SYNTHESIS OF CYANINE-MODIFIED IRON (II) CLATHROCHELATES

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Clathrochelates are complexes in with central metal ion encapsulated in tridimensional macrobicyclic organic ligand. Such complexes possess eight inequivalent positions able for modifications. Previously it's been reported that functionalized tetraphenyl iron (II) clathrochelates are showing a high toxicity against cancer cells [1, 2]. In order to monitor the accumulation of clathrochelates in biological objects, complexes labeled with coumarin and fluorescein was synthesized [3]. Absorption maxima of those labelling agents are overlapping with absorption maxima of clathrochelates. It leads to the effect of reabsorption, what significantly decreasing the quantum yields. To circumvent this negative phenomenon, we synthesized cyanine labeling agent with absorption maxima higher than maxima of clathrochelates and modified iron (II) clathrochelates with cyanine groups (Fig.).

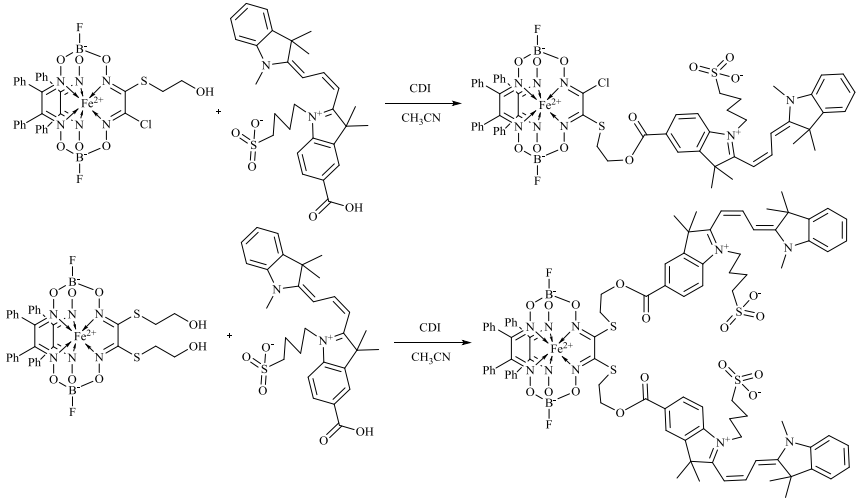

Fig. Cyanine-modified iron (II) clathrochelates

Currently, we are conducting a research of the luminescent properties and biological activity of the obtained complexes.

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1. *Kovalska V, Chernii S, Cherepanov V et al*. J. Mol. Recognit. 2017, 30(8), 2622.
2. *Kovalska V, Losytskyy M, Varzatskii O et al*. Bioorg. Med. Chem. 2014, 22, 1883–1888.
3. *Selin R.O., Vakarov S.V., Chernii V.Ya*., "Synthesis of new iron (ii) clatrochelates with fluorescent group". 8th International Conference "Chemistry of nitrogen containing heterocycles" in memoriam of Prof. Valeriy Orlov, November 2018.