Abstract

For treatment of benign and malignant tumors it is desirable to find more specific and less burdening ways of therapy. The main objective of improving the treatment of inoperable tumors is as low as possible damage to healthy tissues during tumor tissue elimination.

Using antibodies in research and therapy brought significant progress; antibodies are able not to only mark cells expressing certain molecules, but even to eliminate them. However, tumor cells are very similar to healthy cells and this similarity is one of the major problems in treatment of cancer; most of the substances toxic to tumor have also some adverse effect on the whole organism. For this reason, it is necessary to search new tumor-specific markers for treatment of tumor-based diseases. Monoclonal antibodies can be linked with a drug molecule (cytotoxic substance, radionuclide, etc.) and getting antibody-drug conjugate. These conjugates are very promising medicaments for carcinoma treatment because monoclonal antibody can find specific target and drug substance can be delivered locally with minimal harm to patient's organism.

Glutamate carboxypeptidase II (GCPII) became one of the specific markers for the prostate cancer. GCPII is an integral membrane protein, which is highly expressed by epithelial cells of the prostate carcinoma. To conduct research on GCPII, it is essential to have sufficiently pure antibodies against it.

Monoclonal antibodies against native GCPII labeled as GCPII-05, GCPII-06, GCPII-07 and GCPII-08 were successfully purified using affinity chromatography. Having immunoprecipitated GCPII with these antibodies, we found out that affinities of GCPII-06, GCPII-07 and GCPII-08 towards GCPII are comparable and very good, whereas GCPII-05 binds GCPII poorly. Antibodies GCPII-06, GCPII-07 and GCPII-08 were eventually biotinylated using specific biotinylation reagent. This modification expands future usage of antibodies for detection of GCPII in various tissues. Using the ELISA method, it was confirmed that the biotinylation of the antibodies was successful and affinity to native GCPII was preserved.

(In Czech)

Key words:

GCPII; monoclonal antibody; immunoconjugate; immunotherapy; prostate cancer.