

Store at  
-20°C  
**#14385**

# Torin 2

5 mg

www.cellsignal.com

Support: 877-678-TECH (8324)  
www.cellsignal.com/support

Orders: 877-616-CELL (2355)  
orders@cellsignal.com

rev 11/09/17

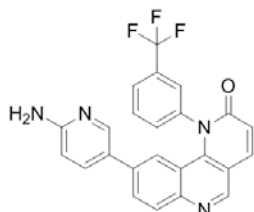
**For Research Use Only. Not For Use In Diagnostic Procedures.**

**Background:** Torin 2 is a potent and selective ATP-competitive mTOR inhibitor with superior pharmacokinetics over the Torin 1 predecessor (1,2). A series of *in vitro* kinase activity assays indicate that Torin 2 inhibits mTORC1 with an  $IC_{50}$  of 2.1 nM. Cellular activity assays demonstrate that Torin 2 inhibits cellular mTOR activity with an  $EC_{50}$  of 0.25 nM. These assays also indicate that Torin 2 has an 800-fold selectivity over P13K ( $EC_{50}$  of 200 nM) and a over 800-fold selectivity over 400 other protein kinases (2). Unlike Torin 1, Torin 2 inhibits the phosphatidylinositol-3 kinase-like kinase (PIKK) family members ATM ( $EC_{50}$  = 25 nM), ATR ( $EC_{50}$  = 35 nM), and DNA-PK ( $IC_{50}$  = 118 nM) (2). Investigators demonstrate that Torin 2 treatment of cells attenuates phosphorylation of mTOR downstream targets, inhibits cell proliferation of several cancer cell types, and induces apoptosis and autophagy (2,3). Indirect activation and nuclear translocation of TFEB ( $EC_{50}$  = ~1.6 nM) through Torin 2 inhibition of mTORC1 has also been observed (4).

#### Background References:

- (1) Liu, Q. et al. (2011) *J Med Chem* 54, 1473-80.
- (2) Liu, Q. et al. (2013) *Cancer Res* 73, 2574-86.
- (3) Zullo, A.J. et al. (2014) *BMC Biochem* 15, 4.
- (4) Settembre, C. et al. (2012) *EMBO J* 31, 1095-108.

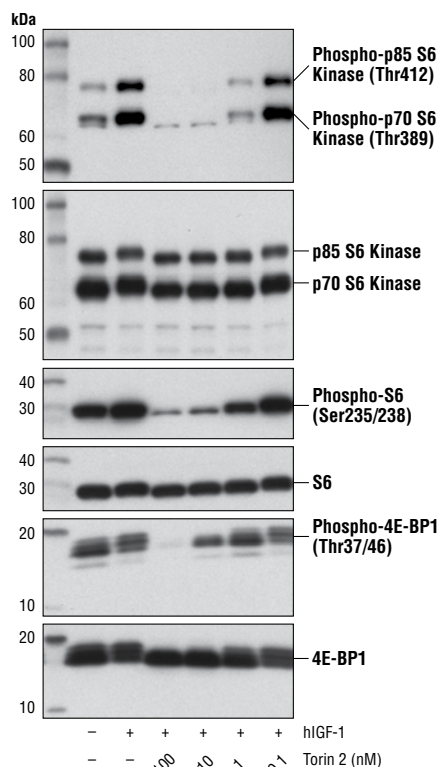
**Molecular Formula:**  $C_{24}H_{15}F_3N_4O$



**Molecular Weight:** 432.40 g/mol

**Solubility:** Soluble in DMSO at 2.16 mg/ml (5 mM). Poorly soluble in ethanol and water.

**Purity:** >98%



Western blot analysis of extracts from MCF7 cells, serum-starved overnight and untreated (-) or treated with hIGF-I #8917 (100 ng/ml, 10 min; +), either with or without Torin 2 pretreatment (1 hr) at the indicated concentrations, using Phospho-p70 S6 Kinase (Thr389) (108D2) Rabbit mAb #9234, p70 S6 Kinase (49D7) Rabbit mAb #2708, Phospho-S6 Ribosomal Protein (Ser235/236) (D57.2.2E) XP® Rabbit mAb #4858, S6 Ribosomal Protein (5G10) Rabbit mAb #2217, Phospho-4E-BP1 (Thr37/46) (236B4) Rabbit mAb #2855, and 4E-BP1 Antibody #9452.

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

**Directions for Use:** Torin 2 is supplied as a lyophilized powder. For a 5 mM stock, reconstitute the 5 mg in 2.31 ml DMSO. First add 1 ml DMSO to the tube containing the chemical, vortex, and dispense into a new, larger tube. Repeat this action to transfer any residual material. Add additional DMSO to the new tube to bring the volume up to 2.31 ml. Heating to 37°C and/or additional vortexing may be required.

Working concentrations and length of treatment can vary depending on the desired effect, but it is typically used at 10–1,000 nM for 1–24 hr.

Thank you for your recent purchase. If you would like to provide a review visit [www.cellsignal.com/comments](http://www.cellsignal.com/comments).