

Multimerization of thyroglobulin molecule

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Thyroglobulin molecule is known to undergo a multimerization, dimerization or oligomerization, during oxidative iodination, which is responsible for the biosynthesis of thyroid hormones in thyroglobulin molecule. The oxidative multimerization of thyroglobulin is reported to be ascribed to the formation of disulfide bond or dityrosine bond in thyroglobulin molecule. In an attempt to elucidate the involvement of the disulfide formation in the multimerization of thyroglobulin molecule, the protein was exposed to various redox conditions, where the concentration of reduced glutathione (GSH) and oxidized glutathione (GSSG), the temperature (38 °C ~ 60 °C) and the pH (pH 6 – 9) were varied. Also, the effect of detergents, ionic or non-ionic, on the multimerization of thyroglobulin was examined. The change of molecular form of thyroglobulin was examined by SDS-PAGE under reducing and non-reducing conditions. Our present study demonstrates that thyroglobulin molecules go through the disulfide formation to produce dimeric or oligomeric forms in the presence of GSH (2 mM)/GSSG (1 mM) at 50 °C or higher temperatures. The multimerization was more favorable at acidic pH rather than alkaline pH. In addition, the inclusion of deoxycholate (0.5 %) or Triton X-100 (1 %) promoted the multimerization. From these results, it is suggested that the multimerization of thyroglobulin under the condition used is mainly due to the oxidative linkage of cysteine residues in thyroglobulin molecule.

[PC1-14] [04/19/2001 (Thr) 15:30 – 16:30 / Hall 4]

Anticoagulant Activity of Sulfoalkyl Derivatives of Curdlan

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Curdlan is a natural β -1,3-glucan produced by *Agrobacterium biovar 1*. In this study, the anticoagulant activity of sulfoalkyl derivatives of curdlan was investigated by carrying out activated partial thromboplastin time (APTT) assay and compared with that of *o*-sulfonated curdlan. Approximately 100-fold higher concentration of *o*-sulfonated curdlan than heparin was required to obtain the same level of the clotting time. Anticoagulant activity of curdlan derivatives was dependent on the degree of sulfation in prolonging the clotting time. However, the chain length of the substituent did not play a role in prolonging the clotting time. The curdlan derivatives enhanced thrombin inhibition by mediating through antithrombin III. The inhibition of thrombin by *o*-sulfonated curdlan was found to be approximately 10-fold weaker than that by heparin.

[PC1-15] [04/19/2001 (Thr) 15:30 – 16:30 / Hall 4]

Spontaneous Release of Renal Dipeptidase from Renal Proximal Tubules with Long Term Incubation : The Least Expensive Purification Method

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The long term incubation (6 h or longer, 37 °C) of rabbit or porcine renal proximal tubules (PTs) that