Iole Mannella, M. D.,
XXXVII Cycle Ph.D. Student

Education

- Ph.D. STUDENT IN PHARMACEUTICAL AND BIOMOLECULAR SCIENCE (XXXVII CYCLE)
  implemented under the D.M. 1061/2021, *PON 'Research and Innovation' 2014-2020* and co-funded by Drug Discovery and Clinic (DDC) company

  01/01/2022 - current (expected end: 31/12/2024)
  Department of Drug Science and Technology, Ph.D. School of Pharmaceutical and Biomolecular Sciences, University of Torino (IT)

  Project title: "Green technology transfer of new drug candidates based on hydroxyazole structure in an advanced preclinical phase for the treatment of Acute Myeloid Leukemia (AML) and Covid 19."
  Role: Optimization, scale-up and implementation of new green techniques for the synthesis of new drug candidates to support the subsequent preclinical development phase.
  Provide general support to the core team of the company (Drug Discovery and Clinic) for the preclinical submission process, including submission requirements, timelines, study budget.
  Supervisor: Prof. Donatella Boschi

- MASTER'S DEGREE IN MEDICINAL CHEMISTRY AND PHARMACEUTICAL TECHNOLOGY
  14/10/2015 - 12/04/2021
  LM-13 Farmacia e farmacia industriale
  MEDSynth Group, Department of Drug Science and Technology, University of Torino (IT)

  Final grade: 110 cum Laude and Honorable Mention/110
  Thesis title: " Design and synthesis of new inhibitors of Aldo-Keto Reductase 1C3 (AKR1C3) based on a benzoisoxazole scaffold and their potential application in cancer".
  Role: Synthesis, purification and characterization (IR, HPLC, UHPLC, NMR, MS) of AKR1C3 inhibitors, tested in vitro on purified enzyme and 22rv1 and LNCaP prostate cancer cells.
  Supervisor: Prof. Donatella Boschi
  Co-supervisor: Dr. Agnese Chiara Pippione

Previous Experiences

- VISITING RESEARCH SCIENTIST
  3 months, 27/04/2023 – 28/07/2023
  Department of Pharmaceutical and Biochemical sciences, Universidad Major de San Andrés, La Paz (Bolivia)

  Tasks: Chemical extraction (*supercritical fluid extraction, microwave assisted extraction, alcoholic maceration*) of biologically active substance from Amazonian plants and generation of HPLC-DAD-MS chromatographic fingerprint and NMR analysis of selected biological active species.
  Supervisor: Prof. Alberto Gimenez

- RESEARCH FELLOWSHIP - *Prot n. 2126 del 22/11/2021 (2021-UNTOCHI-0002126)*
  3 months, 01/09/2021 – 31/12/2021
  MEDSynth Group, Department of Drug Science and Technology, University of Torino (IT)

  Aim of the project: Bioisosteric modulation of active AKR1C3 inhibitors and development of novel dual CYP17A1 and AKR1C3 inhibitors against prostate cancer.
  Tasks: Synthesis, purification and characterization (IR, HPLC, UHPLC, NMR, MS) of inhibitors, tested in vitro on purified enzyme and 22rv1 and LNCaP prostate cancer cells
  Supervisor: Dr. Agnese Chiara Pippione

- POSTGRADUATE INTERNSHIP
  3 months, 22/05/2021 – 21/08/2021
  Department of Synthesis and Chemical Technology of Pharmaceutical Substances, Medical University of Lublin (Poland)

  Aim of the project: Development of novel dual CYP17A1 and AKR1C3 inhibitors against prostate cancer.
  Supervisor: Prof. Tomasz Wróbel

Teaching

- ASSISTANT TO TEACHING ACCORDING TO ART.76 OF THE STATUTE OF THE UNIVERSITY OF TORINO
  A.A. 2023-2024
  Department of Drug Science and Technology, University of Torino (IT).
  20 hours of assistance to teaching within Bachelor's Degree of Herbal Products for the Course of "Exercitation of Food Chemistry and Phytopharmacy"
  Reference professors: *Prof*. Chiara Cordero, *Prof*. Marta Giorgis.

Other Work Experiences

- PART TIME COLLABORATION FOR STUDENT 200h - according to ART. 11 D.LGS. N.68 of the statute of the University of Torino
  A.A. 2020-2021
  Department of Drug Science and Technology, University of Torino (IT)

  Tasks: Assistance and support for the didactic laboratory activities of the courses of Chemistry and Pharmaceutical Technology and Pharmacy
  Reference Professors: Prof. Marco Lolli (75h)

- PHARMACY CURRICULAR INTERNSHIP
  3 months, 30/09/2019 – 18/12/2019
  -Farmacia Borgarelli Del Dott. Paolo Borgarelli & C. S.A.S., Via Madama Cristina 62, Torino (IT)
  3 months, 01/06/2020 - 31/08/2020
  -Farmacia Leone del Dott. Giorgio Leone, Via Roma 39, Roccaraso (IT)

  Tasks: Galenic laboratory experience and assistance to pharmacists in patient service

- PART TIME COLLABORATION FOR STUDENT 200h - according to ART. 11 D.LGS. N.68 of the statute of the University of Torino
  A.A. 2018-2019
  Department of Drug Science and Technology, University of Torino (IT)

  Tasks: Assistance and support for the didactic laboratory activities of the courses of Chemistry and Pharmaceutical Technology and Pharmacy

Reference Professors: Prof. Marco Lolli (60h), Prof. Simonetta Oliaro Bosso (30h), Prof. Elena Ugazio (45h)

Licences

- QUALIFICATION TO PHARMACIST PRACTICE
  obtained on 18/11/2021, Department of Drug Science and Technology, University of Torino (IT).

Public Engagement Activities

- VICINI PROJECT
  2022
  An initiative of the University of Turin in collaboration with Biennale Tecnologia, which includes activities, educational and laboratory courses dedicated to schools and families.
  Tasks: conceiving and implementing various activities and experiments in the chemical laboratory aimed at high school students and children.
  Reference professor: Prof. Pizzimenti Stefania

- UNITOGETHER PROJECT
  2022
  The project involves inviting both structured and non-structured UNITO staff to create articles relevant to their research fields, tailored for younger students in primary and secondary education. These articles are then reviewed and enhanced by students, guided by their teachers, before being published on zenodo.org, an online repository accessible to schools.
  Tasks: drafting and writing an article tailored for high school students: "Mannella I., Sainas S., Pippione A.C. "COME NASCE UN FARMACO: DAL LABORATORIO AL PAZIENTE" - DOI: 10.5281/zenodo.6940533
  Reference professor: Dott. Agnese Chiara Pippione

Institutional Activities

- INTERNATIONAL MOBILITY COMMISSION member
  01/2022 - present
  Role: Support for incoming and outgoing students during mobility, organization of international events and meetings for international students in the department.

Pubblications:

1. Tomasz M. Wróbel, Katyayani Sharma, Iole Mannella, Simonetta Oliaro-Bosso, Patrycja Nieckarz, Therina Du Toi, Clarissa Daniela Voegel, Maria Natalia Rojas Velazquez, Jibira Yakubu, Anna Matveeva, Søren Therkelsen, Flemming Steen Jørgense, Amit V. Pandey, Agnese C. Pippione, Marco L. Lolli, Donatella Boschi and Fredrik Björkling. Exploring the Potential of Sulfur Moieties in Compounds Inhibiting Steroidogenesis, *Biomolecules 2023, 13, 1349*. https://doi.org/10.3390/biom13091349

2. Agnese Chiara Pippione, Sandra Kovachka, Laura Bertarini, Chiara Vigato, Iole Mannella, Stefano Sainas, Barbara Rolando, Enrica Denasio, Helen Piercy-Mycock, Linda Romalho, Edoardo Salladini, Salvatore Adinolfi, Daniele Zonari, Caterina Peraldo-Neia, Giovanna Chiorino, Alice Passoni, Osman Asghar Mirza, Karla Frydenvang, Klaus Pors, Marco Lucio Lolli, Francesca Spyrakis, Simonetta Oliaro-Bosso. Structure-guided optimization of 3-hydroxybenzoisoxazole derivatives as inhibitors of Aldo-Keto Reductase 1C3 (AKR1C3) to target prostate cancer, *European Journal of Medicinal Chemistry, under revision**

Conference Proceedings *as first author*

1. **Mannella I.,** Vigato C., Sainas S., Lolli M. L., Boschi D. (2023). *Optimization of MEDS433 synthesis: scale-up for preclinical evaluation studies.* In MYCS -Merck Young Chemists' Symposium XXII edition, Rimini (Italy), 13th-15th November 2023. p. 121 – FL32 – **Flash presentation**.

2. **Mannella I.,** Vigato C., Sainas S., Lolli M. L., Boschi D. (2023). *Optimization of MEDS433 synthesis: scale-up for preclinical evaluation studies.* In MYCS -Merck Young Chemists' Symposium XXII edition, Rimini (Italy), 13th-15th November 2023. p. 121 – FL32 – **Poster presentation**

3. **Mannella I.**, Vigato C., Pasha R., Pippione A. C., Sainas S., Oliaro Bosso S., Rolando B., Kovachka S., Spyrakis F., Boschi D., Lolli M. L. (2021). *New inhibitors of Aldo-Keto Reductase 1C3 (AKR1C3) based on benzoisoxazole scaffold and their potential application in cancer.* In: 13th Young Medicinal Chemist's Symposium-Nuove Prospettive in Chimica Farmaceutica. p. 109, Virtual Event, 26 - 29 Aprile, 2021. **Poster Presentation.**

Others Conference Proceedings

1. Martino E., Sainas S., Alberti M., **Mannella I.**, Giorgis M., Circosta P., Boschi D., Lolli M. L. (2024). *Investigation of the central core of MEDS433: A Bioisosteric voyage into the Amide's Role.* In BMCS Postgraduate Symposium XVII, Oxford, 9th January 2024. p23. **Flash presentation**.

2. Vigato C.; Pippione A. C. ; Sainas S.; **Mannella I.**; Rolando B.; Spyrakis F.; Oliaro-Bosso S.; Lolli M. L.; Boschi D. (2023). *A new generation of AKR1C3 inhibitors on the horizon: the 3- hydroxybenzazole approach to target prostate cancer.* In MYCS -Merck Young Chemists' Symposium XXII edition, Rimini (Italy), 13th-15th November 2023. p197. **Poster presentation**.

3. Pippione A.C., Vigato C., Mannella I, Sainas S., Bertarini L., Kovachka S., Rolando B., Wrobel T., Mirzad O. A., Frydenvangd K., Spyrakis F., Oliaro-Bosso S., Lolli M.L and Boschi D. (2023). *New AKR1C3 inhibitors to target prostate cancer.* In XIth Conversatory on Medicinal Chemistry, Lublin (Poland), 14th-16th September 2023. **Oral communication**.

4. Pippione A. C., Sainas S., Vigato C., **Mannella I.**, Castellino I., Kovachka I., Iakovleva M., Rolando B., Wrobel T., Mirza O., Frydenvang K., Spyrakis F., Oliaro-Bosso S., Lolli M. L., Boschi D. (2023). *Hydroxylated heterocycles as bioisosteres of the carboxylic function: design of new AKR1C3 inhibitors active in prostate cancer.* In: IX EWDSy - European Workshop in Drug Synthesis, Siena (Italy), 21st -24th May 2023. p. 64. **Oral communication** (winner of the Best Oral Communication Prize).

5. Vigato C., Pippione A. C., **Mannella I.**, Iakovleva M., Sainas S., Oliaro Bosso S., Rolando B., Kovachka S., Spyrakis F., Lolli M. L., Boschi D. (2022). *New Hydroxybenzoazole Inhibitors of Aldo-Keto Reductase 1C3 (AKR1C3): Disclosure of SAR Investigation to Target Prostate Cancer.* In: EFMC-ISMC 2022, XXVII EFMC International Symposium on Medicinal Chemistry. p. 311, Nice, France, 04-08 September 2022. **Poster Presentation**.

6. Pippione A. C., Kilic-Kurt Z., Sainas S., **Mannella I.**, Rolando B., Kovachka S., Spyrakis F., Buschini A., Montalbano S., Oliaro Bosso S., Lolli M. L., Boschi D. (2021). *Multiple-targeting ligands for AKR1C3 enzyme and androgen receptor to target prostate cancer.* In: EFMC-ISMC 2021, XXVI EFMC International Symposium on Medicinal Chemistry. p. 364, Virtual Event, 29th August– 2nd September, 2021. **Poster Presentation**.

Research projects

1. DESIGN DI NUOVI INIBITORI DUALI DEGLI ENZIMI CYP17A1 E AKR1C3 CONTRO IL CANCRO ALLA PROSTATA: PROGETTO CONGIUNTO ITALO-POLACCO
(acronym: DUAL). ID: PIPA_GFI_22_01. Progetto per Grant for Internationalization-GFI 2022.
Italian Principal Investigator: Dr. Agnese Chiara Pippione (University of Torino).
Polish Principal Investigator: Prof Tomasz Wróbel (Medical University of Lublin).
Role: investigator, design and synthesis of new active compound.

2. UN NUOVO BERSAGLIO TERAPEUTICO PER I TUMORI RESISTENTI ALLE CURE TRADIZIONALI: AKR1C3.
(acronym: TORAK). ID: OLIS_CRT_22_01. Bandi CRT - Richieste Ordinarie dal 2016.
Principal Investigator: Prof. Simonetta Oliaro Bosso (Italy, University of Turin).
Role: investigator, design and synthesis of new active compound.

Memberships

- SOCIETÀ CHIMICA ITALIANA – DIVISION OF MEDICINAL CHEMISTRY: 04/2021 – to date

Fellowships and Awards

- ERASMUS + PARTNER COUNTRIES CALL 2020, 3 months – published on *02/02/2023*
The criteria evaluated included: degree grade, language proficiency, the content of the training project.

- ERASMUS + TRAINEESHIP 2022/2023, 3 months – published on *05/12/2022*
The criteria evaluated included: degree grade, language proficiency, the content of the training project.

- RESEARCH FELLOWSHIP - *"Inibitori dell'enzima DHODH quali nuovi antifungini contro il patogeno del riso Magnaporthe oryzae" – call for applications n. 33, 27/10/2021 - Prot n. 2126 del 22/11/2021 (2021-UNTOCHI-0002126)*
The criteria evaluated included: degree grade, interview performance, research experiences (e.g., training periods in Italian and/or foreign research laboratories) focusing on the design, synthesis, and study of new pharmacologically active compounds; strong proficiency in the English language.

- ERASMUS + TRAINEESHIP 2020/2021, 3 months – published on *13/11/2020* - The criteria evaluated for the scholarship won included: grade point average, language proficiency, the content of the training project.

- Edisu Piemonte SCHOLARSHIP 2020/2021 – published on *02/07/2020*
It is a monetary sum awarded through a public competition to students enrolled in universities of Piedmont. The criteria evaluated for the scholarship was merit criteria (weighted average of completed exams, number of exams taken, with a minimum required) and economic criteria (Equivalent Financial Situation Indicator).

- Edisu Piemonte SCHOLARSHIP 2019/2020 – published on *10/05/2019*
It is a monetary sum awarded through a public competition to students enrolled in universities of Piedmont. The criteria evaluated for the scholarship was merit criteria (weighted average of completed exams, number of exams taken, with a minimum required) and economic criteria (Equivalent Financial Situation Indicator).

- Edisu Piemonte SCHOLARSHIP 2018/2019 – published on *11/06/2018*
  It is a monetary sum awarded through a public competition to students enrolled in universities of Piedmont. The criteria evaluated for the scholarship was merit criteria (weighted average of completed exams, number of exams taken, with a minimum required) and economic criteria (Equivalent Financial Situation Indicator).

- Edisu Piemonte SCHOLARSHIP 2016/2017 – published on *24/05/2016*
  It is a monetary sum awarded through a public competition to students enrolled in universities of Piedmont. The criteria evaluated for the scholarship was merit criteria (weighted average of completed exams, number of exams taken, with a minimum required) and economic criteria (Equivalent Financial Situation Indicator).