Product Data Sheet

Chemical Properties

Product Name: Capsaicin

Cas No.: 404-86-4

M.Wt: 305.41

Formula: C18H27NO3

Synonyms: (E)-Capsaicin; Zostrix, Qutenza, Axsain, (E)-Capsaicin, Transacain, Capsidol

Chemical Name: (E)-N-[(4-hydroxy-3-methoxyphenyl)methyl]-8-methylnon-6-enamide

Canonical SMILES: CC(C)=CCCCCCCC(=O)NCC1=CC(=C(C=C1)O)OC

Solubility: ≥15.27mg/mL in DMSO

Storage: Store 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: Apoptosis

Pathways: Apoptosis Inducers

Description:

Capsaicin is an anti-proliferation agent with IC50 value of 100 μM in A172 cells. Capsaicin is an active component of chili peppers. It selectively binds to TRPV1 which is a heat-activated calcium channel. Capsaicin causes the channel to open below 37 °C. This is why capsaicin is linked to the sensation of heat. [1] Capsaicin has been reported to possess...
anti-carcinogenic and anti-mutagenic activities. In human glioma A172 cells, capsaicin reduced cell viability with IC50 of \( \sim 100 \ \mu M \) treated for 1 day. Capsaicin inhibited cell growth and induced apoptosis through down-regulation of Bcl-2 and activation of caspase-3. Capsaicin also induced terminal differentiation, which contribute to A172 cell growth inhibition.[2] On the other hand, capsaicin reduced the basal generation of ROS, which may played a role in the induction of apoptosis by capsaicin.[3] In MCF-7 cells, Capsaicin induced cell apoptosis through the mitochondrial pathway, and subsequently caused PARP-1 cleaved by activation of caspase-7.[4] In human SCLC cell line, capsaicin displayed robust anti-proliferative activity with MTT assay. Furthermore, capsaicin (10 mg/kg body weight) significantly reduced the growth rate of established (800 mm3) H69 tumors xenotransplanted in nude mice. [5]

**Reference:**

**Protocol**

**Cell experiment:**

**Cell lines**

A172 cells

**Preparation method**

The solubility of this compound in DMSO is > 15.3 mg/mL. General tips for obtaining a higher concentration: Please warm the tube at 37 °C for 10 minutes and/or shake it in the ultrasonic bath for a while. Stock solution can be stored below - 20 °C for several months.

**Reacting conditions**

**Applications**

Capsaicin significantly inhibited A172 cell growth in dose- and time-dependent manners. At the dose of 100 μM, Capsaicin increased the proportion of A172 cells in the sub G1 phase by 38.5 ± 2.75% and induced apoptosis. The Western blot results showed that Capsaicin significantly down-regulated Bcl-2 protein expression and up-regulated Bax protein expression.

**Animal experiment [3]:**

**Animal models**

Nude mice bearing human H69 cells
Dosage form
10 mg/kg; p.o.

Applications
In nude mice bearing human H69 cells, Capsaicin significantly reduced the growth rate of H69 tumors. The immunohistochemical results of H69 tumors showed that Capsaicin markedly reduced the number of proliferating cell nuclear antigen (PCNA)-positive cells. However, Capsaicin did not substantially induce apoptosis in H69 tumors.

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:

Product Citations

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.