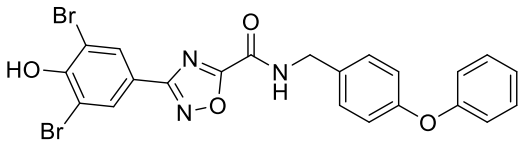
Product data sheet

MedKoo Cat#: 510267 Name: IOWH032 CAS: 1191252-49-9 Chemical Formula: $C_{22}H_{15}Br_2N_3O_4$ Exact Mass: 542.9429 Molecular Weight: 545.1870	
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:
IOWH032 is a CFTR inhibitor. Diarrhea, a disease of poverty and poor sanitation, kills an estimated two million children each year. Oral rehydration therapy is a very simple and inexpensive treatment that has significantly reduced mortality from secretory diarrhea caused by rotavirus, cholera and enterotoxigenic Escherichia coli. The efficacy and adoption of oral rehydration therapy would be enhanced by a drug that reduces fluid loss associated with these diseases and alleviates disease symptoms. Secretion and absorption by the intestine offer a number of potential drug targets to reduce fluid loss.

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	30.0	55.03
DMSO	76.67	140.62
DMSO:PBS (pH 7.2) (1:4)	0.20	0.37

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.83 mL	9.17 mL	18.34 mL
5 mM	0.37 mL	1.83 mL	3.67 mL
10 mM	0.18 mL	0.92 mL	1.83 mL
50 mM	0.04 mL	0.18 mL	0.37 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. Lotti V, Merigo F, Lagni A, Di Clemente A, Ligozzi M, Bernardi P, Rossini G, Concia E, Plebani R, Romano M, Sbarbati A, Sorio C, Gibellini D. CFTR Modulation Reduces SARS-CoV-2 Infection in Human Bronchial Epithelial Cells. Cells. 2022 Apr 15;11(8):1347. doi: 10.3390/cells11081347. PMID: 35456026; PMCID: PMC9028056.

In vivo study

1. Cui G, Khazanov N, Stauffer BB, Infield DT, Imhoff BR, Senderowitz H, McCarty NA. Potentiators exert distinct effects on human, murine, and Xenopus CFTR. Am J Physiol Lung Cell Mol Physiol. 2016 Aug 1;311(2):L192-207. doi: 10.1152/ajplung.00056.2016. Epub 2016 Jun 10. PMID: 27288484; PMCID: PMC5142458.

7. Bioactivity
Biological target:

Product data sheet

IOWH-032 is a a synthetic anti-secretory molecule, is a potent CFTR inhibitor with an IC_{50} value of 8 μM. IOWH-032 also is a anti-diarrheal agent.

In vitro activity

This study compared the supernatant viral loads of WT and ΔF CFBE41o- cells with that of IOWH-032-treated CFBE41o- WT cells at 24, 48 and 72 hpi by multiplex real-time RT-PCR. Remarkably, at 24 hpi, IOWH-032-treated CFBE41o- WT cells showed significantly lower viral loads than untreated WT and ΔF CFBE41o- cells. Moreover, at 72 hpi, the decrease in SARS-CoV-2 viral load in IOWH-032-treated CFBE41o- cells was significant ($p < 0.0001$) even when compared to the load in CFBE41o- ΔF cells (Figure 6a).

Reference: Cells. 2022 Apr 15;11(8):1347. https://pubmed.ncbi.nlm.nih.gov/35456026/

In vivo activity

This study hypothesizes that insight into this question could be gained by comparing the effect of potentiators on CFTR channels from different origins, e.g., human, mouse, and Xenopus (frog). The present study combined this comparative molecular pharmacology approach with that of computer-aided drug discovery to identify and characterize new potentiators of CFTR and to explore possible mechanism of action. These results demonstrate that 1) VX-770, NPPB, GlyH-101, P1, P2, and P3 all exhibited ortholog-specific behavior in that they potentiated hCFTR, mCFTR, and xCFTR with different efficacies; 2) P1, P2, and P3 potentiated hCFTR in excised macropatches in a manner dependent on the degree of PKA-mediated stimulation; 3) P1 and P2 did not have additive effects, suggesting that these compounds might share binding sites. Also 4) using a pharmacophore modeling approach, this study identified three new potentiators (IOWH-032, OSSK-2, and OSSK-3) that have structures similar to GlyH-101 and that also exhibit ortholog-specific potentiation of CFTR.

Reference: Am J Physiol Lung Cell Mol Physiol. 2016 Aug 1;311(2):L192-207. https://pubmed.ncbi.nlm.nih.gov/27288484/