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Linking common factors in the phenomenon of protein clumping observed in several diseases

Proteins perform many important functions at the cellular level. However, if proteins do not fold properly, they are prone to aggregating and sticking together, preventing them from performing their functions, and even making them toxic. This phenomenon is present in many neurodegenerative diseases including Parkinson's, Alzheimer's, and prion diseases. The process and factors involved in the aggregation of misfolded proteins, and the manner in which they affect different cells are not well understood. Through extensive research, I gathered information on the various proteins involved in neurodegeneration, the factors that lead to their aggregation, and how they are involved with toxicity to brain cells. By gathering this information I was able to clarify many of the potential factors involved in the clumping of α-synuclein, a protein involved in Parkinson's and Alzheimer's, including the role of oxidation and immune response to the aggregates and their breakdown products. This will lead myself and others towards further research, with the goal of finding a method of inhibiting protein clumping or it's toxic effects.