

Product Data Sheet

Product Name: PK 11195

Cat. No.: GC16569

Chemical Properties

Cas. No. 85532-75-8

Chemical Name (R)-N-(sec-butyl)-1-(2-chlorophenyl)-N-methylisoquinoline-3-carboxamide

SMILES C1C=CC=CC1C2=C(C=CC=C3)C3=CC(C(N(C)[C@H](C)CC)=O)=N2

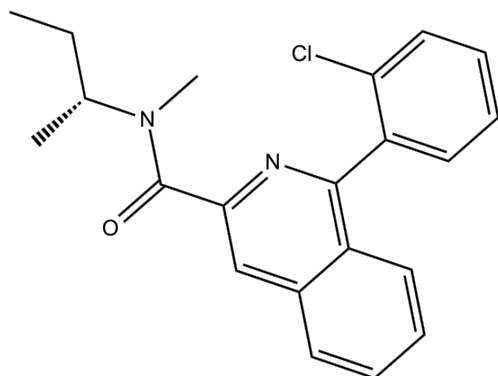
Formula $C_{21}H_{21}ClN_2O$ M.Wt 352.86

Solubility Acetonitrile: 10 mg/ml, Chloroform: 33 mg/ml, Methanol: 16 mg/ml 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.

Shipping Condition Evaluation sample solution: ship with blue ice All other available size: ship with RT, or blue ice upon request.

Structure



Protocol

Cell experiment [1]:

Cell lines MCF-7 cells

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

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

The MCF-7 cells were cultured in Dulbecco's modified Eagle's medium (DMEM) which was supplemented with 10% fetal bovine serum (FBS) in a humidified atmosphere containing 5% CO₂ at 37°C. MCF-7 cells were plated at a density of 10,000 cells per well in the 96-well plates and allowed to attach overnight. After 24h, cells were treated with PK 11195 at a concentration gradient of 0, 0.39, 0.78, 1.5625, 3.125, 6.25, 12.5, and 25µg/ml. Cell viability was measured after 72h by the CCK8 assays.

Preparation Method

Reaction Conditions

0, 0.39, 0.78, 1.5625, 3.125, 6.25, 12.5, and 25µg/ml; 72h

Applications

PK 11195 treatment reduced the cell viability of MCF-7 cells in a concentration-dependent manner.

Animal experiment [2]:

Animal models Female 3xTg-AD mice

Sixteen-month-old female 3xTg-AD mice were intraperitoneally injected once a week for 5 weeks with vehicle (1% DMSO in safflower oil; N=6) or 3mg/kg PK 11195. Mice were euthanized 24h after the fifth injection, and brains were rapidly harvested. One hemisphere was fixed by immersion in 4% paraformaldehyde for 48 hours and then stored at 4°C in 0.1M phosphate-buffered saline containing 0.03% sodium azide for immunohistochemical analysis.

Preparation Method

Dosage form

3mg/kg/week for 5 weeks; i.p.

Applications

PK 11195 treatment reduced both soluble and deposited β-amyloid in aged female 3xTg-AD mice.

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

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

References:

- [1] Xu J N, Shen D, Mao W D, et al. The effects of PK11195 on the MCF-7 and T47D were associated with the allopregnanolone biosynthesis, which was mediated by Translocator Protein 18 KDa[J]. Cancer Biomarkers, 2016, 17(1): 11-16.
- [2] Christensen A, Pike C J. TSPO ligand PK11195 improves Alzheimer-related outcomes in aged female 3xTg-AD mice[J]. Neuroscience letters, 2018, 683: 7-12.

Background

PK 11195 is an isoquinoline carboxamide derivative and a non-benzodiazepine translocator protein (TSPO) selective ligand^[1]. PK 11195 selectively labeled microglia in the central nervous system (CNS), and PK 11195 binding was significantly increased in activated microglia^[2]. PK11195 has been widely used as a neuroimaging agent in positron emission tomography (PET) studies and as a neuromodulator to control neurological function in animal models^[3].

In vitro, PK 11195 treatment for 72h inhibited cell viability of MCF-7 and T47D cells, with IC₅₀ values of 5.4 and 6.0nM^[4]. PK 11195 treatment for 72 hours significantly inhibited the viability of IOMM-LEE cells with an IC₅₀ value of 1.505 ± 0.08nM, and reversed the increase in allopregnanolone level promoted by AC-5216^[5]. Treatment with 50μM PK 11195 for 24h inhibited SMS-KCN proliferation, induced apoptosis, and caused G1/S cell cycle arrest, accompanied by decreased mRNA expression of chemotherapy resistance efflux pumps ABCA3, ABCB1, and ABCC1^[6].

In vivo, PK 11195 (3mg/kg/day) administered intraperitoneally to C57/BL6 mice for 14 consecutive days prevented cognitive dysfunction induced by systemic lipopolysaccharide (500μg/kg/day; i.p.) injection, reduced neuroinflammation, and increased neurosteroid synthesis^[7]. Intraperitoneal injection of PK 11195 (3 mg/kg/week for 5 weeks) in 16-month-old female 3xTg-AD mice improved cognitive and behavioral performance and reduced both soluble and deposited β-amyloid^[8].

References:

- [1] Rupprecht R, Papadopoulos V, Rammes G, et al. Translocator protein (18 kDa)(TSPO) as a therapeutic target for neurological and psychiatric disorders[J]. Nature reviews Drug discovery, 2010, 9(12): 971-988.

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

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

- [2] Venneti S, Lopresti B J, Wang G, et al. PK11195 labels activated microglia in Alzheimer's disease and in vivo in a mouse model using PET[J]. Neurobiology of aging, 2009, 30(8): 1217-1226.
- [3] Scott G, Mahmud M, Owen D R, et al. Microglial positron emission tomography (PET) imaging in epilepsy: applications, opportunities and pitfalls[J]. Seizure, 2017, 44: 42-47.
- [4] Xu J N, Shen D, Mao W D, et al. The effects of PK11195 on the MCF-7 and T47D were associated with the allopregnanolone biosynthesis, which was mediated by Translocator Protein 18 KDa[J]. Cancer Biomarkers, 2016, 17(1): 11-16.
- [5] Gao Z W, Huang J B, Lin Q, et al. The effects of PK11195 on meningioma was associated with allopregnanolone biosynthesis, which was mediated by translocator protein 18 kDa[J]. Cancer Biomarkers, 2016, 16(1): 65-69.
- [6] Mendonça-Torres M, Roberts S. The translocator protein (TSPO) ligand PK11195 induces apoptosis and cell cycle arrest and sensitizes to chemotherapy treatment in pre-and post-relapse neuroblastoma cell lines[J]. Cancer Biology & Therapy, 2013, 14(4): 319-326.
- [7] Ma L, Zhang H, Liu N, et al. TSPO ligand PK11195 alleviates neuroinflammation and beta-amyloid generation induced by systemic LPS administration[J]. Brain research bulletin, 2016, 121: 192-200.
- [8] Christensen A, Pike C J. TSPO ligand PK11195 improves Alzheimer-related outcomes in aged female 3xTg-AD mice[J]. Neuroscience letters, 2018, 683: 7-12.

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

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA