

Product Data Sheet

Product Name: PAP-1
Cat. No.: GC36849

Chemical Properties

Cas. No. 870653-45-5

SMILES O=C1C=CC(C(O1)=CC2=C3C=CO2)=C3OCCCCOC4=CC=CC=C4

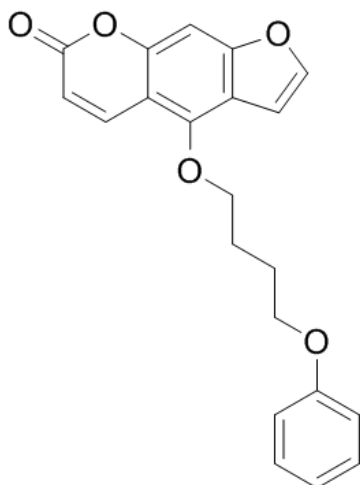
Formula $C_{21}H_{18}O_5$ M.Wt 350.36

Solubility DMSO: 50 mg/mL (142.71 mM); Storage Store at -20°C
Water: < 0.1 mg/mL (insoluble)

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



Background

PAP-1 is a selective inhibitor of Kv1.3, voltage-gated K⁺ channel. PAP-1 (EC₅₀=2 nM) potently inhibits human T effector memory cell proliferation and delayed hypersensitivity. IC₅₀ value: 2 nM (EC₅₀) [1] in vitro: blocks Kv1.3 in a use-dependent manner, with a Hill coefficient of 2 and an EC₅₀ of 2 nM, by preferentially binding to the C-type inactivated state of the channel. PAP-1 is 23-fold selective over Kv1.5, 33- to 125-fold selective over other Kv1-family channels, and 500- to 7500-fold selective over Kv2.1, Kv3.1, Kv3.2, Kv4.2, HERG, calcium-activated K⁺ channels, Na⁺, Ca²⁺, and Cl⁻.

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

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channels [1]. The blockade of Kv1.3 results in membrane depolarization and inhibition of TEM proliferation and function. In this study, the in vitro effects of PAP-1 on T cells and the in vivo toxicity and pharmacokinetics (PK) were examined in rhesus macaques (RM) with the ultimate aim of utilizing PAP-1 to define the role of TEMs in RM infected with simian immunodeficiency virus (SIV). Electrophysiologic studies on T cells in RM revealed a Kv1.3 expression pattern similar to that in human T cells. Thus, PAP-1 effectively suppressed TEM proliferation in RM [2]. in vivo: PAP-1 does not exhibit cytotoxic or phototoxic effects, is negative in the Ames test, and affects cytochrome P450-dependent enzymes only at micromolar concentrations. PAP-1 potently inhibits the proliferation of human TEM cells and suppresses delayed type hypersensitivity, a TEM cell-mediated reaction, in rats [1]. When administered intravenously, PAP-1 showed a half-life of 6.4 hrs; the volume of distribution suggested extensive distribution into extravascular compartments. When orally administered, PAP-1 was efficiently absorbed. Plasma concentrations in RM undergoing a 30-day, chronic dosing study indicated that PAP-1 levels suppressive to TEMs in vitro can be achieved and maintained in vivo at a non-toxic dose [2].

[1]. Schmitz A, et al. Design of PAP-1, a selective small molecule Kv1.3 blocker, for the suppression of effector memory T cells in autoimmune diseases. *Mol Pharmacol*. 2005 Nov;68(5):1254-70. [2]. Pereira LE, et al. Pharmacokinetics, toxicity, and functional studies of the selective Kv1.3 channel blocker 5-(4-phenoxybutoxy)psoralen in rhesus macaques. *Exp Biol Med (Maywood)*. 2007 Nov;232(10):1338-54.

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