T3: O–12

Monitoring the interfacial behavior of Lu AA33810 after conjugation with gold nanoparticles: SERS and SEIRA studies

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Optical properties of molecules immobilized onto roughened metallic substrate may change significantly [1]. Surface-enhanced Raman spectroscopy (SERS) is a great tool that combines the specificity of conventional vibrational spectroscopy with ultra high sensitivity at the molecular level. A similar effect can be achieved in the mid infrared region, where the signal can be enhanced even three orders of magnitude in regard to the conventional infrared spectrum [2]. This method was named surface-enhanced infrared absorption spectroscopy (SEIRA).

This work reports the first detailed characterization of molecular structure of Lu AA33810, a selective Y5 receptor antagonist, and its behavior at the solid/liquid interface after conjugation with gold nanoparticles (GNPs).

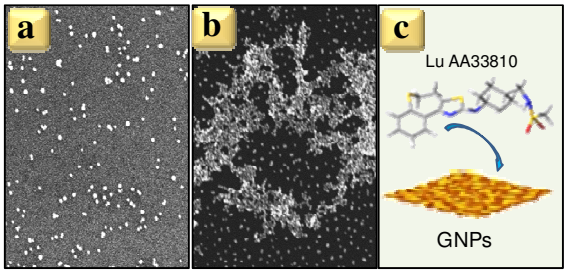

Fig. 1. Typical SEM micrographs presenting GNPs (a) and LuAA 33810 – GNPs system (b) together with the suggested adsorption geometry of Lu AA33810 onto studied GNPs [unpublished data].

The performed analysis revealed the usefulness of simultaneous use of both surface-enhanced vibrational spectroscopic techniques, SERS and SEIRA, which ensures better monitoring of the adsorption phenomenon.

Keywords: SERS; SEIRA; gold nanoparticles

Acknowledgment
The research was performed by the use of the equipment purchased in the frame of the project co–funded by the Małopolska Regional Operational Program Measure 5.1 Krakow Metropolitan Area as an important hub of the European Research Area for 2007–2013, project No. MRPO.05.01.00–12–013/15.

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