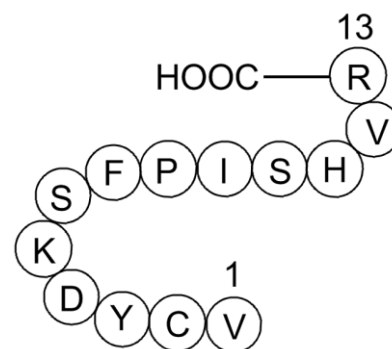


Product Data Sheet

Chemical Properties

Product Name:	Gap 26
Cas No.:	197250-15-0
M.Wt:	1550.79
Formula:	C70H107N19O19S
Synonyms:	Val-Cys-Tyr-Asp-Lys-Ser-Phe-Pro-Ile-Ser-His-Val-Arg
Chemical Name:	N/A



Canonical SMILES:

Solubility: ≥ 77.55 mg/mL in DMSO with ultrasonic and warming, < 7.75 mg/mL in EtOH, ≥ 155.1 mg/mL in H₂O with ultrasonic

Storage: Desiccate at -20°C

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.

Shopping Condition: Evaluation sample solution : ship with blue ice
All other available size: ship with RT, or blue ice upon request

Biological Activity

Targets : Neuroscience

Pathways: Gap Junction

Description:

Gap26 (Val-Cys-Tyr-Asp-Lys-Ser-Phe-Pro-Ile-Ser-His-Val-Arg) is a connexin mimetic peptide, corresponding to residues 63-75 of connexin 43, which is a gap junction blocker.

Connexins, or gap junctions, are a family of structurally-related transmembrane proteins. Gap junctions contain channels that allow the passage of ions and small molecules between adjacent

cells molecules. Calcium and inositol phosphates are among the second messengers that can pass through gap junction channels. [1] It was showed that gap26 attenuates rhythmic contractile activity of rabbit arterial smooth muscle (IC50 = 28.4 mM). It also blocks movement of IP3-induced ATP and Ca²⁺ across connexin hemichannels, i.e. hexameric channels yet to dock with partners in aligned cells and to generate the gap junction cell–cell conduit. [2]

Reference:

1. Boitano, S. and H. Evans *Am. J. Physiol. Lung Cell Mol. Physiol.* 279, L623 (2000).

2. T. Desplantez, V. Verma, L. Leybaert, W.H. Evans, R. Weingart, *Gap26, a connexin mimetic peptide, inhibits currents carried by connexin43 hemichannels and gap junction channels*, *Pharmacological Research*, Volume 65, Issue 5, May 2012, Pages 546-552.

Protocol

Cell experiment:

Cell lines	ECV304 cells
Preparation method	The solubility of this peptide in sterile water is >10 mM. Stock solution should be splitted and stored at -80°C for several months.
Reacting conditions	0.25mg/ml, 30min
Applications	Preventing the InsP3-triggered calcium increase by ester loading the cells with the calcium chelator BAPTA reduced the InsP3-triggered ATP release back to the control level. Incubation of the cells with gap 26 completely abolished the InsP3-triggered ATP response and reduced the ATP release to below the control level, indicating that the basal ATP release is also affected.

Animal experiment [3]:

Animal models	Female Sprague-Dawley rats
Dosage form	300 µM, 45 min
Applications	The rats were prepared with closed cranial windows 24 h before the study. A 10-mm-diameter craniotomy was performed over the skull midline. The dura was removed carefully to keep the sagittal sinus intact. An 11-mm-diameter glass window outfitted with three ports was glued to the skull using cyanoacrylate. The skin overlying the window was sutured, and the animals were permitted to recover. On the day of study, three stainless steel screws were inserted into the skull, along the periphery of the cranial window, for

electroencephalogram (EEG) recording. Cannulae were then connected to the three ports. The rats were subjected to one of two neuronal activation paradigms: SNS or bicuculline-induced seizure. Following the initial measurement of pial arteriolar diameter changes during SNS or during bicuculline exposure, baseline conditions were reestablished. After 20 min, a suffusion of gap-26 was initiated. Forty-five minutes later, the neural activation was repeated. Exposure to the Cx40/Cx37 inhibitory peptide, gap-26 (300 μ M), was without effect on bicuculline- or SNS-induced pial arteriolar dilations

Other notes

Please test the solubility of all compounds indoor, and the actual solubility may slightly differ with the theoretical value. This is caused by an experimental system error and it is normal.

Reference:

[1] Braet K, Vandamme W, Martin P E M, et al. Photoliberating inositol-1, 4, 5-trisphosphate triggers ATP release that is blocked by the connexin mimetic peptide gap 26. *Cell calcium*, 2003, 33(1): 37-48.

[2] Xu H L, Mao L, Ye S, et al. Astrocytes are a key conduit for upstream signaling of vasodilation during cerebral cortical neuronal activation in vivo. *American Journal of Physiology-Heart and Circulatory Physiology*, 2008, 294(2): H622-H632.

Product Citations

1. Condamine S, Lavoie R, et al. "Functional Rhythmogenic Domains Defined by Astrocytic Networks in the Trigeminal Main Sensory Nucleus." *Glia*. 2017 Oct 23. PMID:29058348
2. Yang G, Peng X, et al. "Involvement of connexin 43 phosphorylation and gap junctional communication between smooth muscle cells in vasopressin-induced ROCK-dependent vasoconstriction after hemorrhagic shock." *Am J Physiol Cell Physiol*. 2017 Oct 1;313(4):C362-C370. PMID:28974518
3. Li X, Jiang S, et al. "Breakthrough Cancer Pain Is Associated with Spinal Gap Junction Activation via Regulation of Connexin 43 in a Mouse Model." *Front Cell Neurosci*. 2017 Jul 17;11:207. PMID:28769766
4. Chu H, Huang C, et al. "Reduction of Ischemic Brain Edema by Combined use of Paeoniflorin and Astragaloside IV via Down-Regulating Connexin 43." *Phytother Res*. 2017 Jul 28. PMID:28752625
5. Zhou, Ziyi, et al. "Protection of erythropoietin against ischemic neurovascular unit injuries through the effects of connexin43." *Biochemical and biophysical research communications* 458.3 (2015): 656-662. PMID:25684187

Caution

FOR RESEARCH PURPOSES ONLY.

NOT FOR HUMAN, VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

Specific storage and handling information for each product is indicated on the product datasheet. Most ApexBio products are stable under the recommended conditions. Products are sometimes shipped at a temperature that differs from the recommended storage temperature. Shortterm storage of many products are stable in the short-term at temperatures that differ from that required for long-term storage. We ensure that the product is shipped under conditions that will maintain the quality of the reagents. Upon receipt of the product, follow the storage recommendations on the product data sheet.

APEXBio Technology

www.apexbt.com

7505 Fannin street, Suite 410, Houston, TX 77054.

Tel: +1-832-696-8203 | Fax: +1-832-641-3177 | Email: info@apexbt.com