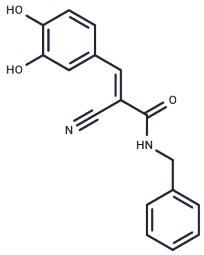
Data Sheet (Cat.No.T2600)

TargetMol

AG490

Chemical Properties



CAS No. : 133550-30-8

Formula: C17H14N2O3

Molecular Weight: 294.3

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	AG490 (Tyrphostin B42) is an inhibitor of EGFR (IC50: 0.1 μM). It is 135-fold more selective for EGFR than ErbB2, also inhibits JAK2 with no effect to Lyn, Lck, Syk, Btk, and
Targets(IC50)	EGFR,STAT,Autophagy,JAK
In vitro	In vivo, treatment with AG-490 facilitates apoptosis in mouse myeloma cells without impairing the activation of macrophages or the production of IFN-γ induced by IL-12. When administered at 0.5 mg/day for 10 days to nude mice, AG-490 significantly impedes tumor formation and invasion driven by the JAK2 V617F mutation. Additionally, AG-490 markedly reduces the numbers of CD45+ and HLA-DR+ cells; in the bone marrow, it diminishes their levels from 48% and 46% to undetectable, respectively, and in untreated mouse spleens, from 38% and 22% to undetectable levels.
In vivo	AG-490 induces programmed cell death, almost completely inhibiting the growth of all ALL cells at 5 μM, without affecting normal hematopoietic functions. At 30 μM, it inhibits phosphorylation in both Epo-induced wild-type JAK2 and the constitutively active JAK2 V617F mutant. AG-490 at 50 μM induces apoptosis in Imatinib-resistant BaF3 cells expressing Bcr-Abl mutations E255K and T315I. Additionally, at 60-100 μM, it suppresses constitutive activation of Stat3sm and inhibits spontaneous (IC50: 75 μM) or IL-2 induced (IC50: 20 μM) mycelial tumor cell growth. At 100 μM, AG-490 inhibits Akt phosphorylation and NF-κB activation, activates GSK-3β, and results in a reduction of c-Myc. It also inhibits the proliferation of EGF-dependent HER 14 cells (IC50: 3.5 μM) by blocking JAK3 and STAT5a/b activities, effectively suppressing IL-2 regulated human T cell growth (IC50: 25 μM). While AG-490 does not affect FDrv210H cell proliferation alone at 5 μM, it enhances the inhibitory effect of STI571 on p210bcr-abl, thus promoting antiproliferative activity.
Kinase Assay	In vitro kinase autophosphorylation: AG-490 is dissolved in DMSO 10%-Water-ethanol 45%. Crude membrane extracts (0.125 μg/mL) are preactivated with EGF (20 nM) in 50 mM HEPES buffer, pH 7.6, and 125 mM NaCl, for 15 minutes at 4 °C. Autophosphorylation activity of EGFR or ErbB2 kinase is assayed at 4 °C for 30 seconds in V-shaped 96-well plates. Membrane extracts (8 μL) are added to each well containing reaction mixture (12 μL, 50 mM, HEPES, pH 7.4,125 mM NaCl, 12 mM M8Ac2, 2 mM MnCl2, 1 mM NaVO3, 1 μM ATP, and 1 μCi[γ-32P]ATP, final concentrations) and increasing concentrations of AG-490 (4 μL). After termination by addition of hot sample buffer, the samples are run on a 6% SDS-polyacrylamide gel electrophoresis minigel, the gels dried, and autoradiography

Kinase Assay	performed during the linear exposure time period. The receptor bands are scanned densitrometrically, and the results analyzed by the Ez-Fit program. For the analysis of autophosphorylation of JAK2, JAK2 is immunoprecipitated by using anti-JAK2 antibody from lysates of G2 cells pretreated for 16 hours with increasing concentrations of AG-490 (0-50 μM). Immune complexes are then immunoblotted with anti-phosphotyrosine antibody. A dose-dependent inhibition of in vitro kinase activity is demonstrated by assessing JAK2 autophosphorylation.
Cell Research	Cells are exposed to different concentrations of AG-490 for 16 hours. For the determination of cell proliferation, [3H]tymidine (1 μCi) is added 6 hours or more before the cultures are terminated. Cells are then collected and samples counted in a liquid scintillation counter. (Only for Reference)

Solubility Information

Solubility	DMSO: 245 mg/mL (832.48 mM),Sonication is recommended. Ethanol: 6 mg/mL (20.39 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 5 mg/mL (16.99 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	3.3979 mL	16.9895 mL	33.9789 mL
5 mM	0.6796 mL	3.3979 mL	6.7958 mL
10 mM	0.3398 mL	1.6989 mL	3.3979 mL
50 mM	0.068 mL	0.3398 mL	0.6796 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Gazit A, et al. J Med Chem, 1991, 34(6), 1896-1907.
Pan Z, Wang K, Wang X, et al. Cholesterol promotes EGFR-TKIs resistance in NSCLC by inducing EGFR/Src/Erk/SP1 signaling-mediated ERRα re-expression. Molecular Cancer. 2022, 21(1): 1-17.
Ma Z, Zheng J C, Li T, et al. Janus Kinase Mediates Faster Recovery From Sevoflurane Anesthesia Than Isoflurane Anesthesia in the Migratory Locusts. Frontiers in Physiology. 2022: 474
Meydan N, et al. Nature, 1996, 379(6566), 645-648.
Nielsen M, et al. Proc Natl Acad Sci U S A, 1997, 94(13), 6764-6769.
Qin, Zhi-zhi, et al. Mangiferin Promotes Bregs Level, Activates Nrf2 Antioxidant Signaling, and Inhibits Proinflammatory Cytokine Expression in Murine Splenic Mononuclear Cells In Vitro.. Current Medical Science. (2021): 1-11.
Kirken RA, et al. J Leukoc Biol, 1999, 65(6), 891-899.
Tian X, Liu F, Wang Z, et al.Modified Biejia Jianwan decoction restrains PD-L1-mediated immune evasion through the HIF-1α/STAT3/NF-κB signaling pathway.Journal of Ethnopharmacology.2023: 117577.
Fan Y, Huang S, Li S, et al.The adipose-neural axis is involved in epicardial adipose tissue-related cardiac arrhythmias.Cell Reports Medicine.2024
Sun X, et al. Blood, 2001, 97(7), 22008-22015.
Cheppudira BP, et al. Anti-hyperalgesic effects of AG490, a Janus kinase inhibitor, in a rat model of inflammatory pain. Biomed Rep. 2015 Sep;3(5):703-706.
Zhu J, Pan X, Lin B, et al. The effect of hirudin on antagonisting thrombin induced apoptosis of human microvascular endothelial cells[J]. Acta cirurgica brasileira. 2019, 34(1).