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Biological and Immunological Properties of Human Hepatocyte Growth Factor from Plasma of Patients with Fulminant Hepatic Failure.

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We have recently purified human hepatocyte growth factor (hHGF) from plasma of patients with fulminant hepatic failure. Biological and immunological properties of hHGF were examined. Out of the well-known growth factors tested, only EGF and TGF- α stimulated DNA synthesis of adult rat hepatocytes in primary culture. hHGF enhanced the DNA synthesis at less than one-tenth of the molar concentrations of EGF and TGF- α . The activity of hHGF was completely inhibited by anti-hHGF antiserum, but not by anti-EGF antiserum. hHGF did not show any cross-reactivity to anti-EGF antiserum as measured by enzyme immunoassay for EGF.

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Improved Procedure for Purification of Human Platelet-Derived Growth Factor.

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A relatively simple method for purification of human platelet-derived growth factor (PDGF) was developed. PDGF was purified from clinically outdated, platelet-rich plasma by means of freezing and thawing extraction and successive chromatography on CM-Sephadex, Sephacryl S-200, and Phenyl Sepharose. Further purification of the PDGF obtained showed two silver-stained bands following polyacrylamide gel electrophoresis in the presence of sodium dodecyl sulfate (SDS-PAGE). Amino acid sequence analysis of these two components separated by SDS-PAGE demonstrated that the sequences coincided with those of PDGF A and B chains previously reported and predicted from the nucleotide sequences of two cloned cDNA's of PDGF A and B chain genes. The purified PDGF preparation stimulated a nanogram level of thymidine incorporation into DNA of quiescent BALB/c 3T3 cells.

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The Role of an Invariant Tryptophan Residue in α -Bungarotoxin and Cobrotoxin : Investigation of Active Derivatives with the Invariant Tryptophan Replaced by Kynurenine.

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Ozone oxidation converted the single, invariant tryptophan residue to N²-formylkynurenine in α -bungarotoxin and cobrotoxin. Upon this modification, the lethal toxicity was significantly reduced in cobrotoxin but mostly retained in α -bungarotoxin. Each neurotoxin containing kynurenine instead of tryptophan retained the same antigenicity as the native toxin. Fluorescence and CD spectroscopy revealed that, although the environment and state of kynurenine residue were similar [Kyn²⁹] cobrotoxin was much more sensitive to pH change than α -[Kyu²⁸] bungarotoxin. The invariant tryptophan residue appears to play a more important role in cobrotoxin.