Clinical usefulness of a TSH-receptor assay kit by Dr. Smith (England) was performed. The determined value was accurate and reproducible by direct assay of serum (50 μl). Human TSH (50 μU) had no effect on the binding of 125I-TSH to the receptor. BTSH (Armour) and patient sera (Graves' and Hashimoto's disease) with TSH receptor antibody inhibited dose-dependently the binding of 125I-bTSH to the receptor. TSH receptor antibody in LATs positive Graves' patients (50 cases) were all positive and in LATs negative Graves' patients were negative. There was no relation between LATs activity and TSH receptor antibody activity. One case in Hashimoto's disease was positive (1/31). This means two kinds of TSH receptor antibodies (stimulating antibody and blocking antibody). Two sera of Graves' disease had strong binding to 125I-bTSH. One case was LATs positive. The other was LATs negative. The binding was increased dose-dependently by serum and IgG amounts. The binding of patient serum with BTSH could be decreased by bTSH (especially after purification by thyroid receptor), but not by hTSH. This fact suggest that some Graves' sera contain the antibody for bTSH purified by thyroid receptor.