

## Methodological aspects for free hormone estimation using microencapsulated antibody method—The effects of hormone binding protein on permeability of microcapsule membrane

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The effect of  $T_4$  non-carrying thyroxine binding globulin (TBG) on free thyroxine determination using the microencapsulated antibody method was studied, to investigate the precise reliability of the membrane and to find possible applications for estimating other free steroid hormones. When increased amounts of purified TBG were added to a test tube containing microcapsule suspension, it affected the accuracy of the results. We found that with higher amounts,  $^{125}\text{I-T}_4$  leaked through the membrane into the medium, thereby giving a falsely increased free  $T_4$  result. Our finding indicates that further improvements in the microcapsule membrane are necessary; or alternatively, it may also be possible to balance the binding affinity inside and outside the membrane by adding a suitable amount of carrier protein, to the contents of the capsule, so that both successful  $\text{FT}_4$  determination and other free steroid hormone assays may be undertaken.

**Key words:** Free thyroxine, Microencapsulated antibody method, Free hormones