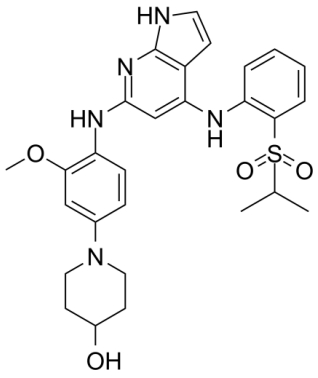
Data Sheet

Product Name:	Mps1-IN-1
Cat. No.:	CS-3776
CAS No.:	1125593-20-5
Molecular Formula:	C28H33N5O4S
Molecular Weight:	535.66
Target:	Mps1
Pathway:	Cell Cycle/DNA Damage; Cytoskeleton
Solubility:	DMSO : ≥ 39 mg/mL (72.81 mM)



BIOLOGICAL ACTIVITY:

Mps1-IN-1 is a potent, selective and ATP-competitive **Mps1** kinase inhibitor, with an **IC_{50}** and a **K_d** of 367 nM and 27 nM. IC50 & Target: IC50: 367 nM (Mps1)[1]

Kd: 27 nM (Mps1)[1] **In Vitro:** Mps1-IN-1 is a potent, selective and ATP-competitive Mps1 kinase inhibitor, with an IC_{50} and a K_d of 367 nM and 27 nM. Mps1-IN-1 also has high affinity for ALK, and LTK, with K_ds of 21 and 39 nM, respectively, but shows little or no inhibition on other 352 member kinases. Mps1-IN-1 (5, 10 μM) induces bypass of a checkpoint-mediated mitotic arrest in U2OS cells. Mps1-IN-1 disrupts recruitment of Mad2 to kinetochores, and reduces the phosphorylation status of Aurora B at threonine-232 (Thr232). Mps1-IN-1 (10 μM) shows no effect on centrosome duplication. In addition, Mps1-IN-1 (5-10 μM) suppresses the proliferative capacity of HCT116[1].

PROTOCOL (Extracted from published papers and Only for reference)

Kinase Assay: [1]The kinase binding assay is used to assess compound binding to **TTK** by monitoring displacement of a fluorescently labeled, ATP site-directed kinase inhibitor (Kinase Tracer 236) from the kinase active site. Each 15 μL assay contains 5 nM TTK, **variable amounts of test compound (Mps1-IN-1)**, 30 nM Kinase Tracer 236, 2 nM Eu-anti-GST Antibody, and 1% DMSO (residual from compound dilution) in Kinase Buffer A (50 mM HEPES pH 7.5, 10 mM $MgCl_2$, 1 mM EGTA, 0.01% Brij-35). Binding assays are initiated by addition of 5 μL of test compound (from 2-fold dilution series) to 5 μL of a kinase/antibody mixture, followed by addition of 5 μL of antibody. Assay plates are read using using standard Eu-based TR-FRET settings with excitation at 340 nm and emission monitored at 615 nm (donor) and 665 nm (acceptor). Emission intensities are measured over a 200 μs window following a 100 μs post-excitation delay[1]. **Cell Assay:** Mps1-IN-1 is dissolved in DMSO.[1]**U2OS cells** expressing doxycycline-inducible PLK4 are plated in 96 well plates. A double thymidine block is performed using the following treatment regimen: thymidine for 18-20 hrs., release for 10 hrs. with doxycycline induction of PLK4 during this time, then a second thymidine block, followed by release. Six hours after the 2nd thymidine release, **Mps1-IN-1 (or DMSO vehicle)** is added and the proliferation of the cell populations is monitored with Cell Titer GLO assay[1].

References:

[1]. Kwiatkowski N, et al. Small-molecule kinase inhibitors provide insight into Mps1 cell cycle function. Nat Chem Biol. 2010 May;6(5):359-68.

CAIndexNames:

4-Piperidinol, 1-[3-methoxy-4-[[4-[[2-[(1-methylethyl)sulfonyl]phenyl]amino]-1H-pyrrolo[2,3-b]pyridin-6-yl]amino]phenyl]-

SMILES:

O=S(C(C=CC=C1)=C1NC2=CC(NC3=C(OC)C=C(N4CCC(O)CC4)C=C3)=NC5=C2C=CN5)(C(C)C)=O

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