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ANALYSIS OF RADIORECEPTOR ASSAY DATA AND ITS SIGNIFICANCE. Y. Ichikawa. School of Medicine, Keio University, Tokyo

As ligand binds to receptor according to mass-action law, the amount of receptor bound ligand depends on the concentration of the ligand, that of receptor, and the affinity constant of the receptor. In this paper, ligand binding characteristics of TSH receptor on the cell surface of thyroid tumors and those of glucocorticoid receptor present in cytoplasm of human peripheral lymphocytes were analysed from the data of radioreceptor assay.

In papillary carcinoma of the thyroid, both high affinity ($Ka=10^{10}\ M^{-1}$) and low affinity ($10^{7}\ M^{-7}$) receptor were revealed by radioreceptor assay with ^{125}I-TSH. In contrast to these findings, high affinity TSH receptor and TSH responsive adenylate cyclase could not be found in undifferentiated carcinoma and medullary carcinoma of the thyroid.

Glucocorticoid receptor of human peripheral lymphocyte shows the affinity of $10^{9}\ M^{-1}$ and the number of 7 fmol/10^{6} cells. The receptor number of the individual subject was rather constant and significantly correlated to the several biological responses to glucocorticoid administration.

These data would help to understand the interaction of ligand and receptor, not only in vitro but also in vivo condition.