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Version 1

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Aligning Science Across Parkinson's

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Abstract

Parkinson's Disease (PD) is a neurodegenerative disorder often preceded by gastrointestinal dysfunction. Mutations in leucine-rich repeat kinase 2 (*LRRK2*) are known risk factors for both PD and inflammatory bowel disease, suggesting a link between PD and the gastrointestinal tract. Using single cell RNA-sequencing and spectral flow cytometry, we demonstrated that the *LRRK2* G2019S (Gly2019Ser) mutation is associated with an increased neutrophil presence in the colonic lamina propria during *Citrobacter rodentium* infection. This concurred with a Th17 skewing, upregulated *Il17-a*, and greater colonic pathology during infection. *In vitro* experiments showed enhanced kinase-dependent neutrophil chemotaxis and neutrophil extracellular trap (NET) formation in *LRRK2* G2019S mice compared to wild-type counterparts. Our results add to the understanding of *LRRK2*-driven immune cell dysregulation and its contribution to PD, offering insights into potential biomarkers for early diagnosis and intervention in PD.

Files

 SEARCH

Protocol

NAME

Citrobacter rodentium Model of Enteropathogenic and Enterohemorrhagic (EPEC, EHEC) Escherichia coli Infection

VERSION 1

CREATED BY



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