

# PREPARATION AND INTEGRITY EXAMINATION OF FREEZE DRIED KIT OF TRASTUZUMAB-IMMUNOCONJUGATES AND COLD LABELED IMMUNOCONJUGATES BY APPLYING SDS-PAGE ELECTROPHORESIS

## **Abstract**

Radioimmunoconjugates are promising agents in diagnostic and treatment of different types of cancers. The aim of this study is formulation of stable freeze dried kits of trastuzumab with three types of bifunctional chelators for further radiolabeling. The integrity of the antibody in formulated conjugates was examined with sodium dodecyl sulfate-polyacrylamide gel electrophoresis (SDS-PAGE).

Trastuzumab is a humanized monoclonal antibody used in the therapy of aggressive HER2 positive breast cancer. Conjugation of trastuzumab was made with various chelators: p-SCN-Bn-DTPA (1:10, 1:20, 1:50), p-SCN-Bn-DOTA (1:20), and 1B4M-DTPA (1:10, 1:20, 1:50). The purified immunoconjugates were lyophilized by applying two day protocol in order to produce the stable freeze dried kits. Cold labeling with nonradioactive isotopes  $\text{LuCl}_3$  and  $\text{YCl}_3$  was performed to view the possible modifications of secondary structure after radioactive labeling. SDS-PAGE electrophoresis under reducing conditions was used to estimate the purity and integrity of the antibody before and after conjugations, lyophilization and labeling.

To conclude with, the results show that there is no degradation of the examined antibody. The trastuzumab-conjugates and cold labeled formulations migrated in two bands ( $\sim 50\text{kDa}$  and  $\sim 25\text{kDa}$ ), in the same way as IgG1 antibodies and unmodified trastuzumab.

**Key words:** bifunctional chelators, conjugations, electrophoresis, trastuzumab