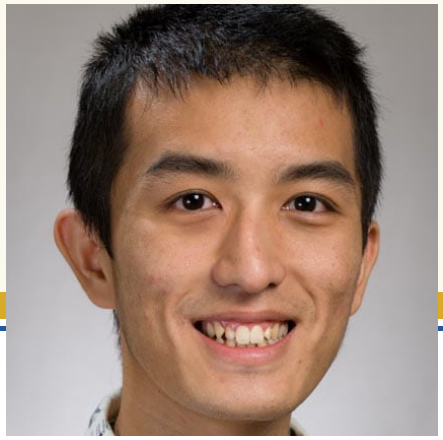

SIYU CHEN, Ph.D.

LABORATORY OF DR. ELIZABETH VILLA
DEPARTMENT OF MOLECULAR BIOLOGY
UNIVERSITY OF CALIFORNIA, SAN DIEGO

JANE COFFIN CHILDS-HHMI FELLOW

Mutations in LRRK2, a multi-domain kinase and GTPase, is the most frequent cause of familial Parkinson's disease. However, we currently lack the detailed understanding of LRRK2 function that could lead to therapeutics for Parkinson's. Dr. Siyu Chen will use cryo-EM and cryo-ET to study LRRK2 and its mutants in biochemical reconstitutions and in cells. Dr. Chen will conduct these experiments in Dr. Elizabeth Villa's lab at the University of California, San Diego. These experiments will directly visualize the molecular mechanisms of LRRK2 and interacting partners' function in the cell, and how pathogenic mutations disrupt these processes. Therefore, Dr. Chen's research may inform on novel therapies for Parkinson's disease.

As a graduate student in Dr. Yuan He's lab at Northwestern University, Chen studied DNA double-strand break repair. Specifically, Dr. Chen used Cryo-EM to solve two key intermediate states in the non-homologous end-joining pathway (NHEJ). These structures revealed novel interaction surfaces between NHEJ proteins and allowed Dr. Chen to propose a near complete reaction cycle for NHEJ. Dr. Chen will now apply his cryo-EM expertise to LRRK2 and will use cryo-ET to visualize LRRK2 in cells.

FELLOW