Small Molecules

Ku-0063794

mTOR pathway inhibitor; Inhibits mTORC1, mTORC2 complexes

Catalog #	73232	5 mg
	73234	50 mg

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TOLL FREE PHONE 1 800 667 0322 • PHONE +1 604 877 0713
INFO@STEMCELL.COM • TECHSUPPORT@STEMCELL.COM
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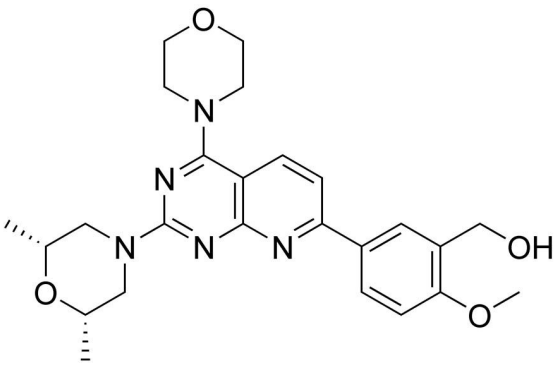
Product Description

Ku-0063794 is a cell-permeable, selective inhibitor of the serine-threonine kinase mammalian target of rapamycin (mTOR), inhibiting both the mTORC1 and mTORC2 complexes (IC_{50} = 10 nM). It shows good specificity (> 1000-fold) against 76 other protein kinases or 7 lipid kinases, including PI3 kinases (García-Martínez et al.).

Molecular Name:	Ku-0063794
Alternative Names:	Not applicable
CAS Number:	938440-64-3
Chemical Formula:	$C_{25}H_{31}N_5O_4$
Molecular Weight:	465.5 g/mol
Purity:	≥ 98%
Chemical Name:	[5-[2-[(2R,6S)-2,6-dimethylmorpholin-4-yl]-4-morpholin-4-ylpyrido[2,3-d]pyrimidin-7-yl]-2-methoxyphenyl]methanol
Structure:	

Properties

Physical Appearance:	A crystalline solid
Storage:	Product stable at -20°C as supplied. Protect from prolonged exposure to light. For product expiry date, please contact techsupport@stemcell.com.
Solubility:	· DMSO ≤ 4 mM For example, to prepare a 1 mM stock solution in DMSO, resuspend 5 mg in 10.7 mL of DMSO. Prepare stock solution fresh before use. Information regarding stability of small molecules in solution has rarely been reported, however, as a general guide we recommend storage in DMSO at -20°C. Aliquot into working volumes to avoid repeated freeze-thaw cycles. The effect of storage of stock solution on compound performance should be tested for each application. Compound has low solubility in aqueous media. For use as a cell culture supplement, stock solution should be diluted into culture medium immediately before use. Avoid final DMSO concentration above 0.1% due to potential cell toxicity.

Published Applications

CANCER
· Inhibits cell growth by inducing G1-cell cycle arrest in mouse embryonic fibroblasts and human non-small cell lung carcinoma cell lines (García-Martínez et al.; Fei et al.).
· Inhibits tumor growth in a xenograft model of renal cell carcinoma (Zhang et al.).
· Reduces keloid (fibroproliferative dermal lesion) volume in an ex vivo keloid organ culture model, and inhibits keloid cell spreading, proliferation, migration, and invasive properties in vitro (Syed et al.).

MAINTENANCE
· Extends the lifespan of Toll-like receptor (TLR)-activated dendritic cells by preserving mitochondrial oxidative phosphorylation (Amiel et al.).

References

Amiel E et al. (2014) Mechanistic target of rapamycin inhibition extends cellular lifespan in dendritic cells by preserving mitochondrial function. J Immunol 193(6): 2821–30.
Fei S-J et al. (2013) Targeting mTOR to overcome epidermal growth factor receptor tyrosine kinase inhibitor resistance in non-small cell lung cancer cells. PLoS One 8(7): e69104.
García-Martínez JM et al. (2009) Ku-0063794 is a specific inhibitor of the mammalian target of rapamycin (mTOR). Biochem J 421(1): 29–42.
Syed F et al. (2013) Potent dual inhibitors of TORC1 and TORC2 complexes (KU-0063794 and KU-0068650) demonstrate in vitro and ex vivo anti-keloid scar activity. J Invest Dermatol 133(5): 1340–50.
Zhang H et al. (2013) A comparison of Ku0063794, a dual mTORC1 and mTORC2 inhibitor, and temsirolimus in preclinical renal cell carcinoma models. PLoS One 8(1): e54918.

Related Small Molecules

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This product is hazardous. Please refer to the Safety Data Sheet (SDS).