

Serena Stanga

Université catholique de Louvain UCL
Institute of Neuroscience
Alzheimer dementia



BSc Chemical and Pharmaceutical Biotechnology, University of Pavia, Italy, 2005
MSc Medical and Pharmaceutical Biotechnology, University of Pavia, Italy, 2007
PhD in Pharmacological Sciences, University of Pavia, Italy, 2010

Current Position

Postdoc at the Université catholique de Louvain, Bruxelles, Belgium, since 2011
Institute of Neuroscience

E-mail: serena.stanga@uclouvain.be
Phone: +32 2 764 9338

Keywords

Alzheimer's disease - APP – Presenilins - Gene transcription - GDNF - Transgenic Animals.

Science

Alzheimer's disease (AD) is the most common progressive neurodegenerative disorder characterized by irreversible cognitive and physical deterioration that commonly begins with loss of short term memory, followed by a progressive cognitive decline and finally dementia. The Amyloid Precursor Protein (APP) is the ubiquitous type I trans-membrane protein sequentially processed to generate A β . Beside its processing, different functions have been attributed to APP but its pivotal physiological role is nevertheless difficult to decipher.

We contributed to a more comprehensive picture of APP gene regulatory network and physiological function by showing the APP-dependent regulation of the Glial cell line-Derived Neurotrophic Factor (GDNF) in muscles from APP null transgenic mice. This regulation drives the process of neuronal and muscular maturation involved in neuromuscular junctions (NMJs) formation and critical for the muscular phenotype observed in APP null transgenic mice (APP^{-/-}). We observed that APP null mice show impaired force production, muscular atrophy and defective NMJs. Moreover, in a co-culture model of muscle cells (C2C12) and cholinergic neurons (NG108-15) set up to build NMJs *in vitro*, APP silencing causes a significant decrease in the number of nerve-muscle interactions that can be rescued by restoring GDNF levels (*Stanga S. et al., 2014, submitted*).

It is therefore of particular interest to understand the molecular mechanisms recruited by APP to control the expression of the GDNF, neurotrophic factor fundamental for both CNS and PNS neuron survival and, importantly, altered in AD patients.

Selected Publications

« Gamma-Secretase Inhibitor Activity of a Pterocarpus erinaceus Extract »

Hage S, Marinangeli C, **Stanga S**, Octave JN, Quetin-Leclercq J, Kienlen-Campard P. Neurodegener Dis. 2013 Oct 30. [Epub ahead of print]

« Searching for predictive blood biomarkers: misfolded p53 in mild cognitive impairment »

Stanga S, Lanni C, Sinforiani E, Mazzini G, Racchi M. Curr Alzheimer Res. 2012 Dec;9(10):1191-7.

« Unfolded p53 in the pathogenesis of Alzheimer's disease: is HIPK2 the link? »

Stanga S, Lanni C, Govoni S, Uberti D, D'Orazi G, Racchi M.

Aging (Albany NY). 2010 Sep;2(9):545-54. Review.

« Homeodomain interacting protein kinase 2: a target for Alzheimer's beta amyloid leading to misfolded p53 and inappropriate cell survival »

Lanni C*, Nardinocchi L*, Puca R, **Stanga S**, Uberti D, Memo M, Govoni S, D'Orazi G, Racchi M. *equal contribute

PLoS One. 2010 Apr 14;5(4):e10171. doi: 10.1371/journal.pone.0010171.

« Recruitment of casein kinase 2 is involved in AbetaPP processing following cholinergic stimulation »

Lenzken SC, **Stanga S**, Lanni C, De Leonardi F, Govoni S, Racchi M.

J Alzheimers Dis. 2010;20(4):1133-41. doi: 10.3233/JAD-2010-090232.

« The expanding universe of neurotrophic factors: therapeutic potential in aging and age-associated disorders »

Lanni C, **Stanga S**, Racchi M, Govoni S.

Curr Pharm Des. 2010;16(6):698-717. Review.

« Unfolded p53 in blood as a predictive signature signature of the transition from mild cognitive impairment to Alzheimer's disease »

Lanni C, Racchi M, **Stanga S**, Mazzini G, Ranzenigo A, Polotti R, Memo M, Govoni S, Uberti D.

J Alzheimers Dis. 2010;20(1):97-104. doi: 10.3233/JAD-2010-1347.

« Pharmacogenetics and pharmagenomics, trends in normal and pathological aging studies: focus on p53 »

Lanni C, Racchi M, Uberti D, Mazzini G, **Stanga S**, Sinforiani E, Memo M, Govoni S.

Curr Pharm Des. 2008;14(26):2665-71.