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DISSERTATION THESIS

RADIOLABELED ANTIBODIES – THE PERSPECTIVE FOR DIAGNOSIS AND THERAPY

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ABSTRACT EN

Different types of tissues have a characteristic cell morphology. Each cell has typical molecules on its surface, which may be either of physiological or pathological type. The presence of these surface structures can be interesting for possible modulation of specific cell populations from neighboring cells. Utilization of this property is then essential particularly in a case of tumor cells. Targeting on tumor specific cell structures involves the use of receptor specific peptides or monoclonal antibodies. The discovery of the preparation of monoclonal antibodies has opened a new chapter in the treatment and diagnosis not only tumor diseases. The advantage of monoclonal antibodies is their specificity and also high affinity to the type of the target cell structures.

This study is focused on the summary of monoclonal antibodies which are currently being applied on the treatment or diagnosis of a particular cancer. Furthermore, this work also includes antibodies which are under development for intended medical applications with promising results of clinical studies. The work is moreover concentrated on particular those antibodies which are labeled radioactively. The presence of radioactive emitters brings many positive in terms of diagnostic sensitivity or effective therapeutic tool in the form of radiolabeled antibodies.

However, the selection of promising radiolabeled antibodies as radiopharmaceuticals is very small. Radiation in itself brings many complications in terms of issues in handling of radioactive material, a radioactive burden for patients and nursing staff, as well as complications with radioactive labeling of the monoclonal antibodies. Nevertheless, the advantages of radiolabeled antibodies in diagnosis due to the high sensitivity outweigh the risks mentioned above. Radiotherapy may seem a little complicated, but the specificity of antibodies and the appropriate type of radionuclide may mean for the treated patients the improvement of their health.

Keywords: monoclonal antibody, radionuclide, radiopharmaceutical, immunoglobulin, immunotherapy, conjugated antibody