

#29089 Store at -20°C

SBI-0206965

5 mg



Cell Signaling
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Background

SBI-0206965 is a potent, selective and cell permeable inhibitor of the autophagy-promoting serine/threonine kinase ULK1 (1). ULK1 is an essential protein for induction of autophagy by nutrient starvation and mTOR inhibition (2). ULK1 is reciprocally regulated by multiple phosphorylation sites via AMPK and mTOR, such that ULK1 is activated by AMPK and inhibited by mTOR (3, 4). By *in vitro* kinase assays, SBI-0206965 inhibits ULK1 with an IC₅₀ of 108 nM and to a lesser extent ULK2 with an IC₅₀ of 711 nM (1). In a panel of 456 kinases, when tested at 10 µM, SBI-0206965 showed remarkable selectivity and only inhibited 10 kinases, including ULK1 and ULK2. Other kinases that were inhibited included FAK, FLT3, Src, and Jak3. Only FLT3 and FAK had an IC₅₀ similar to ULK1 when tested in *in vitro* kinase assays. SBI-0206965 inhibits survival following nutrient deprivation. Furthermore, SBI-0206965 inhibits autophagy induced by mTOR inhibition and converts the cytostatic response to mTOR inhibition to a cytotoxic apoptotic response.

Molecular Formula

C₂₁H₂₁BrN₄O₅

Molecular Weight

489.3 g/mol

Purity

>98%

CAS

1884220-36-3

Solubility

Soluble in DMSO at 30mg/ml.

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:

SBI-0206965 is supplied as a lyophilized powder. For a 10 mM stock, reconstitute 5 mg of powder in 1.02 ml of DMSO. Working concentrations and length of treatment can vary depending on the desired effect, but it is typically at 10-50 µM for 1-72 hours.

Background References

1. Egan, D.F. et al. (2015) *Mol Cell* 59, 285-97.
2. Chan, E.Y. et al. (2007) *J Biol Chem* 282, 25464-74.
3. Egan, D.F. et al. (2011) *Science* 331, 456-61.
4. Kim, J. et al. (2011) *Nat Cell Biol* 13, 132-41.

Cross-Reactivity Key

H: human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **Mi:** mink **C:** chicken **Dm:** D. melanogaster
X: Xenopus **Z:** zebrafish **B:** bovine **Dg:** dog **Pg:** pig **Sc:** S. cerevisiae **Ce:** C. elegans **Hr:** horse
GP: Guinea Pig **Rab:** rabbit **All:** all species expected

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