Curriculum vitae PAOLA FRANCESCA GAMBA

Personal details

Born in: Turin
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Educations

2007	PhD degree in "Experimental and Molecular Pathology" Department of Clinical and Biological Sciences (DSCB), University of Turin, Italy
2003	Degree in Biological Sciences Faculty of Mathematical, Physical and Natural Sciences, University of Turin, Italy

Professional experiences and current position

2022	Associate professor in General Pathology (MED/04 - 06/A2, general pathology and clinical pathology) (current position)
2018 - 2021	University Researcher (RTD-B), DSCB, University of Turin, Italy.
2014 - 2018	University Researcher (RTD-A), DSCB, University of Turin, Italy.
2014	Post-doc research fellowship for the project "Determination of oxysterols in patients with Alzheimer's disease and evaluation of their pro-inflammatory effect", DSCB, University of Turin, Italy.
2013 - 2014	Post-doc research fellowship for the project "Pro-inflammatory effect of cholesterol oxidation products and their potential role in neoplastic transformation and progression", DSCB, University of Turin, Italy.
2009 - 2013	Post-doc research fellowship for the project "Oxidized cholesterol in vascular remodelling during atherosclerosis", DSCB, University of Turin, Italy.
2008 - 2009	Post-doc research fellowship for the project "Oxidized cholesterol and inflammation in vascular remodelling occurring during atherosclerosis", DSCB, University of Turin, Italy.
2007 - 2008	Post-doc research fellowship for the project "Alterations of endothelial cells and of smooth muscle cells during atherosclerosis: the role of cholesterol oxidation products", DSCB, University of Turin, Italy.
2003 - 2007	PhD research fellowship for the project "Lipid oxidation products and inflammatory cytokines in atherosclerosis progression", DSCB, University of Turin, Italy.

Participation to Directive Boards of Scientific Societies and/or Institutions:

2023	Member of the Council of the Society for Free Radical Research – Europe (SFRR-E).
2017 - 2023	Member of the faculty board of the Doctoral School in Experimental Medicine and Therapy, University of Turin, Italy.
2010	Member of the Scientific Societies ENOR (European Network for Oxysterol Research) (group of Experimental and Translational Pathology) and SFRR-E (Society for Free Radical Research - Europe).

Honors

2019	"People's Poster Presentation Award", in occasion of the European Network for Oxysterol Research (ENOR) Symposium, 19th-20th September 2019, Edinburgh, UK.
2017	"Catherine Pasquier award 2017" for studies in neuroprotection, sponsored by SFRR Europe, in occasion of the Joint OCC World Congress & Annual SFRR-E Conference 2017 on Metabolic stress and redox regulation, 21st June 2017, Berlin, Germany.
2017	"Fondazione Ferrero Travelling Award 2017", in occasion of the Gordon Research Conference, Oxidative Stress & Disease, 19th-24th March 2017, Lucca (Barga), Italy.
2003	"Mario Marocco" award for the best thesis in Molecular Medicine in the Academic Year 2002-2003, University of Turin, Italy.

Teaching activity

- Basic Pathology and Immunology – module of General Pathology (MedInTO Medicine and Surgery, University of Turin).
- Pathology & Pathophysiology (MedInTO Medicine and Surgery, University of Turin).
- General Pathology (Medicine and Surgery, University of Turin).
- Medical Disciplines and Adapted Physical Activity 1 (Sciences of Physical Activity and Sport, SUISM, LM67, University of Turin).
- Biomedical Sciences 3 – module of General Pathology (Dental Hygiene, University of Turin).

Research main topics

- Evaluation of the role of brain cholesterol metabolism in the pathogenesis of different neurodegenerative diseases with the aim of identifying new biomarkers of neurodegeneration and to suggest new therapeutic approaches for Alzheimer's disease and other dementias.
- Study of the neuroprotective molecular mechanisms modulated by the oxysterol 24-hydroxycholesterol and development of potential therapeutic strategies against Alzheimer's disease based on nanotechnology.
- Study of the implication of ApoE ε4 genotype in astrocyte reactivity and brain cholesterol metabolism, and its role in Alzheimer's disease pathogenesis.

Main projects as PI

2016-2017 "Neuronal survival mechanisms modulated by cholesterol oxidation products in Alzheimer's disease" (Fondo per la Ricerca Locale 2015 – Linea B), 10000 euros.

2017-2020 "Modulation of neuroprotective pathways in AD" (Compagnia di San Paolo), 75377 euros.

2018-2021 "Study of the neuroprotective mechanisms modulated by 24-hydroxycholesterol: a new therapeutic strategy to counteract Alzheimer's disease" (Banca d'Italia), 18500 euros.

2020-2023 "Identification and validation of a new therapeutic target for Alzheimer's disease" (Fondazione CRT - Ricerca e Istruzione), 40000 euros.

Bibliometry (2005-present) (*www.scopus.com*)

10 best publications

1. Gargiulo S, **Gamba P**, Sottero B, Biasi F, Chiarpotto E, Serviddio G, Vendemiale G, Poli G, Leonarduzzi G (**2009**). The core-aldehyde 9-oxononanoyl cholesterol increases the level of TGFβ1 specific receptors on promonocytic U937 cell membranes, Aging cell. 8(2):77-87. **co-first authorship**
2. **Gamba P**, Leonarduzzi G, Tamagno E, Guglielmotto M, Testa G, Sottero B, Gargiulo S, Biasi F, Mauro A, Vina J, Poli G (**2011**). Interaction between 24-hydroxycholesterol, oxidative stress and amyloid-β in amplifying neuronal damage in Alzheimer's disease: three partners in crime. Aging cell 10:403-417
3. Testa G, **Gamba P**, Di Scipio F, Elio Sprio A, Salamone P, Gargiulo S, Sottero B, Biasi F, Berta GN, Poli G, Leonarduzzi G (**2012**). Potentiation of amyloid-β peptide neurotoxicity in human dental-pulp neuron-like cells by the membrane lipid peroxidation product 4-hydroxynonenal. Free Radic Biol Med. 53(9):1708-17. **co-first authorship**
4. Gargiulo S, **Gamba P**, Testa G, Sottero B, Maina M, Guina T, Biasi F, Poli G, Leonarduzzi G (**2012**). Molecular Signaling Involved in Oxysterol-Induced β1-Integrin Over-Expression in Human Macrophages. Int J Mol Sci. 13(11):14278-93. **co-first authorship**
5. **Gamba P**, Guglielmotto M, Testa G, Monteleone D, Zerbinati C, Gargiulo S, Biasi F, Iuliano L, Giaccone G, Mauro A, Poli G, Tamagno E, Leonarduzzi G. (**2014**) Up-regulation of β-amyloidogenesis in neuron-like human cells by both 24- and 27-hydroxycholesterol: protective effect of N-acetylcysteine. Aging Cell. 13(3):561-572
6. Testa G, **Gamba P**, Badilli U, Gargiulo S, Maina M, Guina T, Calfapietra S, Biasi F, Cavalli R, Poli G, Leonarduzzi G. (**2014**) Loading into nanoparticles improves quercetin's efficacy in preventing neuroinflammation induced by oxysterols. PlosOne. 9(5):e96795. **co-first authorship**
7. Testa G, Staurenghi E, Zerbinati C, Gargiulo S, Iuliano L, Giaccone G, Fantò F, Poli G, Leonarduzzi G, **Gamba P** (**2016**). Changes in brain oxysterols at different stages of Alzheimer's disease: their involvement in neuroinflammation. Redox Biology 10:24-33
8. Testa G, Staurenghi E, Giannelli S, Gargiulo S, Guglielmotto M, Tabaton M, Tamagno E, **Gamba P**, Leonarduzzi G. (**2018**). A silver lining for 24-hydroxycholesterol in Alzheimer's disease: The involvement of the neuroprotective enzyme sirtuin 1. Redox Biology 17:423-431. **co-last authorship**

9. Staurenghi E, Leoni V, Lo Iacono M, Sottero B, Testa G, Giannelli S, Leonarduzzi G, **Gamba P** (**2022**). ApoE3 vs. ApoE4 astrocytes: A detailed analysis provides new insights into differences in cholesterol homeostasis. Antioxidants (Basel). 11(11):2168.
10. Testa G, Giannelli S, Sottero B, Staurenghi E, Giaccone G, Caroppo P, **Gamba P**, Leonarduzzi G. (**2023**). 24-Hydroxycholesterol Induces Tau Proteasome-Dependent Degradation via the SIRT1/PGC1/Nrf2 Pathway: A Potential Mechanism to Counteract Alzheimer's Disease. Antioxidants 12, 631. **co-last authorship**

More relevant publications in the last 5 yrs (2018-2022)

1. Vurusaner B, Gargiulo S, Testa G, **Gamba P**, Leonarduzzi G, Poli G, Basaga H. (**2018**). The role of autophagy in survival response induced by 27-hydroxycholesterol in human promonocytic cells. Redox Biology 17:400-410
2. Testa G, Staurenghi E, Giannelli S, Gargiulo S, Guglielmotto M, Tabaton M, Tamagno E, **Gamba P**, Leonarduzzi G. (**2018**). A silver lining for 24-hydroxycholesterol in Alzheimer's disease: The involvement of the neuroprotective enzyme sirtuin 1. Redox Biology 17:423-431. **co-last authorship**
3. Civra A, Francese R, **Gamba P**, Testa G, Cagno V, Poli G, Lembo D. (**2018**). 25-Hydroxycholesterol and 27-hydroxycholesterol inhibit human rotavirus infection by sequestering viral particles into late endosomes. Redox Biol. 19:318-330
4. Gargiulo S, Rossin D, Testa G, **Gamba P**, Staurenghi E, Biasi F, Poli G, Leonarduzzi G. (**2018**). Up-regulation of COX-2 and mPGES-1 by 27-hydroxycholesterol and 4-hydroxynonenal: A crucial role in atherosclerotic plaque instability. Free Radic Biol Med. 129:354-363
5. **Gamba P**, Staurenghi E, Testa G, Giannelli S, Sottero B and Leonarduzzi G (**2019**). A crosstalk between brain cholesterol oxidation and glucose metabolism in Alzheimer's disease. Front Neurosci. 13:556
6. Sottero B, Rossin D, Staurenghi E, **Gamba P**, Poli G, Testa G (**2019**). Omics analysis of oxysterols to better understand their pathophysiological role. Free Radic Biol Med. 144:55-71
7. Staurenghi E, Cerrato V, **Gamba P**, Testa G, Giannelli S, Leoni V, Caccia C, Buffo A, Noble W, Perez-Nievas BG, Leonarduzzi G (**2021**). Oxysterols present in Alzheimer's disease brain induce synaptotoxicity by activating astrocytes: A major role for lipocalin-2. Redox Biol. 39:101837
8. Testa G, Staurenghi E, Giannelli S, Sottero B, Gargiulo S, Poli G, **Gamba P**, Leonarduzzi G (**2021**). Up-regulation of PCSK6 by lipid oxidation products: A possible role in atherosclerosis. Biochimie. 181:191-203
9. **Gamba P**, Giannelli S, Staurenghi E, Testa G, Sottero B, Biasi F, Poli G, Leonarduzzi G (**2021**). The controversial role of 24-S-hydroxycholesterol in Alzheimer's disease. Antioxidants 10(5):740
10. Biasi F, Leoni V, **Gamba P**, Sassi K, Lizard G, Poli G (**2021**). Role of 27-hydroxycholesterol and its metabolism in cancer progression: Human studies. Biochem Pharmacol. 21:114618
11. Staurenghi E, Giannelli S, Testa G, Sottero B, Leonarduzzi G, **Gamba P** (**2021**). Cholesterol dysmetabolism in Alzheimer's disease: A starring role for astrocytes? Antioxidants 10: 1890.
12. Sottero B, Testa G, **Gamba P**, Staurenghi E, Giannelli S, Leonarduzzi G (**2022**). Macrophage polarization by potential nutraceutical compounds: A strategic approach to counteract inflammation in atherosclerosis. Free Radic Biol Med. 181:251-269.
13. Staurenghi E, Leoni V, Lo Iacono M, Sottero B, Testa G, Giannelli S, Leonarduzzi G, **Gamba P** (**2022**). ApoE3 vs. ApoE4 astrocytes: A detailed analysis provides new insights into differences in cholesterol homeostasis. Antioxidants (Basel). 11(11):2168.

Orbassano (TO), 26th April 2023