Product Data Sheet

Chemical Properties

Product Name: Preladenant

Cas No.: 377727-87-2

M.Wt: 503.56

Formula: C25H29N9O3

Synonyms: SCH-420814; SCH420814

Chemical Name: 2-(furan-2-yl)-7-(2-(4-(2-methoxyethoxy)phenyl)piperazin-1-yl)ethyl-7H-pyrazolo[4,3-e][1,2,4]triazolo[1,5-c]pyrimidin-5-amine

Canonical SMILES: NC(N1N=C(C2=CC=CO2)N=C13)= NC4=C3C= NN4C N5 CCN(C(C=C6)=C C=C6OCCOC)CC5

Solubility: ≥7.3mg/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: GPCR/G protein

Pathways: Adenosine Receptor

Description:

Preladenant is a high selective antagonist of adenosine A2A receptor with Ki value of 1.1 nM [1]. Parkinson's Disease is characterized by the loss of dopaminergic neuronal projection. The patients with PD lost the capability to control their muscles. As an antagonist of adenosine A2A receptor, preladenant is a non-dopaminergic drug developed for the treatment of PD. This
compound showed potency in Phase II clinical trials but failed in Phase III trials and so was discontinued. Preladenant is a methoxyethoxy derivative of the previously discovered A2A receptor antagonist SCH 58261 and has much higher selectivity for A2A receptors over A1 receptors [1 and 2].

Preladenant was obtained through modifying the phenethyl side chain of SCH 58261. It exerted higher binding affinity for both rat and human A2A receptors with Ki values of 2.5 and 1.1 nM, respectively. Preladenant also showed more than 1000-fold higher selectivity for A2A receptors over other adenosine receptors. The Ki values of preladenant for A1, A3 and A2B receptors are all above 1000 nM. Besides that, preladenant showed no significant affinity for a panel of 59 other enzymes, receptors and ion channels. In the cell assays, preladenant also inhibited the activity of both human and rat adenylate cyclase stimulated by CGS 21680 (an agonist of A2A receptor) with Kb values of 1.3 and 0.7 nM, respectively [1].

Preladenant also showed efficacies in animal models. In cynomolagus monkeys treated with MPTP, administration of preladenant at dose of both 1 and 3 mg/kg resulted in parkinsonian scores reduction. In a Dunnett’s post hoc test, the combination treatment of preladenant and L-Dopa significantly increased the locomotor activity by 80%. Besides that, preladenant was found to have anti-catalepsy effects and dose of 0.3 mg/kg and significantly reduce the hypolocomotion caused by CGS-21680 at dose of 0.1 mg/kg in rats models [2 and 3].

Reference:

Protocol

Cell experiment:

<table>
<thead>
<tr>
<th>Cell lines</th>
<th>Primary actin-GFP microglia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparation method</td>
<td>The solubility of this compound in DMSO is &gt;10 mM. 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.</td>
</tr>
<tr>
<td>Reacting conditions</td>
<td>1 μM, 15 min</td>
</tr>
<tr>
<td>Applications</td>
<td>Three-dimensional cell reconstructions from primary actin-GFP microglia grown in Matrigel were used to determine cell ramification (expressed as surface area-to-volume ratios) in response to</td>
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</table>
predadenant treatment. Preladenant at concentration of 1 μM prevented the adenosine-induced process retraction in activated microglia.

**Animal experiment [3]:**

<table>
<thead>
<tr>
<th>Animal models</th>
<th>Male CD rats</th>
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<tbody>
<tr>
<td>Dosage form</td>
<td>Haloperidol (1 mg/kg s.c.) was administered to induce catalepsy in the rats. Preladenant was administered orally after the 30-min baseline measure, and catalepsy was retested 1 and 4 h after administration.</td>
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<tr>
<td>Applications</td>
<td>Preladenant dose-dependently attenuated the cataleptic effects of haloperidol 1h [F(3,20) = 5.0, p &lt; 0.01] and 4 h [F(3,20) = 9.8, p &lt; 0.01] after dosing, with statistically significant effects at doses of 0.3 and 1 mg/kg at both time points.</td>
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<tr>
<td>Other notes</td>
<td>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.</td>
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</table>

**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.