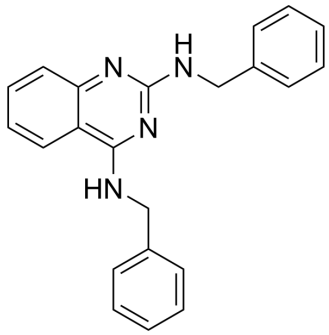
DBeQ

Cat. No.:	HY-15945
CAS No.:	177355-84-9
Molecular Formula:	$C_{22}H_{20}N_4$
Molecular Weight:	340.42
Target:	p97; Autophagy; Apoptosis
Pathway:	Cell Cycle/DNA Damage; Autophagy; Apoptosis
Storage:	Powder -20°C 3 years 4°C 2 years In solvent -80°C 2 years -20°C 1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : 35.71 mg/mL (104.90 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.9375 mL	14.6877 mL	29.3755 mL
	5 mM	0.5875 mL	2.9375 mL	5.8751 mL
	10 mM	0.2938 mL	1.4688 mL	2.9375 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (7.34 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (7.34 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

DBeQ is a selective, potent, reversible, and ATP-competitive p97 inhibitor, with an IC_{50} value of 1.5 μM and 1.6 μM for p97(wt) and p97(C522A), respectively; DBeQ also inhibits Vps4 with an IC_{50} of 11.5 μM.

IC_{50} & Target

IC50: 1.5 μM (p97)[1], 11.5 μM (Vps4)[2]

In Vitro

DBeQ is a ATP-competitive p97 inhibitor, with an IC_{50} value of 1.5 μM and 1.6 μM for p97(wt) and p97(C522A), respectively. DBeQ inhibits p97 competitively with respect to ATP, with a K_i of 3.2 ± 0.4 μM. DBeQ inhibits degradation of the p97-dependent substrate UbG76V-GFP, with IC_{50} value of 2.6 μM. DBeQ (10 μM) also significantly suppresses degradation of TCR α-GFP, induces CHOP but does not increase p21 level. Moreover, DBeQ inhibits the viability of MRC-5, Hek293, HeLa and RPMI8226 cells, with GI_{50}s of 6.6 ± 2.9, 4 ± 0.6, 3.1 ± 0.5 and 1.2 ± 0.3, respectively[1]. DBeQ potently inhibits the AAA ATPase

p97 by specifically binding to the ATPase site of its D2 domain (p97D2). DBeQ also inhibits Vps4, with an IC_{50} of 11.5 μM. Furthermore, DBeQ (30 μM) inhibits hyphal growth of the wild-type cell (strain YLZ0)[2].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [1]

Cells are seeded on a 384-well solid white plate (5,000 cells/well). Cells are transfected with luciferase siRNA or p97 siRNA (10 nM) for 48 h or treated with DBeQ for the indicated amount of time. Caspase-3/7 Glo, caspase-6 Glo, caspase-8 Glo, or caspase-9 Glo is added into each well and mixed by shaking at 500 rpm for 1 min. Luminescence signal is determined after incubation at room temperature for 1 h. Cellular viability is determined with CellTiter-Glo reagent. To determine the IC_{50} of cellular viability, cells are treated with MG132 or DBeQ at seven concentrations (threefold serial dilutions starting at 33 μM) for 48 h. IC_{50} values are calculated from fitting the percentage of luminescence signal normalized to DMSO treated cells)[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Vet Microbiol. 2022 Jul 12;272:109511.
- Discov Oncol. 2023 Jun 3;14(1):86.

See more customer validations on www.MedChemExpress.com

REFERENCES

[1]. Chou TF, et al.Reversible inhibitor of p97, DBeQ, impairs both ubiquitin-dependent and autophagic protein clearance pathways. Proc Natl Acad Sci U S A. 2011 Mar 22;108(12):4834-9.

[2]. Zhang Y, et al. The AAA ATPase Vps4 Plays Important Roles in Candida albicans Hyphal Formation and is Inhibited by DBeQ. Mycopathologia. 2016 Jun;181(5-6):329-39.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA