## Product Datasheet

# LY294002

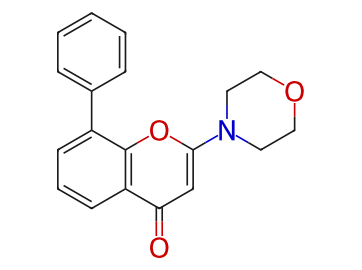
Catalog No. **BP-02296** · CAS **154447-36-6** · Form **free base** · Physical state **solid** · Color **white to yellow** · Version **1.0** · Revision **2026-09-10**

**FOR RESEARCH USE ONLY. NOT FOR HUMAN OR VETERINARY USE.**

| Target | Research area |
|---|---|
| **PI3K; Casein Kinase; DNA-PK; Apoptosis; Autophagy** | **Infection; Cancer** |

| | |
|---|---|
| Molecular formula | $C_{19}H_{17}NO_3$ |
| Molecular weight | **307.3432** |

**STRUCTURE**




## DESCRIPTION

LY294002 is a broad-spectrum inhibitor of PI3K with IC50s of 0.5, 0.57, and 0.97 μM for PI3Kα, PI3Kδ and PI3Kβ, respectively. LY294002 also inhibits CK2 with an IC50 of 98 nM. LY294002 is a competitive DNA-PK inhibitor that binds reversibly to the kinase domain of DNA-PK with an IC50 of 1.4 μM. LY294002 is an apoptosis activator.

## BIOLOGICAL ACTIVITY

In Vitro

LY294002 (0-75 μM; 24 hours and 48 hours) remarkably decreases human nasopharyngeal carcinoma CNE-2Z cells in a dose-dependent fashion.

LY294002 (0-75 μM; 24 hours and 48 hours ) induces CNE-2Z cells apoptosis rate in dose-dependent.

LY294002 (10-75 μM) significantly decreases p-Akt (S473) expression levels and up-regulates caspase-9 activity in CNE-2Z cells. Total Akt protein level is not difference with different concentration.

LY294002 (5, 10, 100 μM; for 2 hours) treatment partially suppresses Lysophosphatidic acid (LPA)-induced (20 μM; for 4 hours) nuclear translocation of YAP, accompanied by a reduction in p-AKT levels.

In Vivo

LY294002 (10, 25, 50, 75 mg/kg; i.p.; twice weekly; for 4 weeks) significantly reduces mean NPC tumor burden in a dose-dependent manner. LY294002 (10, 25 mg/kg) is less effective in decreasing tumor burden.

LY294002 (1.2 mg/kg per day; i.p.; for 14 days) prevents Leptin (60 ug/kg)-induced adverse effects on spermatozoa in Sprague-Dawley rats.

## SOLUBILITY

Soluble in DMSO/Ethanol

## REFERENCES

[1]. Chaussade C, et al. Evidence for functional redundancy of class IA PI3K isoforms. Biochem J. 2007 Jun 15;404(3):449-58.

[2]. Gharbi SI, et al. Exploring the specificity of the PI3K family inhibitor LY294002. Biochem J. 2007 May 15;404(1):15-21.

[3]. Davidson D, et al. Small Molecules, Inhibitors of DNA-PK, Targeting DNA Repair, and Beyond. Front Pharmacol. 2013 Jan 31;4:5.

[4]. Jiang H, et al. Phosphatidylinositol 3-kinase inhibitor(LY294002) induces apoptosis of human nasopharyngeal carcinoma invitro and in vivo. J Exp Clin Cancer Res. 2010 Apr 22;29:34.

[5]. Md Mokhtar AH, et al. LY294002, a PI3K pathway inhibitor, prevents leptin-induced adverse effects on spermatozoa in Sprague-Dawley rats. Andrologia. 2019 Apr;51(3):e13196.

[6]. Yi-Jen Hsueh, et al. Lysophosphatidic acid induces YAP-promoted proliferation of human corneal endothelial cells via PI3K and ROCK pathways. Mol Ther Methods Clin Dev. 2015 Apr 29;2:15014.