

JOINT EVENT

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## **Proteomic-based approaches for the characterization of peptides associated with Alzheimer's disease**

**Laura Ion, Anca Lupăescu, Monica Jureschi (Iavorschi) and Gabi Drochioiu**

Alexandru Ioan Cuza University, Romania

Currently, the development of proteomic approaches (e.g. mass spectrometry, electrophoresis) became a key tool for characterization of non-covalent bio-molecular complexes, such as those with heavy metal ions, small organic molecules or even in presence of sodium dodecyl sulfate (SDS). Moreover, various proteins can form oligomers (ex. Amyloid beta peptide) and the relationship between different states of proteins (starting with monomeric to oligomeric state) is important for the protein activity. Therefore, a critical step for a better understanding of the cell is to determine the protein complexes structure. Therefore, our research work was focused on conformational studies by using small peptides, such as tetraglycine, newly model peptides (histidine-containing Ala- and Gly-based peptides) and large peptides, such as amyloid beta peptide under various environmental conditions (ex. SDS, stearic acid, metal ions, ammonium acetate or trifluoroethanol solution). Our results show that (i) SDS is able to reduce the proportion of peptide oligomers; (ii) SDS solution added to the A $\beta$  solution severely changes the peptide conformation, with disappearance of the  $\beta$ -sheet conformers and doubling the proportion of  $\beta$ -turn isomers; (iii) on investigating histidine containing peptides, the proportion of conformers was found dependent on the amino acid sequence.

### **Biography**

Laura Ion has completed her PhD at Alexandru Ioan Cuza University of Iasi, RO and currently she is a Postdoctoral Fellow at the same university. Her research area is focused on peptide and protein chemistry by using SDS-PAGE electrophoresis, mass spectrometry, liquid chromatography, etc. During her studies, she obtained several research stages at Konstanz University and Steinbeis Center of Biopolymer Analysis and Biomedical Mass Spectrometry in Rüsselsheim, Germany.

[laura.ion@uaic.ro](mailto:laura.ion@uaic.ro)

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