Quantification of internalized drug candidates and study of their intracellular distribution, localization

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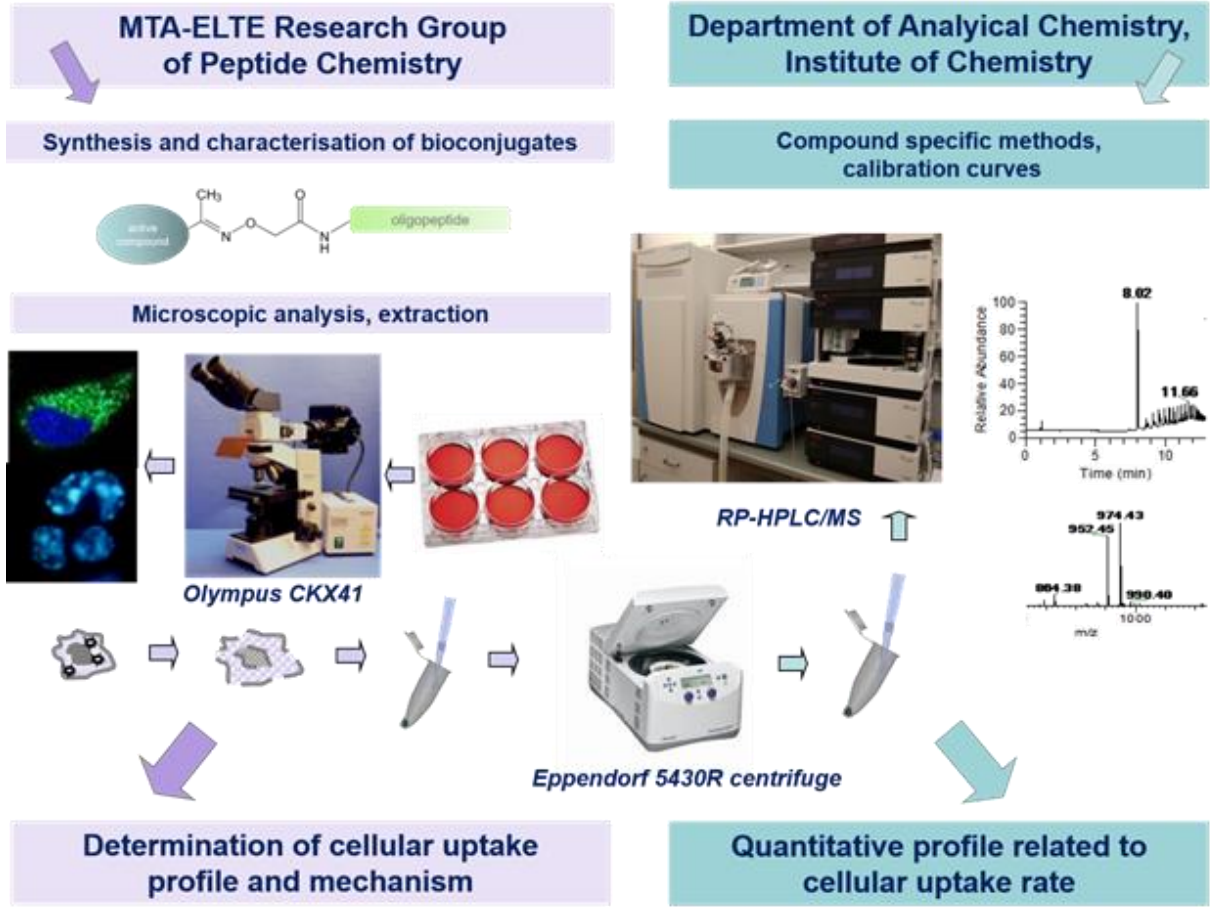
It is important to investigate the mechanism of the cellular uptake and intracellular distribution, localization of the active compounds.

In the framework of our study we have determined the quantity of the internalized drug candidates from cellular extracts. After the treatment, extraction was performed in order to isolate the intact active compounds and their possible metabolites. Several purification and centrifugation steps of the cellular extracts were employed using the Eppendorf 5430R centrifuge during the sample preparation process before RP-HPLC-MS analysis.

Prior to RP-HPLC-MS, the cellular uptake and intracellular localization were studied using fluorescence microscopy and a new imaging platform. The simultaneous application of RP-HPLC-MS and fluorescence microscopy allow us to compare the quantitative analysis of the cellular extracts and the microscopic images related to biodistribution and localization in order to define important structure–activity relations.



Our results are summarised (submitted publications):

(1) Mohammed Al-Majidi, et. al.: Energy-resolved HCD fragmentation of daunorubicin-peptide conjugates; J. Mass Spectrometry.
(2) Lilla Horváth, et. al.: In vitro profiling of new antimycobacterial compounds and their peptide conjugates, Eur. J. Med. Chemistry.