# Kinetics and mechanism of st i modification by peroxyl radicals

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St I is a toxin present in the Caribbean Sea anemone Stichodactyla helianthus which is highly hemolytic in the nanomolar concentration range. Exposure of the toxin to free radicals produced in the pyrolysis of 2,2? -azobis(2-amidinopropane) hydrochloride leads to a progressive loss of hemolytic activity. This loss of hemolytic activity is accompanied by extensive modification of tryptophan residues. On the average, three tryptophan residues are modified by each inactivated toxin. The loss of hemolytic activity of St I takes place without significant changes in the protein structure, as evidenced by the similarity of the fluorescence and CD spectra of native and modified proteins. Also, the native and modified ensembles present a similar resistance to their denaturation by guanidinium chloride. The hemolytic behavior and the performance of the toxin at the single-channel level when incorporated to black lipid membranes suggest that the modified ensemble can be considered as composed of