PRODUCT INFORMATION

Histamine-Poly-L-Lysine
Ref: PLHISTA

Product Description

Form / Colour: lyophilized powder/ pale yellow
Molecular weight: ≃ 15 kDa

Histamine is linked to the amino group of Poly-L-Lysine, as Poly-L-Lysine hydrobromide, using glutaric anhydride as linker, according to published linkage methods (Geffard et al., 2010).

Histamine-Poly-L-Lysine identification is performed by Intra-Red spectroscopy.

Histamine has been one of the most studied substances in medicine for a century, regulating a wide spectrum of activities (Brown et al., 2001). Thus, Histamine (HA) fills the criteria for a neurotransmitter/neuromodulator being produced, stored, released and metabolized in the brain (Schwartz et al., 1991; Hill et al., 1997) where it regulates via both pre- and post-synaptic mechanisms a variety of central responses and functions, such as wakefulness, feeding, drinking, the neuroendocrine system, body temperature, analgesia and motor activity (Wada et al., 1991; Haas and Panula, 2003).

Upon brain injury, normal cellular dynamics is disturbed and neural stem cells (NSCs) are derouted from their quiescent undifferentiated state to an active proliferative state so that new NSCs differentiate into neuroblasts that migrate to the damaged area (Kaneko and Sawamoto, 2009; Grade et al., 2013). So, the search for new drug candidates that may enhance NSCs capabilities to produce new neurons and a full knowledge of NSCs biology is crucial to fulfil the very demanding worldwide health challenge related to brain diseases (Eiriz et al., 2014). Now, HA was the first neurotransmitter showing a positive effect on both NSC proliferation and in the proportion of neurons derived from cortical NSC (Molina-Hernández and Velasco, 2008). And, histamine has been described to be involved in several brain pathologies such as seizures (Bhowmik et al., 2012), stroke (Fan et al., 2011), multiple sclerosis (Ballerini et al., 2013; Krementsov et al., 2013), Parkinson and Alzheimer’s disease (Shan et al., 2013). However, histamine may have a dual role and exert either neuroprotective or neurotoxic effects depending on the animal disease model, the receptor/signalling pathway activated and the diversity of histamine and histamine agonists/antagonists administration protocols. A clinically relevant therapeutic platform should take in account all of these distinct criteria, to be successful (Eiriz et al., 2014).

According to published data, the conjugation of Histamine to Poly-L-lysine may sustain Histamine in vivo activity (Ali et al., 2004) and should improve Histamine cellular transport (Ryser and Shen, 1978).

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

This product is soluble in water (4 to 6 mg/mL).
Storage/Stability

The product is stable for up to 6 months when stored protected from light, at 2-8°C.

References


