Targeting LRRK2: implications for Parkinson's disease therapeutics

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Mutations in the leucine-rich repeat kinase-2 (*LRRK2*) gene cause autosomal-dominant Parkinson's disease (PD) and contribute to sporadic PD. LRRK2 kinase and GTP binding activities play critical roles in neurodegeneration and neuroinflammation underlying PD pathogenesis. We recently have used both genetic and pharmacological approaches to target LRRK2 and its-linked signaling pathway to explore the novel treatment strategies. Our studies not only have further validated that LRRK2 and its linked pathway as therapeutic targets, but also provide the proof of principle that gene and/or pharmacological therapy targeting LRRK2 can be the disease-modifying treatment for LRRK2-linked PD and related disorders.

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