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EVALUATION RADIOCHEMICAL PURITY OF ^{177}Lu-LABELLED RITUXIMAB CONJUGATES USING HPLC METHOD

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In the field of radiolabelled molecules, Rituximab appear as promising molecules for radiopharmaceutical design, because it can target specifically to antigensin non-Hodgkin lymphoma.
In our project, Rituximab was conjugated with DTPA-, DOTA- and 1B4Mand prepared in a form of freeze dried kit formulation and labelled with ^{177}Lu used was 565 MBq (in 5 µL) per kit. The reaction mixture was incubated at 38^{0}C for 1 hour.

The radiochemical purity of the labeled conjugates was determined using SE-HPLC, Column BioSep-SEC-s3000 (300 x7.5 mm; Phenomenex), with flow rate 1ml/min, isocratic elution – eluent 0.1 M phosphate buffer pH 5.8, UV detection at 220 and 280 nm, analysis time ca. 20 min, sample volume: 20µl.

To around 10 µl of radiolabelled conjugate 10 µl of 10 mM DTPA solution was added in order to bind non-reacted ^{177}Lu. HPLC analysis was performed 5 min after DTPA addition using UV detection at 220 nm, 280 nm and radiometric detection.

^{177}Lu-Rituximab radioimunoconjugates with high radiolabelling yield and average of radiochemical purity (above 94.7%) and specific activity up to 1.5GBq/mg was obtained.
With the obtained results we can conclude that ^{177}Lu- Rituximab radioimunoconjugates can be used for development of the predclinical studies in experimental animal model.

Keywords: HPLC, 177Lu-Ab-DTPA, 77Lu-Ab-1B4M, 177Lu-Ab-DOTA