

Store at
-20C
#33357

Antimycin A

10 mg

**Orders:** 877-616-CELL (2355)
orders@cellsignal.com**Support:** 877-678-TECH (8324)**Web:** info@cellsignal.com
cellsignal.com

3 Trask Lane | Danvers | Massachusetts | 01923 | USA

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Background

Antimycin A is an inhibitor of electron transport from cytochrome b to cytochrome complex III (cytochrome c reductase). Binding of Antimycin A to cytochrome c reductase inhibits the oxidation of ubiquinol, disrupts the Q-cycle of enzyme turnover, and halts cellular respiration (1). Consequently, this small, non-peptide ligand inhibitor has been used for decades to characterize the mitochondrial respiratory chain (2). Antimycin A has long been used as a piscicide in commercial fish farms, and possesses strong antifungal, insecticidal, and nematocidal activities (3). Treatment of HeLa cells with Antimycin A results in the loss of mitochondrial membrane potential and inhibition of cell growth through apoptosis. Antimycin A strongly generates reactive oxygen species and induces glutathione depletion in these cells (4). Antimycin A binds and inhibits Bcl2/Bcl-xL-related anti-apoptotic proteins, which are commonly over-produced by cancer cells (5,6).

Molecular Formula

 $C_{28}H_{40}N_2O_9$

Molecular Weight

548.6 g/mol

Purity

>97%

CAS

1397-94-0

Solubility

Soluble in DMSO at 35 mg/mL or ethanol at 50 mg/mL.

Storage

Store lyophilized at -20°C, 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

Antimycin A is supplied as a lyophilized powder. For a 15 mM stock, reconstitute 10 mg of powder in 1.2 mL of DMSO. Working concentrations and length of treatment can vary depending on the desired effect.

Background References

1. Cramer, W.A. et al. (2011) *Biochim Biophys Acta* 1807, 788-802.
2. Labs, M. et al. (2016) *Photosynth Res* 129, 231-8.
3. Lennon, R.E. (1973) *Adv Appl Microbiol* 16, 55-96.
4. Park, W.H. et al. (2007) *J Cell Biochem* 102, 98-109.
5. Tzung, S.P. et al. (2001) *Nat Cell Biol* 3, 183-91.
6. Kim, K.M. et al. (2001) *Biochemistry* 40, 4911-22.

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