ORIGINAL ARTICLE

Annals of Nuclear Medicine Vol. 11, No. 2, 81–85, 1997

Binding of a human monoclonal antithyroglobulin antibody to cultured human thyroid cancer cells

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To develop a new method of radioimmunodetection for thyroid cancer, we tested the binding ability of a human antithyroglobulin monoclonal antibody, VB5, to primary culture of human thyroid cancer cells.

VB5 was able to immunostain cytoplasmic thyroglobulin (Tg) in the acetone-fixed cancer cells when used in a labeled streptavidin-biotin method but not in a conventional indirect immunoperoxidase technique. The antibody was readily labeled with I-125 in the standard chloramin-T method, and showed specific binding to the antigen on cultured malignant thyrocytes displaceable with non-labeled VB5 or with excess Tg antigen.

Although these initial results *in vitro* are encouraging, the observed low specific binding (about 1% at room temperature) to intact cells with a single monoclonal antibody seems insufficient to conduct any *in vivo* immunolocalization experiments in animals. To obtain more binding, we would need a cocktail of several monoclonal antibodies to different epitopes, and also fragmentation of antibody molecules to penetrate into cytoplasm.

Key words: monoclonal antibody, thyroglobulin, immunocytochemistry, radioimmunodetection