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Immune cells contribute to the development of Parkinson's disease

Parkinson disease is a neurodegenerative disorder that impairs movement, balance, speech, and other functions. It is characterized by the loss of nerves in the brain that produce a substance known as dopamine. Although the loss of dopamine-containing nerves is accompanied by accumulation of immune cells known as T cells, these accumulating T cells were not thought to have a role in the development of disease. However, Stéphane Hunot, Etienne C. Hirsch, and colleagues, at INSERM UMR 679, France, have now shown that CD4+ T cells make a significant contribution to the development of disease in a mouse model of Parkinson disease.

In the study, a substantial number of CD4+ T cells and CD8+ T cells were observed to have accumulated in postmortem brain tissue from individuals with Parkinson disease and mice with a Parkinson-like disease. Importantly, mice lacking all T cells developed substantially less severe disease in the mouse model of Parkinson disease. Further analysis indicated that protection was specifically associated with a lack of CD4+ T cells expressing the protein FasL. The authors therefore suggest that targeting the immune system might provide a new therapeutic approach to treating Parkinson disease. However, in an accompanying commentary, Stanley Appel, at Methodist Neurological Institute, Houston, warns that although these data provide rationale for immune-based strategies, there are a large number of questions that need to be answered before such approaches can be considered in the clinic.

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TITLE: Infiltration of CD4+ lymphocytes into the brain contributes to neurodegeneration in a mouse model of Parkinson disease

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ACCOMPANYING COMMENTARY

TITLE: CD4+ T cells mediate cytotoxicity in neurodegenerative diseases

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