

Product data sheet



MedKoo Cat#: 597785 Name: Bradykinin (1-5) CAS#: 23815-89-6 Chemical Formula: C ₂₇ H ₄₀ N ₈ O ₆ Exact Mass: 572.3071 Molecular Weight: 572.66	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years. In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:

Bradykinin (1-5) is among the most stable of naturally occurring metabolites. It may be used as a marker for BK production in vivo. It is known that an intact Arg residue in the C-terminus is required for biological activities. BK 1-5 is the minimal peptide that inhibited α -thrombin-induced platelet aggregation and secretion and calcium mobilization. It also prevented α -thrombin from cleaving the thrombin receptor peptide, NATLDPRSFLLR, between arginine and serine. Such antithrombin activities of BK 1-5 may contribute to the cardioprotective nature of kinins.

2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under “QC And Documents” section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
TBD	TBD	TBD

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.75 mL	8.73 mL	17.46 mL
5 mM	0.35 mL	1.75 mL	3.49 mL
10 mM	0.17 mL	0.87 mL	1.75 mL
50 mM	0.03 mL	0.17 mL	0.35 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of “Calculator”

6. Recommended literature which reported protocols for in vitro and in vivo study

In vitro study

- Dong J, Ding L, Wang L, Yang Z, Wang Y, Zang Y, Cao X, Tang L. Effects of bradykinin on proliferation, apoptosis, and cycle of glomerular mesangial cells via the TGF- β 1/Smad signaling pathway. *Turk J Biol.* 2021 Feb 9;45(1):17-25. doi: 10.3906/biy-2007-58. PMID: 33597818; PMCID: PMC7877713.
- Bellis A, Sorriento D, Fiordelisi A, Izzo R, Sadoshima J, Mauro C, Cerasuolo F, Mancusi C, Barbato E, Pilato E, Trimarco B, Morisco C. Autocrine Bradykinin Release Promotes Ischemic Preconditioning-Induced Cytoprotection in Bovine Aortic Endothelial Cells. *Int J Mol Sci.* 2020 Apr 23;21(8):2965. doi: 10.3390/ijms21082965. PMID: 32340102; PMCID: PMC7215376.

In vivo study

- Yang G, Yao P, Ma S, Zhang C. Bradykinin Activates the Bradykinin B2 Receptor to Ameliorate Neuronal Injury in a Rat Model of Spinal Cord Ischemia-Reperfusion Injury. *ACS Chem Neurosci.* 2021 Mar 17;12(6):1031-1038. doi: 10.1021/acchemneuro.1c00054. Epub 2021 Feb 23. PMID: 33621043.
- Dal F, Küçük C, Talih T, Sözüer E, Topal U, Deniz K, Akyıldız H. Effects of bradykinin preconditioning in an experimental intestinal ischemia reperfusion model on rats. *Acta Cir Bras.* 2020 Jun 19;35(4):e202000402. doi: 10.1590/s0102-865020200040000002. PMID: 32578722; PMCID: PMC7307719.

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7. Bioactivity

Biological target:

Bradykinin (1-5) is a major stable metabolite of Bradykinin, formed by the proteolytic action of angiotensin-converting enzyme (ACE).

In vitro activity

Compared with the model group, the BK (bradykinin) and inhibitor groups significantly decreased in proliferation rate ($P = 0.01$) and protein expression levels of Col-1 ($P = 0.01$), TGF- β 1 ($P = 0.01$), and p-Smad2 ($P = 0.00$). Also, they were significantly elevated in apoptosis rate ($P = 0.02$) and p-Smad7 protein expression ($P = 0.02$). BK regulates the proliferation, apoptosis, and the cycle of glomerular mesangial cells by inhibiting the TGF- β 1/Smad signaling pathway.

Reference: Turk J Biol. 2021 Feb 9;45(1):17-25. <https://pubmed.ncbi.nlm.nih.gov/33597818/>

In vivo activity

Bradykinin treatment significantly improved the hind limb motor function of SCII rats and increased B2R expression, inhibiting COX-2, iNOS, and p-p65 expression in the spinal cord of SCII rats together with a decrease of the inflammatory mediators of IL-6, TNF- α , and MCP-1 levels. Bradykinin administration activated B2R in the spinal cord of SCII rats, which may improve hind limb locomotor recovery by regulating the NF- κ B signaling pathway to inhibit the inflammatory response.

Reference: ACS Chem Neurosci. 2021 Mar 17;12(6):1031-1038. <https://pubmed.ncbi.nlm.nih.gov/33621043/>

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.