

ABSTRACT

STUDY OF RADIOLABELING OF CHEMICALLY MODIFIED BOMBESINES

Diploma Thesis

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The aim of this thesis was to study the radiolabeling of new perspective receptor-specific peptide DOTA-Lys3-bombesin with therapeutic radionuclide Lu-177 and to determine the stability of the labeled product. We have found the optimum conditions for radiolabeling of selected peptide: pH 5.0 and incubated at 42° C for 35-40 minutes. Under these conditions sufficient radiochemical purity for biological testing of substance was achieved (higher than 97%).

We tested the stability of the radiolabeled product when it was stored at 4° C, and both in the environment by an order of magnitude higher concentration of competing ligand EDTA or DTPA. Stored in the refrigerator peptide was stable for at least four hours after preparation, study of stability in an environment of competing ligands showed good stability of the DOTA-complex with lutetium-177.

Comparison of methods for determination of radiochemical purity of the radiolabeled peptide showed greater reliability of HPLC analysis compared to thin-layer chromatography.