

# Elena Butturini

## Personal data

1980 October 22nd  
Born in Verona, Italy

## Education

2007 March:

Undergraduate degree in Chemical and Pharmaceutical Technology at the University of Bologna.

2007-2010

Ph.D. student in Bioscience, curriculum Biochemistry, University of Verona.

2009-2010

Stage at Showa Pharmaceutical University (Tokyo) to perform an experimental work on: 1) the study of molecular mechanism of inhibitory action of different natural compounds on STAT1 and STAT3 activation, 2) in vitro study of the catalytic activity of calmodulin kinase 4.

## Work experience

2011-2017

Post doctoral fellowship at the Department of Life and Reproduction Sciences, Section of Biochemistry, University of Verona.

## Current main scientific interests

- Identification of phytochemicals modulating STAT3 pathway and study of their molecular mechanism of action.
- Effect of down-modulation of STAT3 signaling in animal model of inflammatory pathologies in which STAT3 is hyperactivated.
- Molecular mechanism of cytotoxic activity of anti-STAT3 sesquiterpenes towards malignant tumour cells.
- Biochemical and biophysical study of STAT3 folding.
- Redox regulation of STAT1 and STAT3 signaling.

## Publications

- Butturini E., Cavalieri E., Carcereri de Prati A., Darra E., Rigo A., Shoji K., Murayama N., Yamazaki H., Watanabe Y., Suzuki H., Mariotto S.. Two naturally occurring terpenes, costunolide and dehydrocostus lactone, decrease intracellular GSH content and inhibit STAT3 activation. PLoS One. 6:e20174. Epub 2011.
- Butturini E., Carcereri de Prati A., Chiavegato G., Rigo A., Cavalieri E., Darra E., Mariotto S.. 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.
- Butturini E., Di Paola R., Suzuki H., Paterniti I., Ahmad A., Mariotto S., 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.

-Butturini E., Darra E., Chiavegato G., Cellini B., Cozzolino F., Monti M., Pucci P., Dell'Orco D., Mariotto S.. S-glutathionylation at Cys328 and Cys542 impairs STAT3 phosphorylation. *ACS Chem Biol*, 15, 1885-1893, 2014.

-Scarponi C., Butturini E., Sestito R., Madonna S., Cavani A., Mariotto S., Albanesi C.. Inhibition of inflammatory and proliferative responses of human keratinocytes exposed to thesesquiterpene lactones dehydrocostuslactone and costunolide. *PLoS One*.9:e107904. Epub 2014.

-Butturini E., Gotte G., Dell'Orco D., Chiavegato G., Marino V., Cozzolino F., Monti M., Pucci P., Mariotto S.. Intermolecular disulfide bond influences unphosphorylated STAT3 dimerization. *Biochem J*. 2016; 473(19):3205-19. doi: 10.1042/BCJ20160294. Epub 2016.

- 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. Epub 2016.

- Persichini T., Mariotto S., Suzuki H., Butturini E., Mastrantonio R., Cantoni O., Colasanti M.. Cross-Talk between NO Synthase Isoforms in neuro-inflammation: Possible implications in HIV-Associated Neurocognitive Disorders. *Curr Med Chem*. 2016;23(24):2706-2714.

- 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.

- Fagagnini A, Pica A, Fasoli S, Montioli R, Donadelli M, Cordani M, Butturini E, Acquasaliente L, Picone D, Gotte G. Onconase dimerization through 3D domain swapping: structural investigations and increase in the apoptotic effect in cancer cells. *Biochem J*. 2017 Nov 6;474(22):3767-3781. doi: 10.1042/BCJ20170541.

- 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*. 2018 Mar;117:191-201. doi: 10.1016/j.freeradbiomed.2018.02.005.