## PERSONAL INFORMATION

## Federica Barbieri

- Lab. Pharmacology Di.M.I., 2, Viale Benedetto XV, Genova, 16132 IT
- **L** +39-010.3538855 **=** +39-3477011764

Mathematica.barbieri@unige.it

https://dimi.unige.it/rubrica/federica-barbieri

https://orcid.org/0000-0001-8988-6896
Scopus ID: 7006991204 WOS ID: L-8753-2015

Sex F | Date of birth 28/03/1964| Nationality Italian

Enterprise	University	EPR
	Full professor	Research Director and 1st level Technologist /
		First Researcher and 2nd level Technologist
Mid-Management Level	Associate Professor	Level III Researcher and Technologist
	Researcher and Technologist of IV, V, VI and VII	Researcher and Technologist of IV, V, VI and VII
	level / Technical collaborator	level / Technical collaborator

## WORK EXPERIENCE

2017 - ONGOING	17 - ONGOING Associate Professor of Pharmacology (SSD BIO/14) School of Medical and Pharmaceutical Sciences, Dept. Internal Medicine, University of Genov Teaching activity:	
	<ul> <li>Teaching activity:         <ul> <li>Pharmacology (degree courses in Dentistry, Nursery, Obstetrics, Dietitian, Cardiac Physiopathology Technician, Neuropsychiatric rehabilitation, Orthoptic and ophtalmologic assistance); Toxicology (degree course in Nursery)</li> <li>PhD course in Neuroscience</li> <li>MD Specializing School of Pharmacology and Clinical Toxicology</li> <li>Institutional responsibilities and Committee memberships:</li> </ul> </li> <li>Faculty member of the PhD course in Neuroscience</li> <li>Member of the Postgraduate School of Pharmacology and Clinical Toxicology</li> <li>2017-2018 Department Research commission</li> </ul> <li>2022- Department safety commission</li> <li>Thesis supervisor (degree in Biological Sciences), tutor for PhD students, graduate students and post-doc fellows)</li> <li>Reviewing activity: -Associate Editor for Frontiers in Pharmacology/ Frontiers in Oncology/ Frontiers in Cancer Endocrinology and Reviewer for articles (Scientific Reports, Cells, Cancers, Er. J. Pharmacol. among others)-Reviewer for national (Futuro in Ricerca MIUR-FIRB-UniVr, Uniupo, UniCampania, Regione Sardegna, ex-post Regione Toscana), and international (Czech Science Foundation, Austrian Science Fund FWF/ NKFIH, Slovak Research and Development supervisor memory)</li>	
	Development Agency) research grants.	
2010-2017	<ul> <li>Assistant Professor of Pharmacology (SSD/BIO14)</li> <li>School of Medical and Pharmaceutical Sciences, Dept. Internal Medicine, University of Genova, IT         <ul> <li>Teaching activity:</li> </ul> </li> <li>Pharmacology (degree courses in Nursery, Dietitian, Cardiac Physiopathology Technician, Neuropsychiatric rehabilitation, Orthoptic and ophtalmologic assistance); Toxicology (Nursery)</li> <li>PhD course in Neuroscience         <ul> <li>Institutional responsabilities:</li> </ul> </li> <li>Faculty member of the PhD course in Neuroscience</li> <li>2012-2015 Executive Committee of the Dept. of Internal Medicine (elected member)</li> <li>Scientific mentoring of graduate and undergraduate students toward completion of Master or PhD degrees Reviewing activity Associate Editor for Frontiers in Pharmacology/ Frontiers in Cancer Endocrinology and others</li> </ul>	
2004-2009	<b>Post-Doc Researcher</b> Dept. of Oncology, Biology and Genetics, University of Genova, IT	
2001-2004	Senior research fellow	
1998-2000	Lab. Pharmacology and Neuroscience - National Cancer Research Institute, Genova – II PhD student in Pharmaceutical Sciences University of Genova	



1992-1997 1989-1991	Research fellow (Oncology Research, National Research Council C.N.R.) Lab. Pharmacology and Neuroscience - National Cancer Research Institute, Genova – IT Post-graduate researcher Fellowship Italian association for Cancer research (AIRC) Lab. Pharmacology and Neuroscience - National Cancer Research Institute, Genova – IT	
EDUCATION AND TRAINING		
2001	PhD in Pharmaceutical Sciences University of Genova, Genova, IT In vitro and in vivo analysis of antitumor activity of novel compounds: molecular, cellular and biochemical characterization of antiproliferative effects and mechanisms	
1989	Professional qualification Biologist National Institute for Cancer Research, Genova, IT Drug screening and analysis of antiproliferative effects on patient's derived tumor samples: correlation with clinic-pathological parameters (1-year training)	
1987	Degree in Biological Sciences (Biochemistry) University of Genova, Genova, IT • Chemical cancerogenesis processes and characterization of DNA damage.	
PERSONAL SKILLS Mother tongue(s) Other language(s) Job-related skills	Italian         English, proficient         French, independent         Clinical and pre-clinical studies on cancer cell proliferation and drug antiproliferative effects in human ovarian/breast cancers, mesothelioma, pituitary adenomas, meningiomas, gliomas.         -       In vivo and in vitro studies on mechanisms and effects of novel antitumor compounds in human brain tumors.         -       In vivo and in vitro analyses of the activity of somatostatin, analogs and dopastatins in benign and malignant brain tumors: receptor targeting and profiling, bio-molecular mechanisms.         -       Evaluation and targeting of the role of chemokine receptors and ligands in human brain tumors in tumor tissues, primary cultures, patients-derived cancer stem cells and cells lines.         -       Isolation and characterization of tumor stem cells from human and animal as 2D and 3D in vitro models to study the activity and molecular mechanisms of novel anticancer compounds.	
Higher Education & Training skills	Teaching staff of the PhD course in Neuroscience and of the Postgraduate School of Pharmacology and Clinical Toxicology, University of Genova I	
Project Management skills	<ul> <li>Principal Investigator</li> <li>-AIRC Grant (2013-2015) n. 13458- "Tumor initiating cells from malignant pleural mesothelioma: biological and pharmacological characterization" (180,00 €)</li> <li>-University of Genova Research grant (2013) "Analysis of the CXCL12 role in human glioma stem cell biology"</li> <li>-University of Genova Research grant (2015) Ion channel CLIC1 as target for the antitumor activity of metformin in glioma stem cells".</li> </ul>	

Other skills My working experience in the last 10 years, in the field of human tumor biology and pharmacology, has been focused on the identification and characterization of tumor stem cells in different tumors (breast, osteosarcoma, mesothelioma, pituitary adenomas) (Exp Cell Res 2018;363:48. Stem Cell Res Ther 2017;8:119. Mol Neurobiol 2017; 54:4879. Exp Cell Res 2012; 318:847) and analysis of drug efficacy on this cell subpopulation (Sci Rep 2018;8:3929. BMC Cancer 2015; 15:228; Biochem Pharmacol 2011; 82:1467). Main studies with anti-cancer drugs have been carried out in human braintumor stem cells, identifying several molecular and microenvironmental determinants of tumor aggressiveness in glioblastoma stem cells, including CXCR4/CXCL12, histone demethylases and EGFRvIII (Front Cell Neurosci 2017; 11:312. Cell Cycle 2015;14:3418, Toxicology 2013;314:209). Novel drug treatment for human brain tumors were tested at the preclinical level, including tyrosine kinase and HDAC inhibitors (Front Mol Neurosci 2016;9:107. Cell Cycle 2013; 12:491. J Biol Chem 2009;284:7138). Further studies addressed the antitumor efficacy and molecular mechanisms of metformin in glioblastoma stem cells, and its effects mediated by the ion channel CLIC1. CLIC1 relevance as druggable target was further demonstrated by the activity of repurposed compounds containing a biguanide moiety (Cell Cycle 2013;12:145, Oncotarget. 2014:11252; Sci Rep. 2018 3929, Mol Cancer Ther 2018;17:2451. Front Pharmacol 2018 21;9:89; Front Oncol 2019;9:135). Most recent studies included 3D human brain models (i.e. glioblastoma organoids) applied to the study of antiproliferative activity of novel biguanide compounds (J Exp Clin Cancer Res 41(1), 53, 2022) and meningioma stem cells (Neuro-Oncology, noad076, 2023)

## **ADDITIONAL INFORMATION**

Main Projects	<ul> <li>Compagnia di San Paolo - Position: Investigator</li> <li>2013-2014 Title: "Epigenetic alterations in glioblastoma: therapeutic implications"</li> <li>2016-2017- Title: "Role of protein phosphatases in breast cancer: potential pharmacological targets and biomarkers as predictors of the response and resistance to trastuzumab"</li> <li>A.I.R.C - Position: Investigator</li> <li>2010-2012 Title: "Role of CXCR4 and CXCR7 in glioma-derived stem cell proliferation, migration and invasiveness (2010-2012)</li> <li>Fondazione G. Celeghin Position: Investigator</li> <li>2018-2020 Title: "Study on the molecular players controlling glioblastoma stem cell reprogramming into differentiated non-tumorigenic cells as a novel pharmacological therapeutic strategy"</li> <li>Ipsen-Beaufur / Biomeasure Inc. "European Consortium for the study of non-functioning pituitary adenomas"</li> <li>2008-2009 Title: "Study of antiproliferative drugs for human non-functioning pituitary adenomas"</li> <li>2008-2009 Title: "• Evaluation of dopastatin effects on non-functioning human pituitary adenomas: a pharmacogenomic approach</li> </ul>
Publication Track record	-Author of 105 peer-reviewed publications in international journals, H-index 40, 3947 citations (Scopus, last accessed 27/04/23) - Author of 12 book chapters and proceedings.

Inhibition of chloride intracellular channel 1 (CLIC1) as biguanide class-effect to impair human Publications (last 5 years) glioblastoma stem cell viability Barbieri, F., Würth, R., Pattarozzi, A., ... Mazzanti, M., Florio, T. Frontiers in Pharmacology, 2018, 9, 899 In vitro and in vivo characterization of stem-like cells from canine osteosarcoma and assessment of drug sensitivity Gatti, M., Solari, A., Pattarozzi, A., ...Barbieri, F., Florio, T. Experimental Cell Research, 2018, 363(1), pp. 48-64 Ruta graveolens water extract inhibits cell-cell network formation in human umbilical endothelial cells via MEK-ERK1/2 pathway Gentile, M.T., Russo, R., Pastorino, O., Barbieri F, ...Chambery, A., Colucci-D'Amato, L. Experimental Cell Research, 2018, 364(1), pp. 50-58 Mutual influence of ROS, PH, and CLIC1 membrane protein in the regulation of G 1 -S phase progression in human glioblastoma stem cells Peretti, M., Raciti, F.M., Carlini, V.,. .Barbieri F, ..Florio, T., Mazzanti, M. Molecular Cancer Therapeutics, 2018, 17(11), pp. 2451-2461 Development of an Injectable Slow-Release Metformin Formulation and Evaluation of Its Potential Antitumor Effects Baldassari, S., Solari, A., Zuccari, G., .. Barbieri F, ... Caviglioli, G., Florio, T. Scientific Reports, 2018, 8(1), 3929 Repurposed biguanide drugs in glioblastoma exert antiproliferative effects via the inhibition of intracellular chloride channel 1 activity Barbieri, F., Verduci, I., Carlini, V., ... Mazzanti, M., Florio, T. Frontiers in Oncology, 2019, 9(MAR), 135 Autophagy activator drugs: A new opportunity in neuroprotection from misfolded protein toxicity Thellung, S., Corsaro, A., Nizzari, M., **Barbieri, F.**, Florio, T. International Journal of Molecular Sciences, 2019, 20(4), 901 Biological and biochemical basis of the differential efficacy of first and second generation somatostatin receptor ligands in neuroendocrine neoplasms Gatto, F., Barbieri, F., Arvigo, M., ... Ferone, D., Florio, T. International Journal of Molecular Sciences, 2019, 20(16), 3940 Emerging role of cellular prion protein in the maintenance and expansion of glioma stem cells Thellung, S., Corsaro, A., Bosio, A.G., ..F. Barbieri, ....Mazzanti, M., Florio, T. Cells, 2019, 8(11), 1458 Experimental Evidence and Clinical Implications of Pituitary Adenoma Stem Cells Würth, R., Thellung, S., Corsaro, A., Barbieri, F., Florio, T. Frontiers in Endocrinology, 2020, 11, 54 Cross talk between mesenchymal and glioblastoma stem cells: Communication beyond controversies Bajetto, A., Thellung, S., Dellacasagrande, I., ... Barbieri, F., Florio, T. Stem Cells Translational Medicine, 2020, 9(11), pp. 1310-1330 Octreotide and pasireotide combination treatment in somatotroph tumor cells: Predominant role of sst2 in mediating ligand effects Amarù, J., Barbieri, F., Arvigo, M., ...Florio, T., Gatto, F. Cancers, 2021, 13(8), 1816 Structure and properties of electrochemically synthesized silver nanoparticles in aqueous solution by high-resolution techniques Gasbarri, C., Ronci, M., Aceto, A., .F, Barbieri....Angelini, G., Scotti, L. Molecules, 2021, 26(17), 5155 Chloride intracellular channel 1 activity is not required for glioblastoma development but its inhibition dictates glioma stem cell responsivity to novel biguanide derivatives Barbieri, F., Bosio, A.G., Pattarozzi, A., ... Mazzanti, M., Florio, T. Journal of Experimental and Clinical Cancer Research, 2022, 41(1), 53 Boron Vehiculating Nanosystems for Neutron Capture Therapy in Cancer Treatment Ailuno, G., Balboni, A., Caviglioli, G., ... F, Barbieri ... Florio, T., Baldassari, S. Cells, 2022, 11(24), 4029 Antitumor Potential of Antiepileptic Drugs in Human Glioblastoma: Pharmacological Targets and **Clinical Benefits** Stella, M., Baiardi, G., Pasquariello, S., ...Mattioli, F., Barbieri, F. Biomedicines, 2023, 11(2), 582 Stem-like signatures in human meningioma cells are under the control of CXCL11/CXCL12 chemokine activity. Barbieri F, Bajetto, Irne Dellacasagrande,..... D De Pietri Tonelli, T Florio,

Barbieri Federica

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Genova, 27th April 2023