



cells



an Open Access Journal by MDPI

LRRK2-Dependent Neurodegeneration in Parkinson's Disease

Collection Editors:

Dr. Michele Morari

Department of Neuroscience and Rehabilitation, Section of Pharmacology, University of Ferrara, Via Fossato di Mortara 17-19, 44122 Ferrara, Italy

Dr. Mattia Volta

Institute for Biomedicine, Eurac Research-Affiliated Institute of the University of Lübeck, 39100 Bolzano, Italy

Message from the Collection Editors

Mutations in *LRRK2* have been recognized as the most common genetic cause of familial Parkinson's disease, and *LRRK2* itself is considered a risk factor in idiopathic Parkinson's disease. *LRRK2* is a large multidomain protein with a GTPase and kinase catalytic core surrounded by protein-protein interaction domains. *LRRK2* regulates several cellular functions, including vesicle trafficking, cytoskeletal dynamics, neurotransmitter release, synaptic plasticity, mitochondrial function, autophagy, and immune response. All of these functions are dysregulated in Parkinson's disease, suggesting *LRRK2* may play a direct or indirect role. Indeed, preclinical studies have revealed that pathogenic *LRRK2* mutations, notably the p.G2019S substitution at the kinase domain, favor the degeneration of nigrostriatal dopaminergic neurons and formation of alpha-synuclein inclusions, which are neuropathological hallmarks of the disease. The enhancement of kinase activity proved to be instrumental for *LRRK2*-mediated neurodegeneration, leading to the development of *LRRK2* kinase inhibitors as possible disease-modifying agents in Parkinson's disease.



mdpi.com/si/37281

Topical Collection



cells



an Open Access Journal by MDPI

Editors-in-Chief

Prof. Dr. Alexander E. Kalyuzhny

Neuroscience, UMN Twin Cities,
6-145 Jackson Hall, 321 Church St
SE, Minneapolis, MN 55455, USA

Prof. Dr. Cord Brakebusch

Biotech Research & Innovation
Centre, The University of
Copenhagen, Copenhagen,
Denmark

Message from the Editorial Board

Cells has become a solid international scientific journal that is now indexed on SCIE and in other databases. We have successfully introduced a special issues format so that these issues serve as mini-forums in specific areas of cell science. *Cells* encourages researchers to suggest new special issues, serve as special issues editors, and volunteer to be reviewers. Our main focus will remain on cell anatomy and physiology, the structure and function of organelles, cell adhesion and motility, and the regulation of intracellular signaling, growth, differentiation, and aging. We are open to both original research papers and reviews.

Author Benefits

Open Access: free for readers, with [article processing charges \(APC\)](#) paid by authors or their institutions.

High Visibility: indexed within [Scopus](#), [SCIE \(Web of Science\)](#), [PubMed](#), [MEDLINE](#), [PMC](#), [CAPlus / SciFinder](#), and [other databases](#).

Journal Rank: JCR - Q2 (*Cell Biology*) / CiteScore - Q1 (General Biochemistry, Genetics and Molecular Biology)

Contact Us

Cells Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

Tel: +41 61 683 77 34
www.mdpi.com

mdpi.com/journal/cells
cells@mdpi.com
[X@Cells_MDPI](#)