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Solution Structure of a Novel Disintegrin, Saxatilin from *Gloydius saxatilis* Venom

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A novel disintegrin, saxatilin, was purified from Korean snake venoms (*Gloydius saxatilis*) by means of chromatographic fractionations. Saxatilin is a single-chain polypeptide composed of a 73 amino acid polypeptide including 12 cysteins as well as tripeptide sequence Arg-Gly-Asp(RGD), a proposed recognition site of adhensive proteins. In this report, we present biological activities and NMR structural information of saxatilin related to its biological function by NMR spectroscopy .Saxatilin inhibits glycoprotein GP IIb-IIIa binding to immobilized fibrinogen with IC50 of 2.0nM and ADP-induced platelet aggregation with IC50 of 127nM respectively. The snake venom disintegrin also significantly suppresses basic fibroblast growth factor-induced human umbilical vein endotherial cell (HUVEC) proliferation, but has little effect on normal growth of cell. The disulfide-bonding pattern was determined by enzyme digestion and MALDI-TOF mass analysis. The structure reveals that the potential tight turn regions are well characterized. The RGD loop is located peripheral to the core region of the molecule at the end of a long irregular loop conformation. The three-dimensional structural information of saxatilin presented would aid in the design of potent antagonist for platelet aggregation and drug candidate to suppress tumor angiogenesis.