

Curriculum Vitae

Sandra Donnini, Ph.D.

Position Title: Associate Professor of Pharmacology
Dept. Life Sciences
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Education

2015-Present: Associate Professor, Department of Life Sciences, University of Siena, Italy
2018-2020: Specialization School, Clinical Pharmacology and Toxicology, University of Pisa, Italy
2007-2015: Assistant Professor, School of Pharmacy, University of Siena, Italy
2001-2007: Post-Doc position at the Dep. of Molecular Biology, University of Siena, Italy
1996-2000: Ph.D. Student, Dep. of Pharmacology, University of Florence, Italy.
1994: Degree, Biological Sciences, University of Florence, Italy, 110/110 score cum laude.

Research Experience

2021-Present: Coordination of clinical and research activities of Siena University Pharmacovigilance Unit in the frame of Tuscan County Regional Center of Pharmacovigilance.
2004: Investigator Scientist, Medical Research Council (MRC), Unit of Toxicology University of Leicester, UK. (Topic: Pathways of neurovascular degeneration)
2001: Visiting Scientist, Dept. Pharmacology, U.T. South Western Medical School, Dallas, TX USA (Topic: Strategies for drug delivery)
1997: Visiting Scientist, Gesellschaft für Biotechnologische Forschung mbH, Dept. Gene expression, Braunschweig, Germany
1996: Visiting Scientist, Institute of Molecular Medicine, Imperial Cancer Research Fund University of Oxford, John Radcliffe Hospital, Headington, Oxford, UK

Technical skills

Cell culture, Proliferation and viability assays, Isolation and culture of cells from mice, Cell biology techniques: Western blotting, Gene silencing, Angiogenesis assays, qRT-PCR, IF, IHC, ELISA-EIA assay, viral vectors production and handling, CRISPR/Cas9 technology, Handling and manipulation of laboratory animals.

Patent

Patent n. RM 2003 A000264 in collaboration with Prof. M. Botta, Univ. Siena. Title: "Derivatives 4 substituted of 1-(2-chloro-2-phenyl)-1H-pyrazolo(3,4-d) pyrimidines and their use". May, 2003.

Teaching activities

-Since 2008: Assistant Professor in Pharmacology and Pharmacotherapy

Research interests:

Eicosanoids and nitric oxide: mediators of Cardiovascular, Cerebral and Neoplastic Diseases.
New therapeutic strategies for senile dementia: role of amyloid precursor protein and its metabolites on microcirculation.

Evaluation of PKC agonists and antagonists in modulating angiogenesis

BK system in retinopathies

Drug development for innovative treatments to improve preventive medicine

Characterization of natural compounds in health care and well-being

Alternative or complementary predictive methods to animal testing for pre-clinical screening

Role of genetic polymorphisms in antitumoral drug effects.

Pharmacoutilization/Pharmacovigilance in oncology and vascular retinopathies

Institutional activity

Rector Delegate for Research at the Dept. Life Sciences (11/2014-11/2018)

Member of Committee “Garanzia per l’incentivo” L. 240/2011 (1/2014-03/2015)

Member of Commission for qualification as a Pharmacist (06/2016-11/2016)

Member of Education Committee for Biological Science at the Dept. Life Sciences (Since 11/2018)

President of Education Committee for Biological Science at the Dept Life Sciences (Since 01/2022)

Reviewer of National and International Organizations

PRIN, since 2012

Futuro in Ricerca, 2013

VQR 2011-2014 and VQR 2012-20

University of Verona, PhD program "Biotechnologie applicate", 2014/2015

University of Verona, Joint Project 2017

University of Florence PhD program “Area del Farmaco e Trattamenti innovativi”, 2017

Research Foundation-Flanders (Fonds Wetenschappelijk Onderzoek-Vlaanderen, FWO, 2017

PhD program “Scienze Biomediche” Università di Firenze (2019)

Israel Science Foundation (ISF, 2020 and 2021)

International PhD program in Neuroscience, University of Catania (2020)

Fondo integrativo speciale per la ricerca (FISR)-MIUR per COVID19-2020

Swiss National Science Foundation, 2021

Foundation INNABIOSANT Toulouse Cancer Santé (Foundation TCS), 2021

Editor

Associate Editor in Frontiers in Cell and Developmental Biology (since 2020)

Editor in Frontiers in Pharmacology (since 2018)

Guest editor in the special issue “Oxidative Stress and Membrane Transport Systems” for Oxidative Medicine and Cellular Longevity (2017-2018)

Scientific publications

Author of over 100 publications as scientific papers in peer review journals and invited reviews and chapters in books

PUBLICATIONS (last 5 years)

1. Spini A, Crescioli G, Donnini S, Ziche M, Collini F, Gemmi F, Virgili G, Vannacci A, Lucenteforte E, Gini R, Lombardi N, Roberto G. Sex differences in the utilization of drugs for COVID-19 treatment among elderly residents in a sample of Italian nursing homes. *Pharmacoepidemiol Drug Saf.* 2022 Feb 22. doi: 10.1002/pds.5420.
2. Spini A, Gini R, Rosellini P, Singier A, Bellan C, Pascucci A, Leoncini L, Mathieu C, Martellucci I, Furiesi F, Giorgi S, Donnini S, Roberto G, Ziche M, Salvo F. First-Line Pharmacotherapies and Survival among Patients Diagnosed with Non-Resectable NSCLC: A Real-Life Setting Study with Gender Prospective. *Cancers (Basel).* 2021 Dec 5;13(23):6129. doi: 10.3390/cancers13236129.
3. Filippelli A, Ciccone V, Donnini S, Ziche M, Morbidelli L. Molecular Mechanisms of Resistance to Anti-Angiogenic Drugs. *Crit Rev Oncog.* 2021;26(2):39-66. doi: 10.1615/CritRevOncog.2020035422.
4. Raschi E, Del Re M, Conti V, Roncato R, Donnini S, Marzocco S, Ianaro A, Filippelli A. On behalf of the *Cancer Pharmacology Working Group* of the *Italian Society of Pharmacology*. Pharmacovigilance, drug interactions, pharmacogenetics and therapeutic drug monitoring of anticancer agents: a valuable support for clinical practice. *Pharmadvances* 2021; 3(3): 548-67 doi:10.36118/pharmadvances.2021.13
5. Spini A, Hyeraci G, Bartolini C, Donnini S, Rosellini P, Gini R, Ziche M, Salvo F, Roberto G. Real-World Utilization of Target- and Immunotherapies for Lung Cancer: A Scoping Review of Studies Based on Routinely Collected Electronic Healthcare Data. *Int J Environ Res Public Health.* 2021 Jul 19;18(14):7679. doi: 10.3390/ijerph18147679.
6. Pagano E, Bergamo A, Carpi S, Donnini S, Notarbartolo di Villarosa M, Serpe L, Lisi L. Preclinical models in oncological pharmacology: limits and advantages. *Pharmadvances* 2021;3(2): 402-420. doi: [10.36118/pharmadvances.2021.05](https://doi.org/10.36118/pharmadvances.2021.05)
7. Ristori E, Cicaloni V, Salvini L, Tinti L, Tinti C, Simons M, Corti F, Donnini S, Ziche M. Amyloid- β Precursor Protein APP Down-Regulation Alters Actin Cytoskeleton-Interacting Proteins in Endothelial Cells. *Cells.* 2020 Nov 19;9(11):2506. doi: 10.3390/cells9112506.
8. Macaluso M, Bianchi A, Sanmartin C, Taglieri I, Venturi F, Testai L, Flori L, Calderone V, De Leo M, Braca A, Ciccone V, Donnini S, Guidi L, Zinnai A. By Products from Winemaking and Olive Mill Value Chains for the Enrichment of Refined Olive Oil: Technological Challenges and Nutraceutical Features. *Foods.* 2020 Oct 1;9(10):1390. doi: 10.3390/foods9101390.
9. Ristori E, Donnini S, Ziche M. New Insights Into Blood-Brain Barrier Maintenance: The Homeostatic Role of β -Amyloid Precursor Protein in Cerebral Vasculature. *Front Physiol.* 2020 Aug 27;11:1056. doi: 10.3389/fphys.2020.01056.
10. Spini A, Donnini S, Pantziarka P, Crispino S, Ziche M. Repurposing of drugs for triple negative breast cancer: an overview. *Ecancermedicallscience.* 2020 Jul 13;14:1071. doi: 10.3332/ecancer.2020.1071.
11. Carli M, Donnini S, Pellegrini C, Coppi E, Bocci G. Opioid receptors beyond pain control: The role in cancer pathology and the debated importance of their pharmacological modulation. *Pharmacol Res.* 2020 Jun 3;159:104938. doi: 10.1016/j.phrs.2020.104938.
12. Flori L, Macaluso M, Taglieri I, Sanmartin C, Sgherri C, Leo M, Ciccone V, Donnini S, Venturi F, Pistelli L, Martelli A, Calderone V, Testai L, Zinnai A. Development of Fortified Citrus Olive Oils: From Their Production to Their Nutraceutical Properties on the Cardiovascular System. *Nutrients.* 2020 May 27;12(6):E1557. doi: 10.3390/nu12061557
13. Roberto G, Spini A, Bartolini C, Moscatelli V, Barchielli A, Paoletti D, Giorgi S, Fabbri A, Bocchia M, Donnini S, Gini R, Ziche M. Real world evidence on rituximab utilization: Combining administrative and hospital-pharmacy data. *PLoS One.* 2020 Mar 12;15(3):e0229973. doi: 10.1371/journal.pone.0229973.

14. Nannelli G, Ziche M, Donnini S, Morbidelli L. Endothelial Aldehyde Dehydrogenase 2 as a Target to Maintain Vascular Wellness and Function in Ageing. *Biomedicines*. 2020 Jan 3;8(1):4. doi: 10.3390/biomedicines8010004.
15. Terzuoli E, Bellan C, Aversa S, Ciccone V, Morbidelli L, Giachetti A, Donnini S, Ziche M. ALDH3A1 Overexpression in Melanoma and Lung Tumors Drives Cancer Stem Cell Expansion, Impairing Immune Surveillance through Enhanced PD-L1 Output. *Cancers (Basel)*. 2019 Dec 6;11(12):1963. doi: 10.3390/cancers11121963.
16. Spini A, Roberto G, Gini R, Bartolini C, Bazzani L, Donnini S, Crispino S, Ziche M. Evidence of β -blockers drug repurposing for the treatment of triple negative breast cancer: A systematic review. *Neoplasma*. 2019 Nov;66(6):963-970. doi: 10.4149/neo_2019_190110N34
17. Flori L, Donnini S, Calderone V, Zinnai A, Taglieri I, Venturi F, Testai L. The Nutraceutical Value of Olive Oil and Its Bioactive Constituents on the Cardiovascular System. Focusing on Main Strategies to Slow Down Its Quality Decay during Production and Storage. *Nutrients*. 2019 Aug 21;11(9):1962. doi: 10.3390/nu11091962.
18. Terzuoli E, Costanza F, Ciccone V, Ziche M, Morbidelli L, Donnini S. mPGES-1 as a new target to overcome acquired resistance to gefitinib in non-small cell lung cancer cell lines. *Prostaglandins Other Lipid Mediat*. 2019 Aug;143:106344. doi: 10.1016/j.prostaglandins.2019.106344.
19. Saul MJ, Baumann I, Bruno A, Emmerich AC, Wellstein J, Ottinger SM, Contursi A, Dovizio M, Donnini S, Tacconelli S, Raouf J, Idborg H, Stein S, Korotkova M, Savai R, Terzuoli E, Sala G, Seeger W, Jakobsson PJ, Patrignani P, Suess B, Steinhilber D. miR-574-5p as RNA decoy for CUGBP1 stimulates human lung tumor growth by mPGES-1 induction. *FASEB J*. 2019 Jun;33(6):6933-6947. doi: 10.1096/fj.201802547R.
20. Ciccone V, Morbidelli L, Ziche M and Donnini S. How to conjugate the stemness marker aLDH1A1 with tumor angiogenesis, progression, and drug resistance. *Drug resistance and Cancer Stem Cell*. 2020; 3:26-37
21. Terzuoli E, Nannelli G, Giachetti A, Morbidelli L, Ziche M, Donnini S. Targeting endothelial-to-mesenchymal transition: the protective role of hydroxytyrosol sulfate metabolite. *Eur J Nutr*. 2020 Mar;59(2):517-527. doi: 10.1007/s00394-019-01920-x.
22. Ciccone V, Terzuoli E, Donnini S, Giachetti A, Morbidelli L, Ziche M. Stemness marker ALDH1A1 promotes tumor angiogenesis via retinoic acid/HIF-1 α /VEGF signalling in MCF-7 breast cancer cells. *J Exp Clin Cancer Res*. 2018 Dec 12;37(1):311. doi: 10.1186/s13046-018-0975-0.
23. Nannelli G, Terzuoli E, Giorgio V, Donnini S, Lupetti P, Giachetti A, Bernardi P, Ziche M. ALDH2 Activity Reduces Mitochondrial Oxygen Reserve Capacity in Endothelial Cells and Induces Senescence Properties. *Oxid Med Cell Longev*. 2018 Nov 14;2018:9765027. doi: 10.1155/2018/9765027.
24. Morbidelli L, Terzuoli E, Donnini S. Use of Nutraceuticals in Angiogenesis-Dependent Disorders. *Molecules*. 2018 Oct 18;23(10):2676. doi: 10.3390/molecules23102676.
25. Terzuoli E, Corti F, Nannelli G, Giachetti A, Donnini S, Ziche M. Bradykinin B2 Receptor Contributes to Inflammatory Responses in Human Endothelial Cells by the Transactivation of the Fibroblast Growth Factor Receptor FGFR-1. *Int J Mol Sci*. 2018 Sep 6;19(9):2638. doi: 10.3390/ijms19092638.
26. Finetti F, Moglia A, Schiavo I, Donnini S, Berta GN, Di Scipio F, Perrelli A, Fornelli C, Trabalzini L, Retta SF. Yeast-Derived Recombinant Avenanthramides Inhibit Proliferation, Migration and Epithelial Mesenchymal Transition of Colon Cancer Cells. *Nutrients*. 2018 Aug 24;10(9):1159. doi: 10.3390/nu10091159.
27. Marino A, Dossena S, Tamma G, Donnini S. Oxidative Stress and Membrane Transport Systems. *Oxid Med Cell Longev*. 2018 Jun 13;2018:9625213. doi: 10.1155/2018/9625213.
28. Tamma G, Valenti G, Grossini E, Donnini S, Marino A, Marinelli RA, Calamita G. Aquaporin Membrane Channels in Oxidative Stress, Cell Signaling, and Aging: Recent Advances and

- Research Trends. *Oxid Med Cell Longev*. 2018 Mar 27;2018:1501847. doi: 10.1155/2018/1501847.
29. Bazzani L, Donnini S, Giachetti A, Christofori G, Ziche M. PGE2 mediates EGFR internalization and nuclear translocation *via* caveolin endocytosis promoting its transcriptional activity and proliferation in human NSCLC cells. *Oncotarget*. 2018 Feb 15;9(19):14939-14958. doi: 10.18632/oncotarget.24499.
 30. Terzuoli E, Morbidelli L, Nannelli G, Giachetti A, Donnini S, Ziche M. Involvement of Bradykinin B2 Receptor in Pathological Vascularization in Oxygen-Induced Retinopathy in Mice and Rabbit Cornea. *Int J Mol Sci*. 2018 Jan 23;19(2):330. doi: 10.3390/ijms19020330.
 31. Terzuoli E, Nannelli G, Frosini M, Giachetti A, Ziche M, Donnini S. Inhibition of cell cycle progression by the hydroxytyrosol-cetuximab combination yields enhanced chemotherapeutic efficacy in colon cancer cells. *Oncotarget*. 2017 Aug 24;8(47):83207-83224. doi: 10.18632/oncotarget.20544
 32. Venturi F, Sanmartin C, Taglieri I, Nari A, Andrich G, Terzuoli E, Donnini S, Nicoletta C, Zinnai A. Development of Phenol-Enriched Olive Oil with Phenolic Compounds Extracted from Wastewater Produced by Physical Refining. *Nutrients*. 2017 Aug 22;9(8):916. doi: 10.3390/nu9080916.
 33. Bazzani L, Donnini S, Finetti F, Christofori G, Ziche M. PGE2/EP3/SRC signaling induces EGFR nuclear translocation and growth through EGFR ligands release in lung adenocarcinoma cells. *Oncotarget*. 2017 May 9;8(19):31270-31287. doi: 10.18632/oncotarget.16116.
 34. Terzuoli E, Finetti F, Costanza F, Giachetti A, Ziche M, Donnini S. Linking of mPGES-1 and iNOS activates stem-like phenotype in EGFR-driven epithelial tumor cells. *Nitric Oxide*. 2017 Jun 1;66:17-29. doi: 10.1016/j.niox.2017.02.010.
 35. Della Giovampaola C, Capone A, Ermini L, Lupetti P, Vannuccini E, Finetti F, Donnini S, Ziche M, Magnani A, Leone G, Rossi C, Rosati F, Bonechi C. Formulation of liposomes functionalized with Lotus lectin and effective in targeting highly proliferative cells. *Biochim Biophys Acta Gen Subj*. 2017 Apr;1861(4):860-870. doi: 10.1016/j.bbagen.2017.01.015.

Siena, 10/03/2022

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