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1. Neurodegenerative diseases [focus on Parkinson's disease and Alzheimer's disease].
2. Parkinson's disease [including sporadic and inherited forms, and dementia]
3. Alzheimer's disease [focus on Tau and beta-amyloid]
4. Depression
5. Mechanisms of alpha-synuclein action [normative and pathophysiological roles]
6. Tau pathology and mechanisms of Tau phosphorylation
7. In vivo MRI and MRS studies to study rodent models of neurodegeneration
8. Novel genes involved in Parkinson's disease [LRRK1 and PINK1]
9. Ways to prevent neurodegenerative diseases [single chain antibodies, small chemicals, kinase inhibitors, gene therapy with parkin]
10. Biomarkers of neurodegenerative diseases [CNS and plasma].
11. Regulation of monoamine transporters [Dopamine, serotonin and norepinephrine transporter]
12. Environmental and genetic risk factors in the genesis of neurodegeneration and depression.

Within the above broad range of interests, there are many overlapping areas of research, both theoretical and classical bench research. For example, understanding how alpha-synuclein may be involved in increased risk of depression. Understanding how and why Tau pathology is common in both PD and AD. understanding the different mechanisms of action of the members of synucleins [alpha-, beta and gamma]. trafficking of monoamine transporters and the role of cytoskeletal binding proteins. There are many opportunities a student can have to conduct short-term studies at the bench, which could result in publication. If a theoretical study is to be pursued, the student can evaluate and review existing literature, within the context of the studies being conducted in my lab, which could also result in a publication.