ALPHA DIAGNOSTIC INTERNATIONAL

Product Data Sheet

Cat# **SP-51588-1**

Description: Humanin (Human) [Met-Ala-Pro-Arg-Gly-Phe-Ser-Cys-Leu-Leu-Leu-Leu-Thr-Ser-Glu-Ile-Asp-Leu-Pro-Val-Lys-Arg-Arg-Ala-OH; MW: 2687.28]

Size: 1 mg

Purity: >95%

Store: Desiccated at -20oC.

Humanin is a very recently discovered 24 amino acid linear polypeptide, which protects against cell death induced by either familial Alzheimer's disease mutant of amyloid precursor protein, presenilin-1 or presenilin-2 in vitro. It is encoded in the mitochondrial genome by the 16S ribosomal RNA gene, MT-RNR2. Its structure contains a three-turn α-helix, and no symmetry. The length of the peptide depends on where it is produced. If it is produced inside the mitochondria it is 21 amino acids long. If it is produced outside the mitochondria, in the cytosol, it is 24 amino acids long. Both peptides have been shown to have biological activity.

Humanin was independently discovered by three labs looking at Alzheimer's disease, apoptosis, and IGF-1 signaling. The first to publish was the Nishimoto lab in 2001 where they found humanin while looking for possible proteins that could protect cells from amyloid beta, a major component of Alzheimer's disease.

Humanin is proposed to have a myriad of neuroprotective and cytoprotective effects. Both studies in cells and rodents have both found that administration of humanin or humanin derivatives increases survival and/or physiological parameters in Alzheimer's disease models. Humanin has other neuroprotective effects against models of Huntington's disease, prion disease, and stroke. Beyond the possible neuroprotective effects, humanin protects against oxidative stress, atherosclerotic plaque formation, and heart attack. Metabolic effects have also been demonstrated and humanin helps improve survival of pancreatic beta-cells, which may help with type 1 diabetes and increases insulin sensitivity, which may help with type 2 diabetes. Experiments using cultured cells have demonstrated that humanin has neuroprotective as well as cytoprotective effects and experiments in rodents have found that it has protective effects in Alzheimer's disease models, Huntington's disease models and stroke models

The beneficial effects of humanin have been proposed to have several different modes of action. Extracellular interaction with a tripartite receptor composed of gp130, WSX1, and CNTFR, as well as interaction with the formylpeptide-like-1 receptor have been published. Intracellular interaction with BAX, tBID, IGFBP3, and TRIM11 may also be required for the effects of humanin.

References: Hashimoto (2001) Proc Natl Acad Sci U S A. 98 (11): 6336–41; Guo (2003) Nature 423 (6938): 456–61; Ikonen (2003) Proc Natl Acad Sci U S A. 100 (22): 13042–7; Yen (2013) J Neurosci Res 79 (5): 714–23; Muzumdar (2010) Arterioscler Thromb Vasc Biol. 30 (10): 1940–8.; Ying (2004) J Immunol 172 (11): 7078–85.

*for research use only

Alpha Diagnostic Intl Inc., 6203 Woodlake Center Dr, San Antonio, TX 78244, USA; **Email**: service@4adi.com
☎ (800) 786-5777; (210) 561-9515; Fax: (210) 561-9544; Web **Site**: www.4adi.com