Small Molecules

(-)-Blebbistatin

Non-muscle myosin II (NM II) ATPase inhibitor

Catalog #	72402	5 mg
	72404	25 mg

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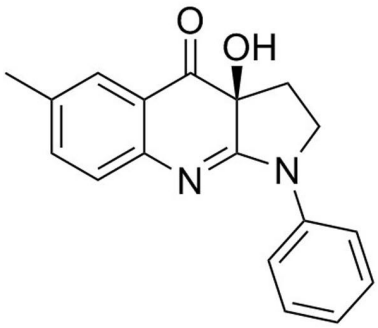
Product Description

(-)-Blebbistatin is a selective cell-permeable inhibitor of non-muscle myosin II ATPases (Kovács et al.; Straight et al.) and is named after its ability to inhibit membrane blebbing. It rapidly and reversibly inhibits Mg-ATPase activity and in vitro motility of non-muscle myosin IIA and IIB for several species (IC_{50} = 0.5 - 5.0 µM), while poorly inhibiting smooth muscle myosin (IC_{50} = 80 µM; Limouze et al.). Blebbistatin is inactivated by UV light (Kolega), which may be particularly important in fluorescent cell imaging applications.

Molecular Name:	(-)-Blebbistatin
Alternative Names:	Not applicable
CAS Number:	856925-71-8
Chemical Formula:	$C_{18}H_{16}N_2O_2$
Molecular Weight:	292.3 g/mol
Purity:	≥ 98%
Chemical Name:	(3aS)-3a-hydroxy-6-methyl-1-phenyl-2,3-dihydropyrrolo[2,3-b]quinolin-4-one
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 ≤ 40 mM For example, to prepare a 10 mM stock solution in DMSO, resuspend 1 mg in 342 µL of fresh 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

MAINTENANCE AND SELF-RENEWAL
· Increases human pluripotent stem cell (hPSC) survival and cloning efficiency after dissociation to single cells, downstream of ROCK inhibition (Chen et al.; Ohgushi et al.; Walker et al.; Xu et al.).
· Enables hPSC to be cultured on microcarriers without surface coating (Chen et al.).
· Inhibits differentiation of human mesenchymal stem cells (McBeath et al.; Engler et al.).

References

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Kovács M et al. (2004) Mechanism of blebbistatin inhibition of myosin II. J Biol Chem 279(34): 35557–63.
Limouze J et al. (2004) Specificity of blebbistatin, an inhibitor of myosin II. J Muscle Res Cell Motil 25(4-5): 337–41.
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This product is hazardous. Please refer to the Safety Data Sheet (SDS).