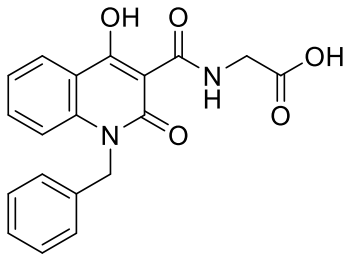
Product data sheet

MedKoo Cat#: 401512 Name: IOX 2 CAS: 931398-72-0 Chemical Formula: $C_{19}H_{16}N_2O_5$ Exact Mass: 352.1059 Molecular Weight: 352.346	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.
	In solvent: -80°C 3 months; -20°C 2 weeks.



1. Product description:
IOX 2 is a potent inhibitor of HIF-1α prolyl hydroxylase-2 (PHD2) (IC50 = 21 nM). IOX 2 displays over 100-fold selectivity for PHD2 over factor inhibiting HIF-1 (FIH-1) and histone demethylases.

2. CoA, QC data, SDS, and handling instruction
SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMF	14.0	39.73
DMF:PBS (pH 7.2) (1:1)	0.5	1.42
DMSO	18.06	51.25

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	**1 mg**	**5 mg**	**10 mg**
1 mM	2.84 mL	14.19 mL	28.38 mL
5 mM	0.57 mL	2.84 mL	5.68 mL
10 mM	0.28 mL	1.42 mL	2.84 mL
50 mM	0.06 mL	0.28 mL	0.57 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator
Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study
In vitro study

1. Ramirez-Moral I, Ferreira BL, Butler JM, van Weeghel M, Otto NA, de Vos AF, Yu X, de Jong MD, Houtkooper RH, van der Poll T. HIF-1α Stabilization in Flagellin-Stimulated Human Bronchial Cells Impairs Barrier Function. Cells. 2022 Jan 24;11(3):391. doi: 10.3390/cells11030391. PMID: 35159204; PMCID: PMC8834373.
2. Jian CB, Yu XE, Gao HD, Chen HA, Jheng RH, Chen CY, Lee HM. Liposomal PHD2 Inhibitors and the Enhanced Efficacy in Stabilizing HIF-1α. Nanomaterials (Basel). 2022 Jan 3;12(1):163. doi: 10.3390/nano12010163. PMID: 35010112; PMCID: PMC8746909.

In vivo study

1. Peng K, Chen WR, Xia F, Liu H, Meng XW, Zhang J, Liu HY, Xia ZY, Ji FH. Dexmedetomidine post-treatment attenuates cardiac ischaemia/reperfusion injury by inhibiting apoptosis through HIF-1α signalling. J Cell Mol Med. 2020 Jan;24(1):850-861. doi: 10.1111/jcmm.14795. Epub 2019 Nov 3. PMID: 31680420; PMCID: PMC6933328.

7. Bioactivity
Biological target:

Product data sheet

IOX2 is a specific prolyl hydroxylase-2 (PHD2) inhibitor with IC_{50} of 22 nM.

In vitro activity

In the presence of IOX2, the flagellin-induced rise in intracellular lactate levels was less clear and not statistically significant ($p = 0.06$ versus IOX2 in medium control). Remarkably, however, IOX2 caused a higher intracellular accumulation of pyruvate regardless of the presence or absence of flagellin (Figure 2B). In accordance, RNA sequencing and GSE analysis indicated that IOX2 significantly impacted the flagellin-induced expression of genes encoding enzymes involved in the core glycolysis pathway (Figure 2C,D). Of interest, IOX2 strongly induced the expression of PKM, the gene encoding pyruvate kinase M, the rate-limiting enzyme that catalyzes the final step of glycolysis, resulting in pyruvate generation, whilst IOX2 did not affect the expression of LDHA, the gene encoding lactate dehydrogenase A, the enzyme responsible for the conversion of pyruvate into lactate (Figure 2D and Figure S2A). Collectively, these results suggest that IOX2 enhances flagellin-induced glycolysis in HBE cells, resulting in the accumulation of intracellular pyruvate.

Reference: Cells. 2022 Jan 24;11(3):391. https://pubmed.ncbi.nlm.nih.gov/35159204/

In vivo activity

Dexmedetomidine treatment notably reduced infarct size, and this effect was partly diminished by IOX2. Dexmedetomidine also reduced the levels of the HIF-1α, BAX, BNIP3, cleaved caspase-3 and cleaved PARP-1 proteins and increased the BCL-2 protein level and the ratio of BCL-2 to BAX, while IOX2 treatment partly abolished these effects (Figure 6B).

Reference: J Cell Mol Med. 2020 Jan;24(1):850-861. https://pubmed.ncbi.nlm.nih.gov/31680420/

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.