Abstract Model

Title "Trastuzumab radioimmunoconjugates – promising strategy for selective anticancer therapy "

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Monoclonal antibody Trastuzumab is the first humanized approved antibody for tratment of HER-2 positive breast cancer. Led by its promising indication, we made further improvemetns to prepare freeze-dried immunogates with bifunctional chelators, ready to use kit formulation for radiolabeling.

Formulation of freeze dried immunoconjugates of trastuzumab was prepared after purification of commercially available drug, already used for treatment, using bifunctional chelating agent (BFCA) with acyclic (1B4M-DTPA) and macrocyclic (DOTA) structure.

A several chemical techniques have been used to determine the stability and retained immunoreactivity of the antibody in the formulated immunoconjugates and after their labelling with radioactive and non-radioactive isotopes.

The appearance of two bands of fragments in SDS-PAGE gels in lyophilized and labeled conjugates have shown retained secondary structure. The presence of characteristic amide bands in IR spectra and Raman spectra have indicated that all samples have retained native secondary structure. An average of 4.3-5.3 groups linked to the antibody determined by MALDI analysis helped in the decision of molar ratio Ab: BFCA and successful labeling.

Stability of freeze dried immunoconjugates (in molar ratio 1:20) were characterized by HPLC-UV and yield of labelling with ^{177}Lu and ^{90}Y by ITLC-SG.

According to all obtained results and previous experiens related to the freeze dried formulation of antibody conjugates, we have hope that this approach can give a distinctive contribution in the fields of radioimmunotherapy using beta emitters and alpha as well.

REFERENCES

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[2] Sterjova M, Dzodic P, Makreski P, Zivkovic J, Janevik-Ivanovska E, (2019) *Electrophoresis and Raman spectroscopy characterization of integrity and secondary structure of p-SCN-Bn-DTPA- and p-SCN-Bn-1B4M-DTPA-conjugated trastuzumab.* Farmacia, 67 (4).