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Molecular Nature of Human Epidermal Growth Factor (hEGF)-Like Immunoreactivity in Human Plasma.

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To investigate the molecular features of hEGF in the circulatory system, we analyzed hEGF-like immunoreactivity (hEGF-LI) in human serum and plasma. The results demonstrated that the majority of the hEGF-LI in the plasma (HMW·hEGF-LI) emerged in the void volume, while a small amount of hEGF-LI (LMW·hEGF-LI) eluted at a position similar with that of standard hEGF. After reduction of HMW·hEGF-LI with 2-mercaptoethanol, hEGF-LI emerged at the same elution position as that of standard hEGF, suggeting that the predominant form of hEGF may circulate as a complex with some macromolecule (s) in human blood.

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Some Properties of Human Epidermal Growth Factor (hEGF)-Like Immunoreactive Material Originated from Platelets During Blood Coagulation.

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During blood coagulation, a considerable amount of human epidermal growth factor (hEGF)-like immunoreactive material (designated as platelet hEGF-LI) was liberated from platelets. The molecular nature of the platelet hEGF-LI was examined. The molecular weight was approximately 60-70 k daltons. On chromatofocusing analysis, platelet hEGF-LI was eluted mainly at pH 4.75 as a sharp peak with a minor peak at 4.30, like urine EGF. By treatment with 2-mercaptoethanol, the factor was converted into a material with molecular weight of 35-40 k daltons. These results suggest that the majority of hEGF-LI in platelets may exist either in a covalently bound-form with some protein(s) in platelets or in a dimer intermolecularly cross-linked by an S-S linkage.

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On the Mode of Action of Snake Postsynaptic Neurotoxins.

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Extensive studies of snake venoms have revealed that the venoms of most snakes belonging to the family of Elapidae and Hydrophiidae produce flaccid paralysis and respiratory failure in animals. These depend on the neurotoxins contained in their venoms. We measured the rate constants for the binding of the neurotoxins to acetylcholine receptor isolated from *Torpedo californica* by analyzing the transient fluorescence change. The rate constants show surprisingly a wide range of distribution. Examination of the relationship between the rate constants of fluorescence change of the short neurotoxins reveals that overall net charge of the toxins governs the magnitude of the binding rate of neurotoxins to the receptor.