Main field of study: 011200 Physics

Area of specialization: 09 Molecular Biophysics

Department of Molecular Biophysics and Polymer Physics

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Reviewer: PhD O.V. Anatskaya

**Estimation of the protein secondary structure in aqueous solutions based on IR absorption spectra**.

***N.M.Romanov***

The secondary structure of proteins is very important for their proper functioning. The investigation of the secondary structure gives us an insight into the mechanisms of protein functioning in the living cell. IR absorption spectroscopy provides the opportunity to identify a large number of types of protein secondary structure (α-helix, parallel and antiparallel β-sheets, various β-turns, helices 310, 516, etc.) with less efforts compared to the methods of X-ray crystallography and NMR spectroscory.

This work is devoted to analysis of the effects of metal ions on the secondary structure of the protein, as well as working out the experimental procedure and analysis the data obtained. BSA (bovine serum albumin) was used as a model protein.

The list of the publications

1. A. Polyanichko, I. Belaya, N. Romanov, E. Kostyleva, E. Chikhirzhina. Interaction of DNA with Nuclear Proteins and Diamminedichloroplatinum(II) Studied by Infrared Spectroscopy. // European Conference on the Spectroscopy of Biological Molecules 15. -25 - 30 August 2013. Oxford. Book of Abstracts, p.114.
2. A. Polyanichko, N. Romanov, T. Starkova, E. Kostyleva, E. Chikhirzhina. Analisys of the secondary structure of linker histone H1 based on IR absorption spectra. // Cell and Tissue Biology, 8(4).2014. 352-358.
3. А. Поляничко, Н. Романов, Т. Старкова, Е. Костылёва, Е. Чихиржина. Анализ вторичной структуры линкерного гистона Н1 по спектрам инфракрасного поглощения. // Цитология, т. 56, №4. 2014. стр. 316-322.
4. Н. Романов, Ю. Баранова, Е. Чихиржина, А. Поляничко. Изучение вторичной структуры белков BSA и H1 методами ИК- и КД- спектроскопии. // XXVII зимняя молодежная научная школа «Перспективные направления физико-химической биологии и биотехнологии». -9 – 12 февраля 2015. Москва. стр. 64.