Donatella Boschi, PhD

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Synopsis. Prof Donatella Boschi is an internationally recognized expert in *Medicinal Chemistry*, specialized in *hit-to-led* optimization process and in the design of small molecules preclinical candidates using innovative bioisosteric tools.

Current position. *Associate Professor in Medicinal Chemistry* (03/D1 - Chimica e Tecnologie Farmaceutiche, Tossicologiche e Nutraceutico-Alimentari), *Department of Science and Drug Technology*, University of Torino (Italy)

Research interests: *Broad-spectrum antivirals* (SARS-CoV-2 and other CoVs), *cancer* (Leukemia, Breast and Prostatic cancer) and *neglected diseases* (Malaria, Leishmaniasis, TBC….).

Education and positions:

- From 2001-present Associate Professor, Department of Drug Science and Technology, University of Turin, Italy.
- 2000 - 2001 Medicinal Chemistry Researcher at University of Turin.
- 1998 - 2000 Medicinal Chemistry Researcher at University of Eastern Piedmont.
- 1993 - 1998 Medicinal Chemistry Researcher at University of Turin.
- June 1993: PhD in Pharmaceutical Science, (EQF level 8), Department of Drug Science and Technology, University of Turin, Italy cycle V
- July 1993: MSc in Pharmacy (EQF level 7), Faculty of Pharmacy, Department of Drug Science and Technology, University of Turin, Italy. Final mark: 110/110 summa cum laude.
- Febrary 1989 MSc in Medicinal Chemistry and Pharmaceutical Technology (EQF level 7), Faculty of Pharmacy, Department of Drug Science and Technology, University of Turin, Italy. Final mark: 110/110.

Visiting Professor in Turky (Ankara) and no-Eu countries (*Bolivia-La Paz, India- Akmenabad*).

Responsible for Erasmus agreements: Paris, Bordeaux, Marseille, Madrid, Sevilla, Tenerife, Granada, Valencia, Birmingham, Geneve, Lisbon, Tubingen, Dussendorf, Louven, Kritis, University of San Andreas (UMSA, La Paz, Bolivia) and the Nirma University (Ahmedabad, India), Buenos Aires - Argentine, Stellenbosch - South Africa.

Principal Investigator (PI) roles.
2015- 2024 MIUR, **6** project founded by Università di Torino. Role: PI.
2017-2021 Fondazione CRT. “Nuove armi contro il tumore alla prostata refrattario alle terapie attuali (NACTUS).” Totale Budget: 35 000 EUR. Role: PI.
Since 1997, she was Co-investigator in the *MedChem Unit*, in **20 competitive projects** (IT and European) raising around 5 million Euros in research funds. To these funds must be added 1.63 million Euros acquired from the SpinOff *Drug Discovery and Clinic s.r.l.* (see below) where she was founder and administrator.

Technological transfer roles. Since 2012, she is Cofounder and Administrator of **Drug Discovery and Clinic (DDC) s.r.l.** (2020 - present, www.DDCpharmaceutical.com) whose mission is to lead a new patented dihydroorotate dehydrogenase inhibitor until human clinical trials for curing Acute Myeloid Leukemia (AML) and COVID-19.

Master / PhD teaching/Tutoring skills. Since 1993, she always played her educational roles (Master / PhD level) with great passion. At the present, she is in charge of five Courses (*Medicinal Chemistry 1, Advanced Medicinal Chemistry, Drug Synthesis, Laboratory of Advanced Medicinal Chemistry, Scientific Information Sources)* involving almost 100 students and 150 h over two semesters. She became skilled in training young scientist (**7** Post-Docs and more **90** Master students). Tutor panel of PhD course *in Pharmaceutical and Biomolecular Sciences* in the PhD *School of Natural Sciences and Innovative Technologies* at UniTO (**2** PhD students).

Department role (present)

- From 2008 International Mobility Coordinator for the Pharmacy Faculty and DSTF.
- 2012-2017 Vice-dean of the Master program titled "Chemistry and Drug Technologies".

Bibliometric indicators (upgraded May 2024):

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Publications in peer-reviewed journals	**74**	Citations	**1414**
Papers as first or corresponding author	**16**	h-Index	**24**
Patents	**3**	Oral presentation	**2**
Cover	**1**	Meeting communications	**103**

(da Scopus July 2nd_, 2024; Scopus Author ID: 6603815780). ORCID: https://orcid.org/0000-0003-4929-4460

Representative publications during the past 5 years

- Pippione, A. C.; et al. **Boschi, D.**, Structure-guided optimization of 3-hydroxybenzoisoxazole derivatives as inhibitors of Aldo-keto reductase 1C3 (AKR1C3) to target prostate cancer. *Eur J Med Chem* **2024,** *268*, 116193.
- Luganini, A.; et al. Boschi, D.; et al., Mechanisms of antiviral activity of the new hDHODH inhibitor MEDS433 against respiratory syncytial virus replication. *Antiviral Research* **2023,** *219*, 105734.
- Sainas, S.; et al. Boschi, D. et al. Targeting Acute Myelogenous Leukemia Using Potent Human Dihydroorotate Dehydrogenase Inhibitors Based on the 2-Hydroxypyrazolo[1,5- a]pyridine Scaffold: SAR of the Aryloxyaryl Moiety. *J. Med. Chem.* **2022,** *65* (19), 12701-12724.
- Sibille, G.; et al. Boschi, D.; et al. The Novel hDHODH Inhibitor MEDS433 Prevents Influenza Virus Replication by Blocking Pyrimidine Biosynthesis. *Viruses* **2022,** *14* (10).
- Pippione, A. C.; et al. **Boschi,** D., New aldo-keto reductase 1C3 (AKR1C3) inhibitors based on the hydroxytriazole scaffold. *Eur J Med Chem* **2022,** *237*, 114366.
- Calistri, A.; et al. Boschi, D.; et al. The New Generation hDHODH Inhibitor MEDS433 Hinders the In Vitro Replication of SARS-CoV-2 and Other Human Coronaviruses. *Microorganisms* **2021,** *9* (8), 1731.
- Sainas, S.; et al. Boschi, D.; et al. Targeting Acute Myelogenous Leukemia Using Potent Human Dihydroorotate Dehydrogenase Inhibitors Based on the 2-Hydroxypyrazolo[1,5-a]pyridine Scaffold: SAR of the Biphenyl Moiety. *J. Med. Chem.* **2021,** *64* (9), 5404-5428.
- Luganini, A.; et al. Boschi, D.; et al. Effective deploying of a novel DHODH inhibitor against herpes simplex type 1 and type 2 replication. *Antiviral Research* **2021,** *189*, 105057.
- Gaidano, V.; et al. Boschi, D.; et al. The Synergism between DHODH Inhibitors and Dipyridamole Leads to Metabolic Lethality in Acute Myeloid Leukemia. *Cancers (Basel)* **2021,** *13* (5).
- Pippione, A. C.; et al. Boschi, D. et al. Hydroxyazole scaffold-based Plasmodium falciparum dihydroorotate dehydrogenase inhibitors: Synthesis, biological evaluation and X-ray structural studies. *Eur J Med Chem* **2019,** *163*, 266-280.
- **Boschi, D**.; et al. Dihydroorotate dehydrogenase inhibitors in anti-infective drug research. *European Journal of Medicinal Chemistry* **2019,** *183*, 111681.
- Giraudo, A.; et al. Boschi, D.; et al. Five-Membered N-Heterocyclic Scaffolds as Novel Amino Bioisosteres at gamma-Aminobutyric Acid (GABA) Type A Receptors and GABA Transporters. *J. Med. Chem.* **2019,** *62* (12), 5797-5809.
- Sainas, S.; et al. Boschi, D.; et al. Use of the 4-Hydroxytriazole Moiety as a Bioisosteric Tool in the Development of Ionotropic Glutamate Receptor Ligands. *J. Med. Chem.* **2019,** *62* (9), 4467-4482.
- Lolli, M. L.; et al. Boschi, D., Bioisosteres of Indomethacin as Inhibitors of Aldo-Keto Reductase 1C3 (AKR1C3). *ACS Med. Chem. Lett.* **2019**.
- Pippione, A. C.; et al. Boschi, D.; et al. Hydroxyazole scaffold-based Plasmodium falciparum dihydroorotate dehydrogenase inhibitors: Synthesis, biological evaluation and X-ray structural studies. *Eur. J. Med. Chem.* **2018,** *163*, 266-280.
- Giraudo, A.; et al. Boschi, D.; et al. 4-Hydroxy-1,2,3-triazole moiety as bioisostere of the carboxylic acid function: a novel scaffold to probe the orthosteric gamma-aminobutyric acid receptor binding site. *Eur. J. Med. Chem.* **2018,** *158*, 311-321.
- Sainas, S.; et al. Boschi, D.; et al. Targeting Myeloid Differentiation Using Potent 2-Hydroxypyrazolo[1,5-a]pyridine Scaffold-Based Human Dihydroorotate Dehydrogenase Inhibitors. *J. Med. Chem.* **2018,** *61* (14), 6034-6055.
- Pippione, A. C.; et al. Boschi, D.; et al. Potent and selective aldo-keto reductase 1C3 (AKR1C3) inhibitors based on the benzoisoxazole moiety: application of a bioisosteric scaffold hopping approach to flufenamic acid. *Eur. J. Med. Chem.* **2018,** *150*, 930-945.