Revision 1

Store at -20C

#69552

Santacruzamate A (CAY10683)

5 mg

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Background

Santacruzamate A (CAY10683) is a cytotoxin isolated from the Panamanian marine cyanobacterium cf. *Symploca* sp., and is a highly selective inhibitor of histone deacetylases (HDACs), specifically HDAC2 (IC_{50} = 0.119 nM) and HDAC6 (IC_{50} = 434 nM) (1). This small molecule has been shown to induce apoptosis via transcriptional inhibition of HDAC2, resulting in an increase of p21 Waf1/Cip1 and p19INK4d expression when combined with an HDAC1 inhibitor (2). Santacruzamate A (CAY10683) has also demonstrated the ability to attenuate amyloid-β protein (Aβ) fragment ($Aβ_{25-35}$)-induced toxicity through enhancing endoplasmic reticulum (ER) stress tolerance in mice (3). Additionally, HDAC2 has been recognized as a host immune response to the influenza A virus (IVA) and several other viruses, making HDAC inhibitors important compounds to study in relation to viral diseases (4,5).

Molecular Formula

$C_{15}H_{22}N_2O_3$

Molecular Weight

278.4 g/mol

Purity

>98%

CAS

1477949-42-0

Solubility

Soluble in DMSO at 25 mg/ml or ethanol at 20 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 2 months to prevent loss of potency. *Aliquot to avoid multiple freeze/thaw cycles.*

Directions for Use

Santacruzamate A (CAY10683) is supplied as a lyophilized powder. For a 15 mM stock, reconstitute 5 mg of powder in 1.19 ml of DMSO. Working concentrations and length of treatment can vary depending on the desired effect.

Background References

1. Pavlik, C.M. et al. (2013) *J Nat Prod* 76, 2026-33.
2. Zhou, H. et al. (2018) *Cell Prolif* 51, e12447.
3. Chen, L. et al. (2019) *Front Cell Neurosci* 13, 61.
4. Nagesh, P.T. et al. (2017) *Front Microbiol* 8, 1315.
5. Walters, M.S. et al. (2009) *J Virol* 83, 11502-13.

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