

Product Data Sheet

Product Name: Tenovin-1

Cat. No.: GC14165

Chemical Properties

Cas. No. 380315-80-0

Chemical Name N-[(4-acetamidophenyl)carbamothioyl]-4-tert-butylbenzamide

SMILES CC(=O)NC1=CC=C(C=C1)NC(=S)NC(=O)C2=CC=C(C=C2)C(C)(C)C

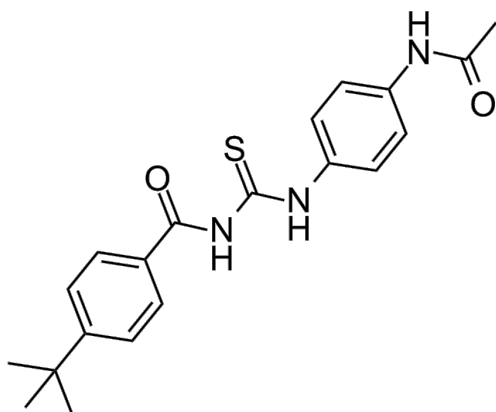
Formula $C_{20}H_{23}N_3O_2S$ M.Wt 369.5

Solubility ≥ 15 mg/mL in DMSO with gentle warming 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

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

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Cell experiment: Cell viability is measured by thiazolyl blue tetrazolium bromide (MTT) assay. Cells are seeded in 96-well plates. When indicated they are treated with 10 μ M Tenovin-1 (tnv-1) or are transfected with siRNAs. After the specified period of time, MTT solution (0.5 mg/mL) is added. The formazan crystals are dissolved in an extraction buffer (50% dimethylformamide and 20% SDS, pH 4.7). The absorbance (540/690 nm) is measured in a SunRise plate reader[4].

Animal experiment: ARN8 melanoma or BL2 Burkitt's lymphoma cells are injected into the flank of SCID mice and allowed to develop until tumors become palpable. Tenovin-1 (in 70% cyclodextrin) is administered daily (14 days) by intraperitoneal injection at 92.5 mg/kg and tumor growth is measured over a period of 18 days. Control animals are treated with 70% cyclodextrin. In the BL2 experiment, n = 12 for each treatment. In the ARN8 experiment, n = 14 for the control group and n = 16 for the tenovin-1 treated group. Growth measurements are averaged between groups and plotted[5].

References:

- [1]. Marx C, et al. The sirtuin 1/2 inhibitor tenovin-1 induces a nonlinear apoptosis-inducing factor-dependent cell death in a p53 null Ewing's sarcoma cell line. Invest New Drugs. 2017 Nov 18.
- [2]. Yoon KB, et al. Induction of Nuclear Enlargement and Senescence by Sirtuin Inhibitors in Glioblastoma Cells. Immune Netw. 2016 Jun;16(3):183-8.
- [3]. Lain S, et al. Discovery, in vivo activity, and mechanism of action of a small-molecule p53 activator. Cancer Cell. 2008 May;13(5):454-63.
- [4]. Grbesa I, et al. Expression of sirtuin 1 and 2 is associated with poor prognosis in non-small cell lung cancer patients. PLoS One. 2015 Apr 27;10(4):e0124670.
- [5]. Lain S, et al. Discovery, in vivo activity, and mechanism of action of a small-molecule p53 activator. Cancer Cell. 2008 May;13(5):454-63.

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Tenovin-1, a small molecule discovered by a cell-based screen, is a bio-active activator of p53 that elevates the levels of p53 protein, p53-downstream target p21CIP/WAF1 protein and mRNA and protects p53 from mdm2-mediated degradation with little impact on p53 synthesis. Tenovin-1 also exerts inhibition against human sirtuin 1 (SirT1) and sirtuin 2 (SirT2), two important members of the sirtuin family. Due to its insufficient solubility, an improved and water-soluble version of tenovin-1 has been found to decrease the peptide deacetylase activity of human SirT1 and SirT2 with values of 50% inhibition concentration IC₅₀ of 21 μ M and 10 μ M respectively.

Reference

[1].Lain S, Hollick JJ, Campbell J, Staples OD, Higgins M, Aoubala M, McCarthy A, Appleyard V, Murray KE, Baker L, Thompson A, Mathers J, Holland SJ, Stark MJ, Pass G, Woods J, Lane DP, Westwood NJ. Discovery, in vivo activity, and mechanism of action of a small-molecule p53 activator. *Cancer Cell*. 2008 May;13(5):454-63. doi: 10.1016/j.ccr.2008.03.004.

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