

## Education

### Post-Graduate Education

- Nov 2019- Oct 2020 Post-Doc Position in the framework of Research Project  
"Studi di nuove proprietà chimiche, analitiche e farmacologiche di composti naturali di origine biosintetica mista"  
Supervisor: Prof. Epifano Francesco  
Dept. Pharmacy, University of Chieti - Pescara, Italy
- Nov 2018- Oct 2019 Post-Doc Position in the framework of Italian Research Project  
"Messa a punto di saggi in vitro e in vivo per la "target validation" di nuovi bersagli molecolari per l'immunoterapia nel carcinoma della tiroide"  
PO.FSE Umbria 2014-2020 (CUP I91G18000250009)  
Supervisor: Prof. Puxeddu Efsio  
Dept. Medicine, University of Perugia, Italy
- Jan-Oct 2018 Post-Doc Position in the framework of Italian Research Project  
PRIN2015 (PRIN2015; prot.20155C2PP7)  
Supervisor: Prof. Roccaldò Sardella  
Dept. Pharmaceutical Sciences, University of Perugia, Italy
- 2017 Post-Doc Position in the framework of European Project ERC DIDO  
(Grant Agreement n.338954)  
Supervisor: Prof. Antonio Macchiarulo  
Dept. Pharmaceutical Sciences, University of Perugia, Italy
- April 2017 Ph.D. Dissertation in Chemical and Pharmaceutical Sciences  
Doctoral Research Thesis: "Small Molecules Targeting IDO<sub>1</sub> in Cancer Immunology"  
Supervisor: Prof. Antonio Macchiarulo  
Dept. Pharmaceutical Sciences, University of Perugia, Italy
- 2013-2017 Doctoral Research in Chemical and Pharmaceutical Sciences  
Research Project: "Investigation of IDO Conformations for Immune Disorders"  
Supervisor: Prof. Antonio Macchiarulo  
Dept. Pharmaceutical Sciences, University of Perugia, Italy
- December 2013 Qualification in Pharmacist Profession  
University of Perugia, Italy

## **Under-Graduate & Graduate Education**

- 2012-2013      Graduation Research Thesis  
Research Project: "Molecular Dynamic Simulations to study Protein-Protein Interactions in the p53, MDM2/MDM4 signaling pathway"  
Supervisor: Prof. Antonio Macchiarulo  
Dept. Pharmaceutical Sciences, University of Perugia, Italy
- 2004-2013      Academic Degree in Chemistry and Technology of Drugs  
Graduated with 110/110 *cum laude*  
University of Perugia, Italy

## **Secondary Education**

- 1999-2004      High School Diploma (classical studies)  
Graduated with 100/100  
Liceo Classico "F. Frezzi", Foligno, Italy

## **Academic Activities**

### **Research Projects**

- November 2018-  
October 2019      Italian Research Project PO.FSE Umbria 2014-2020  
(CUP I91G18000250009)
- 2018              Italian Research Project PRIN2015 (PRIN2015; prot.2015C2PP7)
- 2014-2019      European Project ERC DIDO (Grant Agreement n.338954)
- 2014-2017      Italian Research Project PRIN2012 (PRIN2012; prot.2012S47X27)
- May 2015 –  
November 2015      Abroad Research Period  
Supervisor: Prof. U. Helena Danielson  
Dept. Chemistry - BMC, Uppsala University, Sweden
- 2012-2013      Collaboration with Dr. F. Moretti's group  
Institute of Cell Biology and Neurobiology, National Research Council of  
Italy

### **Congresses & Schools**

- September 2019      Recent Developments in Pharmaceutical Analysis RDPA 2019  
Ex Aurum Congress Center, Pescara, Italy
- August -September  
2019              Biodesy's Delta Advanced Training  
SHG Theory, SHG Assay Development, SHG Trouble Shooting, SHG  
Assay Optimization, SHG Data Evaluation, SHG Data Presentation  
Biodesy Inc., South San Francisco, CA, USA

September 2018	23 <sup>rd</sup> Summer School in Pharmaceutical Analysis SSPA 2018 "Advanced Analytical Methods for Ligand-Target Interaction Studies in Drug Discovery" Campus di Rimini, Rimini, Italy
January 2018	Training Course "Gli aspetti legali e finanziari HORIZON 2020: dalla proposta alla gestione del Grant Agreement" APRE – Agenzia per la Promozione della Ricerca Europea Centro Congressi Cavour, Roma, Italy
September 2016	XXIV National Meeting in Medicinal Chemistry 10 <sup>th</sup> Young Medicinal Chemists' Symposium – NPCF10 Hotel Giò, Perugia, Italy
June-July 2016	European School of Medicinal Chemistry - ESMEC XXXVI Advanced Course of Medicinal Chemistry and "E. Duranti" National Seminar for Ph.D. Students Campus "Collegi del Colle e Tridente", Urbino, Italy
May 2016	2 <sup>nd</sup> Drug Discovery Forum "Affinity. Stability. Conformation." Westin Grand Hotel, München, Germany
February 2015	Computationally Driven Drug Discovery 4 <sup>th</sup> Meeting Angelini S.p.A, Pomezia, Italy
July 2014	MicroScale Thermophoresis User Training MST Assay Development, MST Assay Optimization, MST Data Evaluation, MST Data Presentation NanoTemper Technologies GmbH, München, Germany
March 2014	MicroScale Thermophoresis User Meeting MST Theory, MST Assay Development, MST Trouble Shooting, MST Data Evaluation
March 2014	Computationally Driven Drug Discovery 3 <sup>rd</sup> Meeting Aptuit Center, Verona, Italy

### ***Communications & Posters***

- 1 A. Coletti, F. A. Greco, M. T. Pallotta, C. Orabona, U. Grohmann, A. Macchiarulo. "Fundamental role of stereochemistry in hIDO1 modulation"  
Computationally Driven Drug Discovery 4<sup>th</sup> Meeting  
Pomezia, Italy - February 24-26, 2015

- 2 [A. Coletti](#), F. A. Greco, C. Custodi, A. Iacono, M. T. Pallotta, C. Orabona, F. Cantini, U. Grohmann, A. Macchiarulo "Make Screening Thrilling (MST) for IDO<sub>1</sub>"  
2<sup>nd</sup> Drug Discovery Forum  
München, Germany - May 8-11, 2016
- 3 [A. Coletti](#) "A Biophysical Approach to Fragment-based Screening for IDO<sub>1</sub> Inhibitors"  
European School of Medicinal Chemistry - ESMEC  
Urbino, Italy - June 26 - July 1, 2016
- 4 F. A. Greco, A. Iacono, [A. Coletti](#), C. Custodi, F. Ianni, R. Sardella, A. Carotti, C. Orabona, U. Grohmann, A. Macchiarulo "A cup of Virtual Screening, A Spoon of Biophysical Assay: A Great Recipe to Explore IDO<sub>1</sub> Binding Site Properties for Novel Ligands"  
21<sup>st</sup> EuroQSAR  
Verona, Italy – September 4-8, 2016
- 5 C. Custodi, [A. Coletti](#), F. A. Greco, F. Ianni, D. Dolciami, A. Carotti, A. Macchiarulo "A Comparative Study of PKA and LIPOPHILICITY for IDO<sub>1</sub> Inhibitors"  
XXIV National Meeting in Medicinal Chemistry  
Perugia, Italy - September 11-14, 2016
- 6 A. Macchiarulo, F. A. Greco, [A. Coletti](#), C. Custodi, M. Carloncelli, D. Dolciami, A. Carotti, E. Camaioni, A. Gioiello, M. Marinozzi, F. Cantini, C. Orabona, U. Grohmann "Targeting the Janus-faced nature of IDO<sub>1</sub> in immune-oncology"  
EFMC International Symposium on Medicinal Chemistry  
Manchester, United Kingdom - August 28 - September 1, 2016
- 7 A. Macchiarulo, F. A. Greco, [A. Coletti](#), D. Dolciami, E. Albini, C. Orabona, F. Cantini, U. Grohmann "A New Face to Immune Therapy: Discovery of Effector Ligands of IDO<sub>1</sub>"  
4<sup>th</sup> NovAliX Conference Biophysics in Drug Discovery 2017  
Strasbourg, France - June 6-9, 2017
- 8 F. A. Greco, [A. Coletti](#), D. Dolciami, A. Macchiarulo  
"L-Trp Double Binds IDO<sub>1</sub>: Biophysical and *in silico* Approaches to Describe the "Inhibition by Substrate" Phenomenon"  
Vienna Summer School Drug Design 2017  
Vienna, Austria, 17-22 settembre 2017
- 9 A. Riccio, D. Dolciami, [A. Coletti](#), A. Carotti, A. Macchiarulo  
"Insights into molecular recognition of PD-1/PD-L1 inhibitors"  
XVIII edition Merck & Elsevier Young Chemists Symposium  
Rimini, Italy – November 19-21, 2018

- 10 A. Macchiarulo, A. Coletti (2018)  
"Integrated Fragment-Based Approach Reveals Enzymatic Inhibitors with Potential Therapeutic Application" [Webinar]  
Available at:  
<https://www.drugtargetreview.com/webinar/34674/integrated-fragment-based-approach-reveals-enzymatic-inhibitors-with-potential-therapeutic-application/>  
(Accessed: 25 October 2018)
- 11 A. Coletti, A. Riccio, N. Nucci, S. Moretti, D. Dolciami, A. Macchiarulo, E. Puxeddu "MicroScale Thermophoresis (MST) for Ligand and Protein Binding Interaction Measurements: Assay Development for Immune Checkpoint Inhibitors"  
Recent Developments in Pharmaceutical Analysis RDPA 2019  
Pescara, Italy – September 8-11, 2019

### Publications

- 1 A. Lazzarini, A. Macchiarulo, A. Floridi, A. Coletti, S. Cataldi, M. Codini, R. Lazzarini, E. Bartoccini, G. Cascianelli, F. S. Ambesi-Impiombato, T. Beccari, F. Curcio, E. Albi "Very-long-chain fatty acid sphingomyelin in nuclear lipid microdomains of hepatocytes and hepatoma cells: can the exchange from C24:0 to C16:0 affect signal proteins and vitamin D receptor?" *Mol Biol Cell* **2015**, 26; 2418-25.
- 2 M. Pellegrino, F. Mancini, R. Lucà, A. Coletti, N. Giacchè, I. Manni, I. Arrisi, F. Florenzano, E. Teveroni, M. Buttarelli, L. Fici, R. Brandi, T. Bruno, M. Fanciulli, M. D'Onofrio, G. Piaggio, R. Pellicciari, A. Pontecorvi, J.C. Marine, A. Macchiarulo, F. Moretti "Targeting the MDM2/MDM4 Interaction Interface as a promising approach for p53 Reactivation Therapy." *Cancer Res* **2015**, 75; 4560-72.
- 3 F. A. Greco, A. Coletti, E. Camaioni, A. Carotti, M. Marinozzi, A. Gioiello, A. Macchiarulo "The Janus-faced nature of IDO1 in infectious diseases: challenges and therapeutic opportunities." *Future Med Chem* **2016**, 8; 39-54.
- 4 F. A. Greco, A. Bournique, A. Coletti, C. Custodi, D. Dolciami, A. Carotti, A. Macchiarulo "Docking studies and molecular dynamic simulations reveal different features of IDO1 structure." *Mol Inform* **2016**; 35: 449-59.
- 5 A. Coletti, F. A. Greco, D. Dolciami, E. Camaioni, R. Sardella, M. T. Pallotta, C. Volpi, C. Orabona, U. Grohmann, A. Macchiarulo "Advances in indoleamine 2,3-dioxygenase 1 medicinal chemistry: structure-function and structure-activity relationships of the enzyme and its inhibitors." *MedChemComm* **2017**; 8: 1378-92.

- 6 F. A. Greco, A. Coletti, C. Custodi, D. Dolciami, A. Di Michele, A. Carotti, M. Marinozzi, N. Schlinck, A. Macchiarulo "Binding Properties of Different Categories of IDO1 Inhibitors: A Microscale Thermophoresis Study." *Future Med Chem* **2017**, 9: 1327-38.
- 7 A. Coletti, F. Camponeschi, E. Albini, F. A. Greco, V. Maione, C. Custodi, F. Ianni, U. Grohmann, C. Orabona, F. Cantini, A. Macchiarulo "Fragment-Based Approach to Identify IDO1 Inhibitor Building Blocks." *Eur J Med Chem* **2017**, 141: 169-177.
- 8 S. Fiorito, F. A. Greco, A. Coletti, D. Dolciami, S. Viola, U. Grohmann, A. Macchiarulo "Microscale Thermophoresis and Docking Studies Suggest Lapachol and Auraptene are Ligands of IDO1" *NPC* **2018**, 13: 1133-1137.
- 9 E. Albini, A. Coletti, F. Greco, M.T. Pallotta, G. Mondanelli, M. Gargaro, M.L. Belladonna, C. Volpi, R. Bianchi, U. Grohmann, A. Macchiarulo, C. Orabona "Identification of a 2-propanol analogue modulating the non-enzymatic function of indoleamine 2,3-dioxygenase 1" *Biochem Pharmacol* **2018**, 158: 287-297.
- 10 M.T. Pallotta, A. Iacono, E. Albini, C. Orabona, M.L. Belladonna, R. Bianchi, A. Coletti, F. Greco, A. Macchiarulo, U. Grohmann "87P Towards the identification of the mechanism of action of antitumor 1-methyl-D-tryptophan" *Ann Oncol* **2018**, Suppl:3: doi: 10.1093/annonc/mdy047/iii19.
- 11 F. A. Greco, E. Albini, A. Coletti, D. Dolciami, A. Carotti, C. Orabona, U. Grohmann, A. Macchiarulo "Tracking Hidden Binding Pockets Along the Molecular Recognition Path of L-Trp to Indoleamine 2,3-Dioxygenase 1" *ChemMedChem* **2019**, 14: 2084-2092.
- 12 F. Ianni, F. Blasi, D. Giusepponi, A. Coletti, F. Galli, B. Chankvetadze, R. Galarini, R. Sardella "Liquid chromatography separation of  $\alpha$ - and  $\gamma$ -linolenic acid positional isomers with a stationary phase based on covalently immobilized cellulose tris(3,5-dichlorophenylcarbamate)" *J Chromatogr A* **2020**, 1609: 460461.
- 13 G. Mondanelli, A. Coletti, F. A. Greco, M. T. Pallotta, C. Orabona, A. Iacono, M. L. Belladonna, E. Albini, E. Panfili, F. Fallarino, M. Gargaro, G. Manni, D. Matino, A. Carvalho, C. Cunha, P. Maciel, M. Di Filippo, L. Gaetani, R. Bianchi, C. Vacca, I. M. Iamandii, E. Proietti, F. Boscia, L. Annunziato, M. Peppelenbosch, P. Puccetti, P. Calabresi, A. Macchiarulo, L. Santambrogio, Claudia Volpi, U. Grohmann

"Positive allosteric modulation of indoleamine 2,3-dioxygenase 1 restrains neuroinflammation"  
*PNAS* **2020**, *117*: 3848.

- 14** A. Mammoli, A. Coletti, M. Ballarotto, A. Riccio, A. Carotti, U. Grohmann, E. Camaioni, A. Macchiarulo  
"New Insights from Crystallographic Data: Diversity of Structural Motifs and Molecular Recognition Properties between Groups of IDO1 Structures"  
*ChemMedChem* **2020**, *15*: 891.
- 15** A. Iacono, A. Pompa, F. De Marchis, F. Greco, A. Coletti, C. Orabona, C. Volpi, M. Belladonna, G. Mondanelli, E. Albin, C. Vacca, M. Gargaro, F. Fallarino, R. Bianchi, C. De Marcos Lousa, E. Mazza, S. Bicciato, E. Proietti, F. Milano, M. Martelli, I. Iamandii, M. Graupera, J. LLena Sopena, P. Hawkins, S. Suire, K. Okkenhaug, A. K. Stark, F. Grassi, M. Bellucci, P. Puccetti, L. Santambrogio, A. Macchiarulo, , M. T. Pallotta, E. Panfili, U. Grohmann  
"Class IA PI3Ks regulate subcellular and functional dynamics of IDO1"  
*EMBO* **2020**, *in press*.
- 16** A Riccio, A. Coletti, D. Dolciami, A. Mammoli, B. Cerra, S. Moretti, A. Gioiello, S. Ferlin, E. Puxeddu, A. Macchiarulo  
"The Stone Guest: How Does pH Affect Binding Properties of PD-1/PD-L1 Inhibitors?"  
*ChemMedChem* **2020**, *in press*.

### Awards

Best Poster A. Macchiarulo, F. A. Greco, A. Coletti, D. Dolciami, E. Albin, C. Orabona, F. Cantini, U. Grohmann "A New Face to Immune Therapy: Discovery of Effector Ligands of IDO1"  
4<sup>th</sup> NovAliX Conference Biophysics in Drug Discovery 2017  
Strasbourg, France - June 6-9, 2017

### Competences

#### Languages

Italian	Native
English	B2 level

#### Skills

Computational Techniques	Molecular Modeling, Docking, MD Simulations, Data Analysis
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Experimental Methods	Second-Harmonic Generation (SHG), MicroScale Thermophoresis (MST), Circular Dichroism (CD), Absorption Spectroscopy (Abs), Thermal Shift (TS), Differential Scanning Fluorimetry (DSF), Surface Plasmon Resonance (SPR), BCA assay, SDS-PAGE & BN Electrophoresis, Enzymatic Activity Assays, Kinetic and Inhibition Assays, Physicochemical Properties (pKa, logP, logD, Solubility) determination by Potentiometric Titration
Software	Maestro, VMD, Pymol, Gromacs, Software NT.115, GraphPad PRISM 8.2.0, CDNN 2.1, Sirius T3 Software version 1.1
Management	Setting up, technical and administrative management of Biomolecular Screening Laboratory of Pharmaceutical Sciences Dept. of University of Perugia
Teaching	Theoretical and practical lessons about MicroScale Thermophoresis and other biophysical techniques

## Interests

*Sport* Volleyball, Hiking, Running, Trekking

*Intellectual* Cinema, Reading, Photography, Traveling

## References

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*In compliance with the Italian Legislative Decree no. 196 dated 30/06/2003, I hereby authorize the recipient of this document to use and process my personal details for the purpose of recruiting and selecting staff and I confirm to be informed of my rights in accordance to art. 7 of the above-mentioned decree.*

**Foligno, 19/10/2020**

Signature

A handwritten signature in black ink, reading "Arico Catti". The signature is written in a cursive style with a large initial 'A' and a distinct 'C'.