Product Data Sheet

Product Name: KDS12025
Cat. No.: GC81841

Chemical Properties

Cas. No.	2769053-56-5		
Formula	$C_{16}H_{20}N_2O$	M.Wt	256.34
Solubility		Storage	Store at 4°C, sealed storage, away from moisture
General tips	For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20°C for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		
Structure			

Background

KDS12025 is a blood-brain barrier-permeable, orally active H 2 O 2 -decomposing peroxidase enhancer. KDS12025 enhances the H 2 O 2 -decomposing pseudoperoxidase activity of Hb without altering oxygen transport function, and reduces intracellular H 2 O 2 load. KDS12025 reduces

abnormal H 2 O 2 levels and inhibits the production of COL1. KDS12025 restores cerebral blood flow, maintains neuronal excitability, membrane properties, synaptic connections and corticospinal tract fibers, reduces cerebral edema and exerts neuroprotective effects. KDS12025 improves motor function and overall neurological function. KDS12025 can be used in the research of ischemic stroke, Alzheimer's disease, Parkinson's disease, amyotrophic lateral sclerosis, aging-related neurodegenerative diseases and rheumatoid arthritis [1] [2].

In Vivo, KDS12025 (0.001-10 mg/kg/day; i.p., oral ad libitum; once daily; 3 consecutive days) exhibits potent neuroprotective effects in a mouse ischemic stroke model, with an IC_{50} of 0.0027 mg/kg/day for motor function recovery, reduces pathological remodeling, preserves neuronal function, and retains efficacy when administered up to 2 days post-stroke[1]. KDS12025 (1 mg/kg/day; p.o.; ad libitum in drinking water; 4 weeks) fully restores motor function and reverses Parkinson's disease-related pathology in A53T α-synuclein mice, with efficacy dependent on both astrocytic and neuronal Hbβ[2]. KDS12025 (0.1-1 mg/kg/day; p.o.; ad libitum in drinking water; 22 months) increases median survival by ~14%, restores locomotor function, prevents neuronal loss, reverses astrocytic atrophy, and restores astrocytic Hbβ levels in aging C57BL/6J mice[2]. KDS12025 (0.1-10 mg/kg/day; i.p., p.o.; daily, ad libitum in drinking water; 7 days, 2 weeks, 16 days) potently reverses Alzheimer's disease-related memory impairment, neurodegeneration, astrogliosis, oxidative stress, and neuronal dysfunction in APP/PS1 mice, with efficacy dependent on astrocytic Hbβ[2]. KDS12025 (1 mg/kg/day) mitigates rheumatoid arthritis pathology and systemic inflammation in collagen-induced arthritis mice[2].

In Vitro, KDS12025 significantly protects primary cortical neurons against astrocyte-mediated in vitro neurotoxicity induced by H2O2[1]. KDS12025 (1 μM; 30 min) potently enhances the H2O2-decomposing pseudoperoxidase activity of purified hemoglobin, with an EC50 of 0.04 μM, and effectively achieves H2O2 decomposition even at extremely low Hb concentrations[2]. KDS12025 (10 μM; 24 h) effectively reduces H2O2 levels induced by Aβ, putrescine and 6-OHDA in primary cultured hippocampal astrocytes, with an EC50 of 0.5 μM, and its antioxidant effect depends on Hbβ in astrocytes[2]. KDS12025 binds strongly to the proximal heme site of the hemoglobin β subunit with a binding energy of −16.5 kcal/mol, thereby enhancing the pseudoperoxidase activity of Hb[2].

Product Data Sheet

References:

[1]. Lee JH, et al. Oxidative stress-induced astrocytic collagen biosynthesis drives glial barrier formation and neuronal death in ischemic stroke. Cell metabolism. 2026 Jul 07;38(7):1404-1424.e8.
[2]. Won W, et al. Hemoglobin as a pseudoperoxidase and drug target for oxidative stress-related diseases. Signal transduction and targeted therapy. 2025 Aug 22;10(1):270.

Caution: Product has not been fully validated for medical applications. For research use only.
Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com
Address: 10292 Central Ave. #205, Montclair, CA, USA