TWS119

Cat. No.: HY-10590
CAS No.: 601514-19-6
Molecular Formula: C_{18}H_{14}N_{4}O_{2}
Molecular Weight: 318.33
Target: GSK-3; Autophagy
Pathway: PI3K/Akt/mTOR; Stem Cell/Wnt; Autophagy
Storage: Powder
-20°C 3 years
4°C 2 years
In solvent
-80°C 6 months
-20°C 1 month

SOLVENT & SOLUBILITY

In Vitro
DMSO : ≥ 50 mg/mL (157.07 mM)
* “≥” means soluble, but saturation unknown.

Preparing Stock Solutions

<table>
<thead>
<tr>
<th>Solvent Concentration</th>
<th>Mass for 1 mg</th>
<th>Mass for 5 mg</th>
<th>Mass for 10 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 mM</td>
<td>3.1414 mL</td>
<td>15.7070 mL</td>
<td>31.4139 mL</td>
</tr>
<tr>
<td>5 mM</td>
<td>0.6283 mL</td>
<td>3.1414 mL</td>
<td>6.2828 mL</td>
</tr>
<tr>
<td>10 mM</td>
<td>0.3141 mL</td>
<td>1.5707 mL</td>
<td>3.1414 mL</td>
</tr>
</tbody>
</table>

In Vivo
1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: ≥ 2.5 mg/mL (7.85 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
Solubility: ≥ 2.5 mg/mL (7.85 mM); Clear solution

BIOLOGICAL ACTIVITY

Description
TWS119 is a specific inhibitor of GSK-3β, with an IC_{50} of 30 nM, and activates the wnt/β-catenin pathway.

IC_{50} & Target
GSK-3β
30 nM (IC_{50})

In Vitro
TWS119 induces neuronal differentiation in P19 EC cells and primary mouse ESCs. TWS119 binds to GSK-3β with K_{D} of 126 nM, and modulates the activity of the complex, triggering downstream transcriptional events that lead the neuronal induction\(^[3]\). TWS119 (< 4 μM) significantly enhances the proliferation and survival of γδT cells via activation...
of the mammalian target of rapamycin (mTOR) pathway, upregulation of the expression of anti-apoptotic protein Bcl-2 and inhibition of cleaved caspase-3. TWS119 (0-8 μM) induces the generation of CD62L+γδT or CCR5+γδT cell phenotypes. TWS119 (0.5, 1.0 and 2 μM) increases the expression level of granzyme B in a dose-dependent manner. TWS119 also enhances the cytolytic activity of γδT cells against tumour cells in vitro[3].

In Vivo

TWS119 (30 mg/kg, i.p.) improves the neurologic function and decreases neurologic deficit core in rtPA-treated MCAO rats. TWS119 effectively relieves cerebral edema, and reduces cerebral infarction in rats treated with rtPA. TWS119 also effectively decreases blood-brain barrier permeability in rtPA-Treated MCAO Rats and attenuates rtPA-induced hemorrhage in ischemic brain tissue. Futhermore, TWS119 activates the Wnt/β-Catenin signaling pathway and increases the expression of Claudin-3 and ZO-1[2].

PROTOCOL

Cell Assay [3]

PBMCs are cultured with pamidronate disodium for 8 days and then cells are labelled with or without 1.5 μM carboxyfluorescein succinimidyl ester (CFSE) and CFSE-labelled cells are then seeded in 6-well plates (2.5 × 10^6 cells/well) followed by treatment with various concentrations of TWS119 for 72 h. The total number of cultured cells is evaluated using an automated cell counter and the γδT cell proliferation is examined by flow cytometry[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Administration [2]

All rats are randomly divided into four groups as follows: Sham group-rats undergo the same surgical procedure, but the filament is not inserted and they receive 1 mL of dimethyl sulfoxide (1 % DMSO in saline); Vehicle group-rats undergo MCAO and receive 1 mL of DMSO; rtPA group-rats underwent MCAO and receive rtPA (10 mg/kg, Actilyse®) at 4 h after MCAO; and rtPA+TWS119 group-rats undergo MCAO and receive intraperitoneal TWS119 (30 mg/kg, dissolved in 1 mL 1 % DMSO) immediately after rtPA injection at 4 h after MCAO[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION


See more customer validations on www.MedChemExpress.com

REFERENCES

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: 609-228-6898       Fax: 609-228-5909       E-mail: tech@MedChemExpress.com
Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA