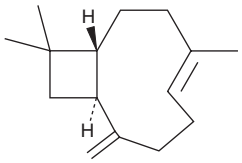
PRODUCT INFORMATION

β-Caryophyllene

Item No. 21572

CAS Registry No.:	87-44-5
Formal Name:	(1R,4E,9S)-4,11,11-trimethyl-8-methylene-bicyclo[7.2.0]undec-4-ene
Synonyms:	(–)-β-Caryophyllene, (–)-*trans*-Caryophyllene, NSC 11906
MF:	$C_{15}H_{24}$
FW:	204.4
Purity:	≥95%
Supplied as:	A neat oil
Storage:	-20°C
Stability:	≥4 years
Item Origin:	Synthetic



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Description

β-Caryophyllene (Item No. 21572) is a sesquiterpene that has been found in plants, including *C. sativa*, *C. indica*, and hemp, and has diverse biological activities, including lipid metabolic, antioxidant, anti-neuroinflammatory, anti-proliferative, and antinociceptive properties.[1-6] It is an agonist of the cannabinoid (CB) receptor CB_2 (K_i = 155 nM) that inhibits cAMP production induced by forskolin in CHO-K1 cells expressing CB_2 receptors (EC_{50} = 38 nM).[7] β-Caryophyllene is also an agonist of peroxisome proliferator-activated receptor α (PPARα; EC_{50} = 9.58 µM in a reporter assay).[2] β-Caryophyllene (1 and 2.5 µM) reduces the production of reactive oxygen species (ROS) in and protects against cytotoxicity of SH-SY5Y cells induced by 1-methyl-4-pheylpyridinium (MPP^+).[3] It also decreases the β-amyloid burden in the hippocampus and cerebral cortex and improves memory in an APP/PS1 transgenic mouse model of Alzheimer's disease, decreasing the latency to find the platform in the Morris water maze during training and increasing the time spent in the target quadrant during testing when administered at a dose of 48 mg/kg per day.[4] β-Caryophyllene (50 mg/kg) increases the number of entries into and the time spent in the open arms of the elevated plus maze and the time spent immobile in the forced swim test, indicating anxiolytic-like and antidepressant-like activity, effects that can be blocked by the CB_2 receptor antagonist AM630 (Item No. 10006974).[5]

Reference

1. Hazekamp, A., Tejkalová, K., and Papadimitriou, S. Cannabis: From cultivar to chemovar II—A metabolomics approach to *Cannabis* classification. *Cannabis Cannabinoid Res.* **1(1)**, 202-215 (2016).
2. Wu, C., Jia, Y., Lee, J.-H., *et al.* *trans*-Caryophyllene is a natural agonistic ligand for peroxisome proliferator-activated receptor-α. *Bioorg. Med. Chem. Lett.* **24(14)**, 3168-3174 (2014).
3. Wang, G., Ma, W., and Du, J. β-Caryophyllene (BCP) ameliorates MPP^+ induced cytotoxicity. *Biomed. Pharmacother.* **103**, 1086-1091 (2018).
4. Cheng, Y., Dong, Z., and Liu, S. β-Caryophyllene ameliorates the Alzheimer-like phenotype in APP/PS1 mice through CB_2 receptor activation and the PPARγ pathway. *Pharmacology* **94(1-2)**, 1-12 (2014).
5. Bahi, A., Al Mansouri, S., Al Memari, E., *et al.* β-Caryophyllene, a CB_2 receptor agonist produces multiple behavioral changes relevant to anxiety and depression in mice. *Physiol. Behav.* **135**, 119-124 (2014).
6. Paula-Freire, L.I., Andersen, M.L., Gama, V.S., *et al.* The oral administration of *trans*-caryophyllene attenuates acute and chronic pain in mice. *Phytomedicine* **21(3)**, 356-362 (2014).
7. Gertsch, J., Leonti, M., Raduner, S., *et al.* Beta-caryophyllene is a dietary cannabinoid. *Proc. Natl. Acad. Sci. USA* **105(26)**, 9099-9104 (2008).

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.**CAYMANCHEM**.COM