Revision 3

Store at -20C

#14255

Vinblastine

Cell Signaling TECHNOLOGY®

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Background

Vinblastine is a vinca alkaloid derived from the plant *Catharanthus roseus*. Like other vinca alkaloids, it acts as a mitotic inhibitor blocking microtubule assembly *in vitro* (1,2). Investigators have demonstrated that vinblastine binds to and inhibits the addition of tubulin dimers to the assembly end of steady-state microtubules in a dose-dependent manner (K_i = ~178 nM) (1). This disruption of mitotic spindle causes mitotic arrest, inhibits cell proliferation, and induces apoptosis (1-3). Studies have suggested that high concentrations of vinblastine depolymerize microtubules, but this is not required for inhibition of cell proliferation (2). Treatment of cells with vinblastine has been shown to activate the SAPK/JNK pathway, leading to expression and phosphorylation of c-Jun (3,4) and phosphorylation of the anti-apoptotic proteins Bcl-2 and Bcl-xL (5,6).

Molecular Formula

$C_{46}H_{58}N_4O_9 \cdot H_2SO_4$

Molecular Weight

909.05 g/mol

Purity

>98%

CAS

143-67-9

Solubility

Soluble in DMSO at 50mg/ml and H2O at 10mg/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

Vinblastine is supplied as a lyophilized powder. For a 10 mM stock, reconstitute the 5 mg in 550 µl DMSO. Working concentrations and length of treatment can vary depending on the desired effect, but it is typically used at 10-1000 nM for 12-48 hr.

Background References

1. Jordan, M.A. et al. (1985) *Cancer Res* 45, 2741-7.
2. Jordan, M.A. et al. (1991) *Cancer Res* 51, 2212-22.
3. Kolomeichuk, S.N. et al. (2008) *FEBS J* 275, 1889-99.
4. Duan, L. et al. (2007) *Biochem Pharmacol* 73, 481-90.
5. Fan, M. et al. (2000) *J Biol Chem* 275, 29980-5.
6. Poruchynsky, M.S. et al. (1998) *Cancer Res* 58, 3331-8.

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