Revision 1

Store at RT

#17949

MHY1485

5 mg

Cell Signaling TECHNOLOGY®

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Background

MHY1485 is a small, synthetic compound that activates the molecular mammalian target of rapamycin (mTOR) (1). mTOR is a Ser/Thr protein kinase that functions as an ATP and amino acid sensor to balance nutrient availability and cell growth. Cellular mTOR is a core component of both mTORC1 and mTORC2 multiprotein complexes, which regulate cell growth, proliferation, motility, and survival, as well as transcription, protein synthesis, and autophagy (2). Treatment of rat hepatocytes with MHY1485 suppressed autophagy by activating mTOR and inhibiting the fusion of autophagosomes and lysosomes (1). MHY1485 activated the mTOR-Nrf2 signaling pathway in UV-treated skin cells, preventing cell death and apoptosis. The mTOR activator suppressed UV-induced reactive oxygen species production and DNA single-strand breaks in UV-treated skin keratinocytes and fibroblasts (3). Similar treatment with MHY1485 rescued cultured osteoblasts from the cytotoxic effects of dexamethasone exposure, and increased ovarian weights, restored endocrine function, and promoted primordial follicle development in mice (4,5).

Molecular Formula

$C_{17}H_{21}N_7O_4$

Molecular Weight

387.4 g/mol

Purity

>98%

CAS

326914-06-1

Solubility

Soluble in DMSO at 20 mg/mL or DMF at 10 mg/mL.

Storage

Store lyophilized at room temperature, desiccated. In lyophilized form, the chemical is stable for 24 months. Once in solution, store at -20°C and use within 3 months to prevent loss of potency. *Aliquot to avoid multiple freeze/thaw cycles*.

Directions for Use

MHY1485 is supplied as a lyophilized powder. For a 15 mM stock, reconstitute 5 mg of powder in 0.86 mL of DMSO. Working concentrations and length of treatment can vary depending on the desired effect.

Background References

1. Choi, Y.J. et al. (2012) *PLoS One* 7, e43418.
2. Lipton, J.O. and Sahin, M. (2014) *Neuron* 84, 275-91.
3. Yang, B. et al. (2017) *Oncotarget* 8, 12775-12783.
4. Zhao, S. et al. (2016) *Biochem Biophys Res Commun* 481, 212-218.
5. Wu, S. et al. (2020) *Front Genet* 11, 603683.

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