

Radioimmunosciintigraphy of xenografted human thyroid carcinoma

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We developed monoclonal antibodies against human thyroid cancer-associated antigen by fusing mouse myeloma cells with mouse spleen cells immunized by insoluble fraction of homogenized thyroid papillary carcinoma cells. One monoclonal antibody (KTC-3, IgM) was selected to evaluate basic usefulness for radioimmunosciintigraphy in xenografted human thyroid carcinoma. KTC-3 was labeled with ^{131}I by Iodogen method of 20 to 1 Iodogen to IgM molar ratio. It was also labeled with ^{111}In by cyclic DTPA anhydride method of 20 to 1 DTPA to IgM molar ratio. The labeling efficiency and specific activity for ^{131}I labeling were 16.5% and 0.66 mCi/mg IgM respectively, and those for ^{111}In labeling were 12.7% and 1.6 mCi/mg IgM. Imaging and biodistribution of labeled KTC-3 were evaluated in nude mice bearing thyroid anaplastic carcinoma (THC-5-JCK). The tumors were well visualized 3 and 5 days after injection of ^{131}I KTC-3. Tumor uptake of ^{131}I KTC-3 on day 7 was $0.52 \pm 0.27\%$ ID/g and tumor to blood ratio was 1.98 ± 0.76 (n=6). Those of ^{111}In KTC-3 were $0.88 \pm 0.09\%$ ID/g and 5.51 ± 3.36 (n=6). In conclusion, KTC-3 is promising for radioimmunosciintigraphy of thyroid cancer.

Key words: Radioimmunosciintigraphy, Monoclonal antibody, Thyroid cancer