

Fundamental and Clinical Studies on a SPAC
T₃ Uptake Kit

Kazutami Torizumi*, Harumi Nishibata,**
Takao Mishima* and Yoshinori Tuda*

* Department of Radiology Wakayama University,
Wakayama,** Laboratory for clinical Investiga-
tion, Hidaka Hospital, Wakayama

Fundamental and clinical studies on SPAC T₃ Uptake
Kit developed by the Mallinckrodt, Inc. were perfor-
med to estimate clinical usefulness of this Kit.

Procedure; 1) Add 25 μ l of standard serum and 25 μ l
of patient serum to individually labeled antibody t-
ubes. 2) Add 1ml of T₃ I-125 reaction solution to
each antibody tube and swirl gently to mix. 3) Inc-
ubate the antibody tubes for 30 to 60 minutes at 20
°C to 26 °C. 4) Decant and blot lips of antibody t-
ubes on paper-towell. 5) Perform counts on each anti-
body tube 6) T₃ Uptake Index=(Net CPM Patient/Net
CPM Standard) X normalizing Factor

Fundamental study;

T₃ Uptake Index was not affected by change of inc-
ubation time from 20 min to 120 min, or by change
of temperature at 24°C or 37°C. Coefficient of var-
iation (C.V.) was 3.7%(within-assay) and 5.8%(betwe-
en-assay) respectively. Coefficient of correlation
between T₃ Uptake Kit and Res-0-Mat T₃ Kit was r=
-0.96.

Clinical study;

T₃ Uptake Index values was 1.01 \pm 0.09(mean \pm standard
deviation) in euthyroid subjects, 1.42 \pm 0.18 in hyp-
erthyroidism and 0.82 \pm 0.12 in hypothyroidism.

RADIOIMMUNOASSAY OF SERUM THYROXINE USING ANTIBODY
COATED TUBE

FUSAKO NAGAI and TOSHIKAZU SAITO

Division of Radioimmunoassay, Division of Endo-
crinology and Metabolism, Jichi Medical School.

The clinical applicability of radioimmunoassay
system for serum thyroxine (T₄) using antibody
coated tube, SPAC T₄, was examined. In this assay
25 ul of sample or standard solution was incubated
in plastic tube coated with anti-T₄ antibody under
the presence of ¹²⁵I-T₄. The effect of incubation
time on the binding rate of ¹²⁵I-T₄ to the tube
indicated that the 60 minutes are required for the
stable assay. The standard curve of this assay
system revealed the sensitivity of 1.0 ug/dl at the
B/B₀ of 90 %. The intra-assay error ranged from 2.0
to 7.9 % (c.v.) and inter-assay error from 5.4 to
12.4 % (c.v.), indicating the reasonable repeatabil-
ity of assay value in this system. Correlation of
the serum level of T₄ determined by SPAC T₄ and Res-
o-Mat T₄ was quite close (r=0.911). The level of
serum T₄ assayed by SPAC T₄ in normal, patients with
simple diffuse goiter, hyperthyroidism, hypothyroid-
ism, chronic thyroiditis and subacute thyroiditis
agreed well with the T₄ level determined by other
assay system. It is concluded that the T₄ RIA
system using antibody coated tube is accurate,
simple and rapid, indicating the usefulness in
clinical use.