

Curriculum vitae et studiorum

Personal information

Sofia Giovanna Mariotto

Born on June 24, 1965, Nogara (VR)

Present address:

Department of Neurological, Biomedical and Movement Sciences,
Section of Biological Chemistry, University of Verona.

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1990, October

Degree "summa cum laude" in Chemistry and Pharmaceutical Technology at the University of Bologna. Thesis title: "Cinetica chimica: soluzioni di sistemi di equazioni differenziali complesse su Personal Computer", (Supervisor Prof. Gian Franco Pedulli)

1991-1994

Research Fellowship at the Institute of Biochemistry, University of Verona Italy. Project on: "Cross-Talk between constitutive and inducible nitric oxide synthase"

1992

Research Fellowship at the Institute of Biochemistry of the National Cancer Center, Tokyo. Research activity concerning Poly-ADP ribose polymerase expression in *Sarcophaga Peregrina*

1994-1998

Ph.D. student in Biochemistry at University of Verona. Research activity concerning purification and biochemical characterization of nitric oxide synthase. "Purificazione e caratterizzazione dell'ossido nitrico sintasi nel testicolo di ratto" (supervisor Prof. Hisanori Suzuki)

1999-2006

Post-doctoral fellowship at the Department of Morphological and Biomedical Science, Biochemistry Division, University of Verona.

2006-2015

Assistant Professor of Biochemistry (BIO/10), University of Verona, Italy

2015-at the present

Associate Professor of Biochemistry (BIO/10), University of Verona, Italy

Accademic activity

- From 2006 to date Professor of Biochemistry at Degree Courses in health, prevention and rehabilitation at the University of Verona.

Main research topics

- Functional cross-talk between constitutive and nitric oxide synthase
- Effect of down-modulation of nitric oxide production in animal model of inflammatory related pathologies in which STAT1/3 are hyperactivated.
- Identification of phytochemicals modulating JAK/STAT pathway and study of their molecular mechanism of action.
- Molecular mechanism of specific cytotoxic action of natural compounds towards

malignant tumour cells.

-Biochemical and biophysical study of STAT3 and STAT1 redox regulation.

Publications

1. S. Mariotto, L. Cuzzolin, A. Adami, P. Del Soldato, H. Suzuki and G. Benoni. "Inhibition by sodium nitroprusside of the expression of inducible nitric oxide synthase in rat neutrophils." *Br. J. Pharmacol.*, 114, 1105-1106, 1995.
2. S. Mariotto, L. Cuzzolin, A. Adami, P. Del Soldato, H. Suzuki and G. Benoni. "Effect of a new anti-inflammatory drug, nitroflurbiprofen, on the expression of inducible nitric oxide synthase in rat neutrophils." *Br. J. Pharmacol.*, 115, 225-226, 1995.
3. S. Mariotto, M. Menegazzi, A. Carcereri de Prati, L. Cuzzolin, A. Adami, H. Suzuki and G. Benoni. "Protective effect of nitric oxide on the gastric lesions and inhibition of the expression of gastric inducible nitric oxide synthase by flurbiprofen, and its nitro-derivative, nitroflurbiprofen." *Br. J. Pharmacol.*, 116,1713-1714, 1995.
4. M. Colasanti, T. Persichini, M. Menegazzi, S. Mariotto, E. Giordano, C. M. Caldarera, V. Sogos, G. M. Lauro, and H. Suzuki. "Induction of nitric oxide synthase mRNA expression" *J. Biol. Chem.* 270, 26731-26733, 1995.
6. H. Suzuki, M. Menegazzi, A. Carcereri de Prati, S. Mariotto and U. Armato. "Nitric oxide in the liver. Physiopathological roles." *Advances in Neuroimmunology.*, 5, 379-410, 1995.
7. M. Colasanti, E. Cavalieri, T. Persichini, V. Mollace, S. Mariotto, H. Suzuki and G. M. Lauro. "Bacterial lipopolysaccharide plus interferon- γ elicit a very fast inhibition of a Ca^{2+} -dependent NO synthase activity in human astrocytoma cells" *J. Biol. Chem.* 272, 7582-7585, 1997.
8. M. Menegazzi, S. Mariotto, E. Cavalieri, A. Carcereri de Prati and H. Suzuki. "Network formation among nitric oxide (NO), constitutive and inducible NO synthase" *EOS-J. Immunol. Immunopharmacol.* XVIII,3-4, 48-52, 1998
9. M. Colasanti, T. Persichini, E. Cavalieri, C. Fabrizi, S. Mariotto, M. Menegazzi, G. M. Lauro and H. Suzuki. "Rapid inactivation of NOS-I by lipopolysaccharide plus interferon-g-induced tyrosine phosphorylation" *J. Biol. Chem.* 274, 9915-9917, 1999.
10. M. Menegazzi, E. Tedeschi, D. Dussin, A. Carcereri de Prati, E. Cavalieri, S. Mariotto, and H. Suzuki. "Anti-interferon- γ action of epigallocatechin-3-gallate mediated by specific inhibition of STAT1 activation". *FASEB J.* 15, 1309-11, 2001, 2001.
11. E. Cavalieri, S. Mariotto, C. Fabrizi, A. Carcereri de Prati, R. Gottardo, S. Leone, L.V. Berra, G.M. Lauro, A.R. Campa and H. Suzuki. "Alpha-Bisabolol, a nontoxic natural compound, strongly induces apoptosis in glioma cells." *Biochem Biophys Res Commun.* 315, 589-94, 2004.
12. S. Mariotto, M. Menegazzi, and H. Suzuki. "Biochemical aspects of nitric oxide." *Curr Pharm Des.* 10, 1627-45, 2004.
13. M. Matsutani, M. Ikeijama, S. Mariotto, T. Nozaki, S. Kurata, S. Natori, H. Esumi T, Sugimura. "Developmental changes of poly (ADP-ribose) polymerase expression in *Sarcophaga peregrine*". *Proceedings of the Japan Academy*, b 80, 335-341, 2004.

14. L. Perbellini, R. Gottardo, A. Caprini, F. Bortolotti, S. Mariotto and F. Tagliaro. "Determination of alpha-bisabolol in human blood by micro-HPLC-MS ion trap and head space GC-MS methods" *J Chromatogr B Analyt Technol Biomed Life Sci.*, 812, 373-7, 2004.
15. S. Mariotto, M. Miscusi, T. Persichini, M. Colasanti and H. Suzuki. "Ageing-related role of nitric oxide in the brain" *The Neuroendocrine Immune Network in Ageing*, 291-300, 2004
16. E. Cavalieri, S. Mariotto, C. Fabrizi, A. Carcereri de Prati, R. Gottardo, S. Leone, L.V. Berra, GM Lauro, AR Campa and H. Suzuki. "Natural sesquiterpene alcohol, α -bisabolol strongly induces apoptosis in glioma cells without affecting normal cell viability." *International Journal of neuroprotection and neurodegeneration* 1, 40, 2004.
17. S. Mariotto, E. Cavalieri, E. Amelio, A.R. Campa, A. Carcereri de Prati, E. Marlinghaus, S. Russo and H. Suzuki. "Extracorporeal shock waves: from lithotripsy to anti-inflammatory action by NO Production" *Nitric Oxide Biology and Chemistry*, 12, 89-96, 2005.
18. A. Carcereri de Prati, AR Ciampa, E. Cavalieri, R. Zaffini, E. Darra, M. Menegazzi, H. Suzuki, S. Mariotto "STAT1 as a new molecular target of anti-inflammatory treatment" *Current Medicinal Chemistry*, 12, 1623-1629, 2005.
19. K. Shoji, S. Mariotto, A.R. Ciampa, H. Suzuki. "Regulation of serine racemase activity by D-serine and nitric oxide in human glioblastoma cells." *Neurosci Letters.*, 392, 75-8, 2006.
20. K. Shoji, S. Mariotto, A.R. Ciampa, H. Suzuki. "Mutual regulation between serine and nitric oxide metabolism in human glioblastoma cells" *Neurosci Letters*, 394, 163-7, 2006.
21. A.R. Ciampa, A. Carcereri de Prati, E. Amelio, E. Cavalieri, T. Persichini, M. Colasanti, G. Musci, E. Marlinghaus H. Suzuki and S. Mariotto. "Nitric oxide mediates anti-inflammatory action of extracorporeal shock waves" *Febs Letter* 579, 6839-45, 2005.
22. T. Genovese, E. Mazzon, S. Mariotto, M. Menegazzi, S. Cardali, A. Conti, H. Suzuki, P. Bramanti, S. Cuzzocrea "Modulation of nitric oxide homeostasis in a mouse model of spinal cord injury." *J Neurosurg Spine*. 4, 145-153, 2006.
23. M. Miscusi, F. Ebner, S. Ceccariglia, M. Menegazzi, S. Mariotto, L. Berra, A. Del Fa, C. Gangitano, L. Lauretti, P. Missori, R. Delfini, H. Suzuki. "Early nuclear factor-kappaB activation and inducible nitric oxide synthase expression in injured spinal cord neurons correlating with a diffuse reduction of constitutive nitric oxide synthase activity." *J Neurosurg Spine* 4, 485-93, 2006.
24. S. Mariotto, Y Suzuki T Persichini, M Colasanti, H Suzuki and O Cantoni. "Cross-talk between NO and arachidonic acid in inflammation" *Current Medicinal Chemistry* 14, 1940-4, 2007.
25. E. Darra, K. Shoji, S. Mariotto, H. Suzuki. "Protective effect of epigallocatechin-3-gallate on ischemia/reperfusion-induced injuries in the heart: STAT1 silencing flavonoid." *Genes Nutr.* 2, 307-10, 2007.
26. E. Darra, G. Lenaz, E. Cavalieri, R. Fato, S. Mariotto, C. Bergamini, A. Carcereri de Prati, L. Perbellini, S. Leoni, H. Suzuki. "Alpha-bisabolol: unexpected plant-derived weapon in the struggle against tumour survival?" *Ital J Biochem.* 56, 323-8, 2007

27. S. Mariotto, E. Esposito, R. Di Paola, A. Ciampa, E. Mazzon, AC de Prati, E. Darra, S. Vincenzi, G. Cucinotta, R. Caminiti, H. Suzuki, S. Cuzzocrea. "Protective effect of Arbutus unedo aqueous extract in carrageenan-induced lung inflammation in mice." *Pharmacol Res*; 57, 110-24, 2008.
28. E. Darra, S. Abdel-Azeim, A. Manara, A. K. Shoji, JD Maréchal, S. Mariotto, E. Cavalieri, L. Perbellini, C. Pizza, D. Perahia, M. Crimi, H. Suzuki. "Insight into the apoptosis-inducing action of alpha-bisabolol towards malignant tumor cells: involvement of lipid rafts and Bid." *Arch Biochem Biophys*. 476,113-123, 2008.
29. O. Cantoni, L. Palomba, T. Persichini, S. Mariotto, H. Suzuki, M. Colasanti. "Pivotal role of arachidonic acid in the regulation of neuronal nitric oxide synthase activity and inducible nitric oxide synthase expression in activated astrocytes." *Methods Enzymol*. 440, 243-52, 2008.
30. S. Mariotto, A.R. Ciampa, AC de Prati, E. Darra, S. Vincenzi, M. Segal, E. Cavalieri, K. Shoji, H. Suzuki. "Aqueous extract of Arbutus unedo inhibits STAT1 activation in human breast cancer cell line MDA-MB-231 and human fibroblasts through SHP2 activation." *Med Chem*. 4, 219-228, 2008.
31. T.M. Scarabelli, S. Mariotto, S. Abdel-Azeim, K. Shoji, E. Darra, A. Stephanou, C. Chen-Scarabelli, JD Marechal, R. Knight, A. Ciampa, L. Saravolatz, AC de Prati, Z. Yuan, E. Cavalieri, M. Menegazzi, D. Latchman, C. Pizza, D. Perahia, H. Suzuki. "Targeting STAT1 by myricetin and delphinidin provides efficient protection of the heart from ischemia/reperfusion-induced injury." *FEBS Lett*. 583,531-41, 2009.
32. E. Cavalieri, C. Bergamini, S. Mariotto, S. Leoni, L. Perbellini, E. Darra, H. Suzuki, R. Fato, G. Lenaz. "Involvement of mitochondrial permeability transition pore opening in alpha-bisabolol induced apoptosis." *FEBS J*. 276, 3990-4000, 2009.
33. S. Mariotto, A.C de Prati, E. Cavalieri, E. Amelio, E. Marlinghaus, H. Suzuki. "Extracorporeal shock wave therapy in inflammatory diseases: molecular mechanism that triggers anti-inflammatory action." *Curr Med Chem* 16, 2366-72, 2009.
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35. F.H. Ebner, S. Mariotto, E. Darra, H. Suzuki, E. Cavalieri. "Use of STAT1 inhibitors in the treatment of brain I/R injury and neurodegenerative diseases." *Cent Nerv Syst Agents Med Chem*, 11,2-7 2011
36. E. Butturini, E. Cavalieri, AC de Prati, E. Darra, A. Rigo, K. Shoji, N. Murayama, H. Yamazaki, Y. Watanabe, H. Suzuki, S. Mariotto. "Two naturally occurring terpenes, dehydrocostuslactone and costunolide, decrease intracellular GSH content and inhibit STAT3 activation." *PLoS One*. 6:e20174. Epub 2011
37. M. Maldini, S. Di Micco, P. Montoro, E. Darra, S. Mariotto, G. Bifulco, C. Pizza, S. Piacente. "Flavanocoumarins from Guazuma ulmifolia bark and evaluation of their affinity for STAT1." *Phytochemistry*, 86, 64-71, 2013.
38. E. Butturini, A. Carcereri de Prati, G. Chiavegato, A. Rigo, E. Cavalieri, E. Darra, S. Mariotto. "Mild oxidative stress induces S-glutathionylation of STAT3 and enhances chemosensitivity of tumoural cells to chemotherapeutic drugs." *Free Radic Biol Med*, 65,1322-30,2013

- 39.** M. Menegazzi, S. Mariotto, M. Dal Bosco, E. Darra, N. Vaiana, K. Shoji, A.A Safwat, J.D. Marechal, D. Perahia, H. Suzuki, S. Romeo. "Direct interaction of natural and synthetic catechins with signal transducer activator of transcription 1 affects both its phosphorylation and activity." *FEBS J.*, 281, 724-38, 2014.
- 40.** E. Butturini, R. Di Paola, H. Suzuk, I. Paterniti, A. Ahmad, S. Mariotto, Cuzzocrea S. "Costunolide and Dehydrocostuslactone, two natural sesquiterpene lactones, ameliorate the inflammatory process associated to experimental pleurisy in mice." *Eur J Pharmacol*,730, 107-115, 2014.
- 41.** E. Butturini, E. Darra, G. Chiavegato, B. Cellini, F. Cozzolino, M. Mont, P. Pucci , D. Dell'Orco D, S. Mariotto. "S-Glutathionylation at Cys328 and Cys542 Impairs STAT3 Phosphorylation." *ACS Chem Biol*,15,1885-93, 2014
- 42.** C.Scarponi, E. Butturini,R.Sestito, S. Madonna, A. Cavani, S.Mariotto, C. Albanesi. "Inhibition of inflammatory and proliferative responses of human keratinocytes exposed to the sesquiterpene lactones dehydrocostuslactone and costunolide." *PLoS One*.9:e107904. Epub 2014
- 43.**L. Marongiu , M. Donini, M. Bovi , M. Perduca , F. Vivian , A. Romeo , S. Mariotto, H.L. Monaco, S. Dusi S. "The inclusion into PLGA nanoparticles enables a-bisabolol to efficiently inhibit the human dendritic cell pro-inflammatory activity." *J Nanopart Res* 16: DOI 10.1007/s11051-014-2554-4, 2014.
- 44.** E. Butturini, G. Gotte, D. Dell'Orco, G. Chiavegato, V. Marino, D. Canetti, F. Cozzolino, M. Monti, P. Pucci , S. Mariotto "Intermolecular disulfide bond influences unphosphorylated STAT3 dimerization" *Biochem J*. 2016 Oct 1;473(19):3205-19. doi: 10.1042/BCJ20160294.
- 45.**T. Persichini T, S.Mariotto, H. Suzuki, E. Butturini, R. Mastrantonio, O. Cantoni, M. Colasanti . "Cross-Talk Between NO Synthase Isoforms in Neuro-Inflammation: Possible Implications in HIV-Associated Neurocognitive Disorders." *Curr Med Chem*. 2016;23(24):2706-2714.
- 46.** Cordani M, Oppici E, Dando I, Butturini E, Dalla Pozza E, Nadal-Serrano M, Oliver J, Roca P, Mariotto S, Cellini B, Blandino G, Palmieri M, Di Agostino S, Donadelli M. "Mutant p53 proteins counteract autophagic mechanism sensitizing cancer cells to mTOR inhibition." *Mol Oncol*. 2016 Aug;10(7):1008-29. doi: 10.1016/j.molonc.2016.04.001.
- 47.**Carcereri de Prati A, Butturini E, Rigo A, Oppici E, Rossin M, Boriero D, Mariotto S. Metastatic Breast Cancer Cells Enter Into Dormant State and Express Cancer Stem Cells Phenotype Under Chronic Hypoxia. *J Cell Biochem*. 2017. doi: 10.1002/jcb.25972.
- 48.** Butturini E, Cozzolino F, Boriero D, Carcereri de Prati A, Monti M, Rossin M, Canetti D, Cellini B, Pucci P and Mariotto S. S-glutathionylation exerts opposing roles in the regulation of STAT1 and STAT3 signaling in reactive microglia *Free Radic Biol Med* (submitted)