

### PVF Sponge for the Determination of Serum Thyroxine

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PVF (Acetalized Polyvinyl alcohol) sponge has been already introduced to be more useful than the Triosorb resin sponge for determination of  $T_3$  uptake rate. Moreover, it has the advantage of strong adsorption  $T_3$  as well as  $T_4$  without adsorbing inorganic iodine.

The PVF sponge was further investigated for the specific assay of serum thyroxine, on the basis of RI dilution method.

Human globulin Salted out from serum was used as a thyroxine binding globulin preparation.

### Simultaneous Determinations of Thyroxine, "Effective Thyroxine Ratio" and Free Thyroxine Index by Thyopac-4 Kit

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A simple method was devised for simultaneous determinations of thyroxine ( $T_4$ ), "effective thyroxine ratio (ETR)", and free  $T_4$  index (FT4I) using a single Thyopac-4 kit. First,  $T_4$  values of serum samples and normal pooled serum were determined as described in an instruction. Thereafter, 5  $\mu$ l of original serum was added to each Thyopac-4 vial, respectively, and incubated for 60 min. at room temperature. Radioactivity in the supernatants was determined, and ETR values were calculated as follows: (Normal Pooled Serum Counts)/(Patient Serum Counts). ETR values were  $0.99 \pm 0.04$  for normal,  $1.23 \pm 0.11$  for hyperthyroid,  $0.85 \pm 0.03$  for hypothyroid, and  $1.01 \pm 0.06$  for preg-

nant. Relation between ETR and free  $T_4$  was significant ( $r = +0.88$ ), but was curvilinear rather than linear. It was concluded that ETR was useful to differentiate normal thyroid status from abnormal, although it was not linearly related to free  $T_4$ . Furthermore, it was possible to calculate ET4I which was almost proportional to free  $T_4$ , because a ratio of increased radioactivity after addition of serum was inversely related to the amount of serum  $T_4$ -binding globulin contained. ET4I could be expressed by  $T_4p/\Delta p \div T_4n/\Delta n$ , where  $\Delta$  was the counts increased after addition of serum and suffices p and n indicated patient and normal serum, respectively. ET4I obtained were  $1.05 \pm 0.36$  for