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A Synthetic Peptide that Corresponds to the C-Terminal Region of HARP Inhibits Effects of HARP on Endothelial Cells

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Heparin affin regulatory peptide (HARP), also known as pleiotrophin or heparin-binding growth-associated molecule, is an 18 kDa growth factor displaying high affinity for heparin. A growing body of evidence indicates that HARP is involved in the control of cellular proliferation, migration and differentiation. HARP has a well described role in physiological and tumor angiogenesis and there seems to be a strong correlation between HARP expression and tumor growth and metastasis. Several data suggest that the different regions of HARP may exert distinct, or even opposite effects. Subsequent studies have shown that the last 25 aminoacids of the C-terminal region of HARP are important for HARP binding to ALK and the exertion of its angiogenic activity. In the present work, we studied the effects of a synthetic peptide (peptide S1) that corresponds to the last 25 aminoacids of the C-terminal region of HARP. This peptide contains the lysine-rich sequence as well as the entire *α*-helix of the C-terminus of HARP and was synthesized by solid phase peptide synthesis techniques, on a 2-chlorotrityl-chloride resin, using Fmoc/t-butyl protection strategies. Peptide S1 had no effect on human umbilical vein endothelial cells (HUVEC) migration and tube formation on matrigel, while it completely reversed HARP induced effects. The level at which peptide S1 exerts its inhibitory effects on HARP-induced HUVEC migration and differentiation is being investigated.