

3-Nitro-L-tyrosine in structures of neurodegenerative proteins

<https://www.neurodegenerationresearch.eu/survey/3-nitro-l-tyrosine-in-structures-of-neurodegenerative-proteins/>

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Czech Republic

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3-Nitro-L-tyrosine in structures of neurodegenerative proteins

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3

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Research Abstract

The influence of oxidative stress in protein metabolism on the structure of neurodegenerative proteins will be investigated on chemical models by chiroptical spectroscopies combined with theoretical calculation of spectra. One of the results of oxidative stress is mutation of tyrosine to 3-nitro-L-tyrosine in proteins. This mutation change significantly the hydrophobicity and acidity of the residue. Since the secondary structure of mutated proteins could be altered, the mutation could influence the onset of the neurodegenerative diseases caused by changes of the protein conformation. Selected targets for such conformational changes will be the prion protein

and alpha-synuclein models. The first one plays role in transmissible spongiform encephalopathies and the second one in Parkinson's disease. The spectroscopic data will be correlated with the ability of nitrated protein to aggregate and to form amyloidogenic fibrils. The spectroscopic measurement of sparingly soluble amyloidogenic proteins will be allowed by signal enhancement on the surface of silver and gold nanoparticles.

Further information available at:

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Investments < €500k

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Czech Republic

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