PHSRN

The Pro-His-Ser-Arg-Asn (PHSRN) sequence in fibronectin is a second cell-binding site that synergistically affects with Arg-Gly-Asp. The PHSRN peptide also induces cell invasion and accelerates wound healing.

Wu et al. from the National Cheng Kung University, Tainan, Taiwan, examined the potential of PHSRN in stroke treatment using an ischemic rat model of middle cerebral artery occlusion (MCAO). PHSRN reduced the infarct volume in MCAO rats, improved neurological function, and alleviated motor function impairment. PHSRN targeted the damaged brain region and distributed to endothelial cells after intraperitoneal injection. PHSRN significantly promoted angiogenesis and vascular endothelial growth factor secretion through activation of integrin α5β1 and its downstream intracellular signals, e.g., focal adhesion kinase, Ras, cRaf, and extracellular-signal-regulated kinase. PHSRN treatment also stimulated neurogenesis in MCAO rats, and maintained neuronal survival and neuronal morphologic complexity via induction of VEGF secretion. Together, these results provide insights into the role of integrin α5β1 following ischemia and support the feasibility of using PHSRN peptide in stroke therapy [1].

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Wu CC, Wang LC, Su YT, Wei WY, Tsai KJ. Synthetic α5β1 integrin ligand PHSRN is proangiogenic and neuroprotective in cerebral ischemic stroke. Biomaterials. 2018 Sep 11;185:142-154. doi: 10.1016/j.biomaterials.2018.09.014. [Epub ahead of print] PubMed PMID: 30243150.