A Fundamental study on Radioimmunoassay for Human Calcitonin

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Synthtic human calcitonin (Ciba) labelled with ^{125}I was purified by gel filtration with Sephadex G-25 and G-100. Incubation mixtures containing 200μl of antibody (Ciba) (1 : 10,000), 100 μl of aliquotes of standard or plasma samples and 100μl of incubation buffer or pooled plasma from normal subjects were inculated for 3 days at 4°C followed by 24 hr incubation after adding 100μl of tracer. The bound fraction was separated from free by charcoal-dextran adsorption and the radioacitvity in both the precipitate and supernatant was counted in a gamma counter

This assay system was sensitive to about 10 pg added to the test tube with good results of recovery test and gave a parallel inhibition curve upon dilution of plasma from a patient with medullary thyroid Ca.

Basal plasma calcitonin concentration distributed less than 0.3 ng/ml in 21 normal subjects, from 98 ng/ml to 665 ng/ml in 6 cases with medullary thyroid cancer, normal to relatively high in 27 cases with chronic renal failure, 15 malignancy, 7 bone disease and 9 thyroid disease, and within normal range in 2 cases with parathyroid disease respectively. Plasma calcitonin in response to Ca infusion markedly increased in 2 cases with medullary thyroid cancer tested and one member of a family with medullary thyroid cancer, while no remarkable changes were seen in other cases tested including 2 cases with chronic renal failure and one with treated Graves' disease which showed increased basal calcitonin.

Studies on the Immunoreactive Gastrin in Human Sera and in Gastrointestinal Mucosa

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In order to investigate the distribution and nature of gastrin (G) in the gastrointestinal mucosa, immunoreactive G (IRG) was determined by radio-immunoassay using double antibody technique in tissues obtained at autopsy or surgery, as well as in biopsy specimen obtained under endoscopy. The largest amount of IRG was found in the antral mucosa among the tissues tested. A relatively large quantity of IRG was detected in the duodenal mucosa, but decreasing concentrations were found gradually towards the distal por-