Chemical Properties

Product Name: NPPB

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cas No.</td>
<td>107254-86-4</td>
</tr>
<tr>
<td>M.Wt.</td>
<td>300.31</td>
</tr>
<tr>
<td>Formula</td>
<td>C16H16N2O4</td>
</tr>
</tbody>
</table>

Chemical Name: 5-nitro-2-((3-phenylpropyl)amino)benzoic acid

Canonical SMILES: OC(C1=CC([N+](-[O-])=O)=CC=C1NCCCC2=CC=CC=C2)=O

Solubility: Soluble in DMSO > 10 mM

Storage: Store at RT

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: Membrane Transporter/Ion Channel

Pathways: Chloride Channels

Description:

NPPB, 5-nitro-2-((3-phenylpropyl)amino)-benzoic acid, is a potent inhibitor of chloride channel with IC50 of 80 nM for the short circuit current.[1] Chloride channel blockers possess several sites of interaction, including the negatively charged carboxylate group, the secondary amine group which probably carries a positive partial charge, and for the very potent agents like NPPB an additional negative partial charge at the -NO2
substituent. In addition, an apolar interaction with a cycloaryl residue is necessary, and this site of interaction has a specific spacing from the secondary amino nitrogen.[1]

NPPB was evaluated for the activity on the equivalent short circuit current, corresponding to the secondary active transport of Cl- and measurements of the voltage across the basolateral membrane. The result revealed that NPPB possessed a good potency with IC50 of 80 nM for inhibiting the short circuit current. Furthermore, NPPB was also tested for its activity on various anion channels. Adopting freshly-isolated cells from the rat portal vein, the effects of NPPB were investigated on evoked and spontaneous currents by use of conventional whole-cell recording and perforated-patch techniques. At a holding potential of -60 mV in potassium-free, caesium-containing solutions, NPPB (10 μM) inhibited Ca-sensitive chloride currents (ICI(Ca)) evoked by caffeine (10 mM) and by noradrenaline (10 μM) by the extend of 58% and 96%, respectively. In addition, at a holding potential of -2 mV in potassium-containing solutions, NPPB (10 μM) inhibited charybdotoxin-sensitive potassium-currents (IBK(Ca)) induced by noradrenaline (10 μM) and acetylcholine (10 μM) by approximately 90%. NPPB’s inhibitory effects of volume-activated taurine, glucose, and uridine influxes was studied. The IC50 for the inhibition of the volume-activated fluxes by NPPB was around 12 μM. [1-3]

Reference:

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. Short-term 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.