

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 CD20 antigens in non-Hodgkin lymphoma.

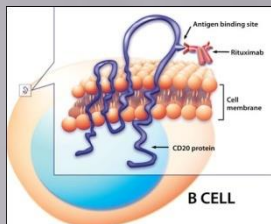


Fig. 1 Rituximab

The radiochemical purity of the labeled conjugates was determined using SE-HPLC:

- column BioSep-SEC-s3000 (300 x7.5 mm; Phenomenex)
- flow rate 1ml/min
- isocratic elution – eluent 0.1 M phosphate buffer pH 5.8
- UV detection at 220 and 280 nm
- analysis time 20 min
- sample volume: 20µl



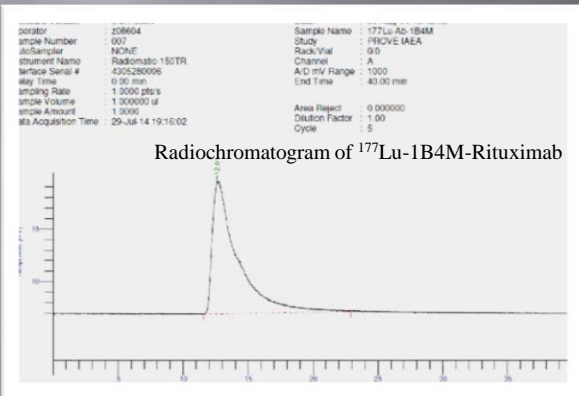
Fig. 2 HPLC

Results:

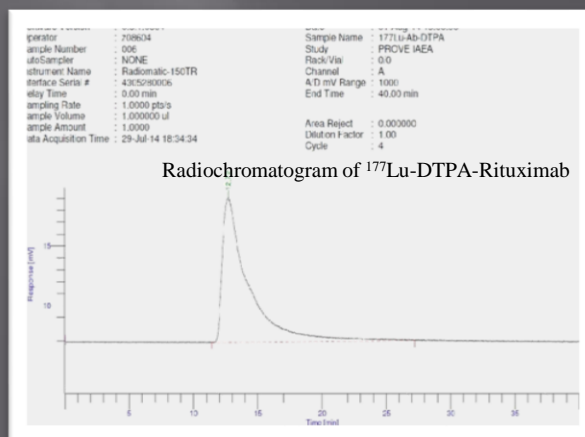
^{177}Lu -Rituximab radioimmunoconjugates with high radiolabelling yield and average of radiochemical purity (above 94.7%) and was obtained specific activity up to 1.5GBq/mg.

- Rituximab was conjugated with DTPA-, DOTA- and 1B4M - freeze dried kit
- labelled with ^{177}Lu used was 565 MBq (in 5 µL) per kit. the reaction mixture was incubated at 38°C for 1 hour
- 10 µl of 10 mM DTPA solution was added in 10 µl of radiolabelled conjugate to bind non-reacted ^{177}Lu
- HPLC analysis was performed 5 min after DTPA addition

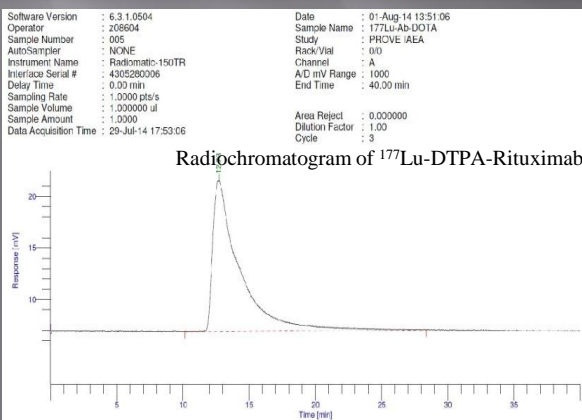
Radiochromatogram of ^{177}Lu -1B4M-Rituximab



Radiochromatogram of ^{177}Lu -DTPA-Rituximab



Radiochromatogram of ^{177}Lu -DTPA-Rituximab



Conclusion:

With the obtained results we can conclude that ^{177}Lu - Rituximab radioimmunoconjugates can be used for development of the preclinical studies in experimental animal model.