Damaged and misfolded proteins that cannot be repaired have to be eliminated from the cell. Failure to do so, leads to the accumulation of these proteins that will then aggregate. Protein aggregation is a hallmark of a large number of neurodegenerative pathologies including Parkinson’s and Prion diseases. The ubiquitin proteasome system pays a major role in targeting aberrant proteins for proteolysis. In this system, target proteins are first modified by the covalent attachment of ubiquitin (i.e., ubiquitylation) and then recognized and degraded by the proteasome. Using a combination of cell biology and proteomic approaches, our lab is interested in understanding how the cell recognizes misfolded proteins to target them for ubiquitylation and proteolysis.

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