd-11 monoclonal antibody", 8th NovAliX Conference, Hybrid Event, Munich, 9th-11th May 2022.
- Beccari T, Ceccarini MR, Coletti A, Bigiotti C, Bianconi E, Comite CR, Pasqualino S, Conte C, Macchiarulo A, "Novel modulators of Beta-glucocerebrosidase for treatment of Gaucher disease", European Biotechnology Congress 2021, Virtual, 23th-25th September 2021.
- **Bianconi E**, Coletti A, Grifagni D, Libera V, Schiaroli E, Comez L, Cantini F, Paciaroni A, Macchiarulo A, "Design of Biophysical Assays for COVID-19 Mpro" XXVII Congresso Nazionale della Società Chimica Italiana SCI2021- LA CHIMICA GUIDA LO SVILUPPO SOSTENIBILE, 14th-23th September 2021.
- **Bianconi E**, Coletti A, Cerra B, Gioiello A, Macchiarulo A, "Biophysical Studies On Binding And Cooperativity Of Fatty Acid Binding Protein-6 (FABP-6) Ligands" RDP A 2021, Modena, 6th-8th September 2021.

Honors and awards

- Selected to present oral presentations, ESMEC2, Urbino, 2th-6th July 2023.
- Winner of the ITALFARMACO FELLOWSHIPS-Division of Medicinal Chemistry of the Italian Chemical Society for participation to ESMEC, Urbino, 2th-6th July 2023
- Selected to present oral presentations, 2nd MOSBRI Scientific Conference, Zaragoza, 5th-7th June 2023.
- Winner of the MOSBRI Bursary for participation to 2nd MOSBRI Scientific Conference, Zaragoza, 5th-7th June 2023.
- Winner of the scholarship for participation to XXVII Congresso Nazionale della Società Chimica Italiana SCI2021- LA CHIMICA GUIDA LO SVILUPPO SOSTENIBILE, 14th-23th September 2021.

ADDITIONAL INFORMATIONS

Memberships

Italian Society of Chemistry – Division of Medicinal Chemistry.