[Proc. Natl. Acad. Sci. USA, **90**, 928-932 (1993)] [Lab. of Pharmaceutics]

Primary structure of two-chain botrocetin, a von Willebrand factor modulator purified from the venom of *Bothrops jararaca*.

YOSHIKO USAMI*, YOSHIHIRO FUJIMURA, MASAMI SUZUKI, YASUHIRO OZEKI, KENJI NISHIO, HIROMU FUKUI, KOITI TITANI

The complete amino acid sequence and location of the disulfide bonds of two-chain botrocetin, which promotes platelet agglutination in the presence of von Willebrand factor, from venom of the snake *Bothrops jararaca* were determined by analysis of peptides generated by enzymatic and chemical cleavage of the S-pyridylethylated protein. Two-chain botrocetin is a heterodimer composed of the α and β subunits (133 and 125 amino acid residues, respectively) held together by a disulfide bond. Intrachain disulfide bonds link six half-cystine residues in each subunit. Amino acid sequence and disulfide bond location of two-chain botrocetin is homologous to C-type lectins.

[Biochem. Biophys. Res. Commun., **191**, 1386-1392 (1993)] [Lab. of Pharmaceutics]

Alboaggregin-B and botrocetin, two snake venom proteins with highly homologous amino acid sequences but totally distinct functions on von Willebrand factor binding to platelets.

ERI YOSHIDA, YOSHIHIRO FUJIMURA, SHUJI MIURA, MITSUHIKO SUGIMOTO, HIROMU FUKUI, NOBUHIRO NARITA, YOSHIKO USAMI*, MASAMI SUZUKI, KOITI TITANI

Alboaggregin-B (AL-B) was highly purified from the snake venom of *Trimeresurus albolabris* and characterized structurally and functionally, comparing with botrocetin, another snake venom protein. Both proteins are a heterodimer and show a high degree of sequence homology to each other and also to C-type lectins. AL-B binds to platelet glycoprotein (GP) I b without affecting the binding of botrocetin to vWF. The binding of AL-B to GP I b does not potentiate the platelet aggregation even by exogenous fibrinogen, suggesting that AL-B binding to GP I b does not activate GP II b/III a complex.

[J. Environ. Sci. Health, **A28**, 821-837 (1993)] [Lab. of Public Health]

Mutagenicity of Ozonated and Chlorinated Humic Substances.

HIROAKI MATSUDA, MITSUNOBU HIBINO, TAKAHIKO SATO*, YOUKI OSE, HISAMITSU NAGASE, HIDEAKI KITO

Humic substances were ozonated and subjected to the mutagenicity assay with *Salmonella typhimurium* TA 98 and 100. Both of ozonated humic substances and their dichloromethane extracts were not mutagenic. Then, ozonated humic substances were chlorinated, extracted with ether at pH 7 and 1.5, and subjected to the mutagenicity assay. Both of the ether extracts was found to be mutagenic on TA 100. The ozonation and ozonation-chlorination products of humic substances were determined by gas chromatography-mass spetrometry (GC-MS) and mutagenic aldehydes were identified.