

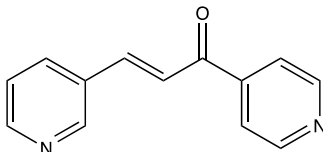
Catalog #10-4609

3PO

CAS# 18550-98-6

(2E)-3-(3-Pyridinyl)-1-(4-pyridinyl)-2-propen-1-one

Lot # FBA4124



3PO is an inhibitor of the metabolic enzyme 6-Phosphofructo-2-kinase/fructose-2,6-bisphosphatase 3 (PFKFB3). PFKFB3 is constitutively expressed by neoplastic cells and is required for the high glycolytic rate (Warburg Effect) of these cells. 3PO inhibits PFKFB3 ($IC_{50} = 1.4 - 24 \mu M$ for various cancer cell lines), suppresses glucose uptake, and lowers intracellular concentrations of Fru-2,6-BP, lactate, ATP, NAD⁺, and NADH.¹ Inhibition of cancer cell metabolism via blocking the action of PFKFB3 has been studied in various models.²⁻⁴ Inhibition of PFKFB3 has been shown to induce autophagy as a survival mechanism in cancer cells.⁵ 3PO has also been used to reduce pathological angiogenesis.⁶

- 1) Clem *et al.* (2008), *Small-molecule inhibition of 6-phosphofructo-2-kinase activity suppresses glycolytic flux and tumor growth*; Mol.Cancer Ther. **7** 110
- 2) Clem *et al.* (2013), *Targeting 6-phosphofructo-2-kinase (PFKFB3) as a therapeutic strategy against cancer*; Mol.Cancer Ther. **12** 1461
- 3) Lea *et al.* (2015), *Inhibition of Growth of Bladder Cancer Cells by 3-(3-Pyridinyl)-1-(4-pyridinyl)-2-propen-1-one in Combination with Other Compounds Affecting Glucose Metabolism*; Anticancer Res. **35** 5889
- 4) Lea *et al.* (2016), *Inhibition of Growth by Combined Treatment with Inhibitors of Lactate Dehydrogenase and either Phenformin or Inhibitors of 6-Phosphofructo-2-kinase/Fructose-2,6-bisphosphatase 3*; Anticancer Res. **36** 1479
- 5) Klarer *et al.* (2014), *Inhibition of 6-phosphofructo-2-kinase (PFKFB3) induces autophagy as a survival mechanism*; Cancer Metab. **2** 2
- 6) Schoors *et al.* (2014), *Partial and transient reduction of glycolysis by PFKFB3 blockade reduces pathological angiogenesis*; Cell Metab. **19** 37

PHYSICAL DATA

Molecular Weight:	210.23
Molecular Formula:	C ₁₃ H ₁₀ N ₂ O
Purity:	>99% (HPLC)
	NMR: (Conforms)
Solubility:	DMSO (15 mg/mL) and Ethanol (5 mg/mL)
Physical Description:	Pale yellow solid
Storage and Stability:	Store as supplied at -20°C for up to 1 year from the date of purchase. Solutions in DMSO or ethanol may be stored at -20°C for up to 3 months.

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Focus Biomolecules LLC 400 Davis Drive, Suite 600 Plymouth Meeting PA 19462

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