



Alpha-synuclein glycation: Molecular link between Parkinson's disease and Diabetes mellitus.

Posttranslational modifications are main determinants of alpha-Synuclein (aSyn) folding, localization and function. Glycation is a non-enzymatic modification that is enhanced by certain metabolites – particularly sugars and reactive carbonyls. Since it typically leads to irreversible changes in protein characteristics, it has attracted a great deal of attention in the last years.

Several studies suggest a connection between the metabolic disease diabetes and Parkinson's disease (PD). Given the higher glucose plasma levels that are typical for diabetes, we speculate that glycation could be the molecular basis for the observed diabetes – PD connection.

We have analyzed different glycating agents and compared the effects on aSyn spreading and aggregation in different in vitro assays. In addition, we could show that glycation exerts global effects on several aSyn features including spreading and uptake in cell models. In order to specifically detect glycated aSyn with immunological methods, we generated polyclonal antibodies.



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<https://videoconf-colibri.zoom.us/j/85482858820>

Annektrin Köing obtained her PhD (2014) in Stem Cell Differentiation in *Drosophila* at Max Planck Institute for Biophysical Chemistry Göttingen, Germany. Since 2016 Annektrin is working with Prof. Dr. Tiago Outeiro in the Department of Experimental Neurodegeneration at the University Medical Center in Göttingen, Germany. Alpha-synuclein, a central player in Parkinson's disease is modified in several ways. Her research is focused on one of those modifications – glycation – that might be a link between the metabolic disease diabetes mellitus and the neurodegenerative Parkinson's disease. Using in vitro assays, and several cell models we are trying to understand the impact of glycation on alpha-synuclein mediated pathology.