(-)-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 (IC₅₀ = 0.5 - 5.0 µM), while poorly inhibiting smooth muscle myosin (IC₅₀ = 80 µM; Limouze et al.). Blebbistatin is inactivated by ultraviolet light (Kolega), which may be particularly important in fluorescent cell imaging applications.

**Chemical Name:** (3aS)-3a-hydroxy-6-methyl-1-phenyl-2,3-dihydropyrrolo[2,3-b]quinolin-4-one

**Molecular Name:** (-)-Blebbistatin

**CAS Number:** 856925-71-8

**Chemical Formula:** C₁₈H₁₈N₂O₂

**Molecular Weight:** 292.3 g/mol

**Purity:** ≥ 98%

**Physical Appearance:** A crystalline solid

**Storage:** Product stable at -20°C as supplied. Protect from prolonged exposure to light. Stable as supplied for 12 months from date of receipt.

**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 hPSs 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

Related Small Molecules
For a complete list of small molecules available from STEMCELL Technologies, visit www.stemcell.com/smallmolecules or contact us at techsupport@stemcell.com.

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