

Dopamine receptor signaling in the parkinsonian brain:
Studies on L-DOPA-induced dyskinesia and dopamine dysregulation syndrome

I received a BSc in Biology at the University of Pavia (Italy). Following a training in neuropharmacology at the Mario Negri Institute for Pharmacological Research in Milan, I moved to the University of Stockholm, where I received a PhD in neurochemistry in 1990. The following year, I got a postdoctoral position in the laboratory of Prof. Paul Greengard, at the Rockefeller University, where I studied dopamine signal transduction mechanisms in the basal ganglia and where, in 1994, I became Assistant Professor. In 1995, I moved to the Department of Neuroscience of Karolinska Institutet, Stockholm, where I became Professor in 2006 and Chair in 2018.

My work has been centered on the elucidation of the complex signaling pathways involved in the effects produced by distinct classes of psychoactive drugs acting in the basal ganglia, including psychostimulants, drugs of abuse and antipsychotics.

We also elucidated multiple abnormalities along several signaling pathways implicated in Parkinson's disease and particularly L-DOPA-induced dyskinesia, including changes in cAMP/DARPP-32, mitogen-activated kinases (ERK1/2 and MSK1) and mammalian target of rapamycin (mTOR) cascades. Recently, we provided evidence in support of the involvement of autophagy in dyskinesia (part of the talk).

Another important area of research currently developed focuses on non-motor symptoms associated with Parkinson's disease and on the non-motor complications associated with administration of antiparkinsonian drugs, such as OCD and dopamine dysregulation syndrome (part of the talk).