Vinblastine

Cat. No.: HY-17418
CAS No.: 865-21-4
Molecular Formula: C₄₆H₅₈N₄O₉
Molecular Weight: 810.97
Target: Microtubule/Tubulin; nAChR
Pathway: Cell Cycle/DNA Damage; Cytoskeleton; Membrane Transporter/Ion Channel; Neuronal Signaling
Storage: 4°C, protect from light
* In solvent: -80°C, 6 months; -20°C, 1 month (protect from light)

**SOLVENT & SOLUBILITY**

<table>
<thead>
<tr>
<th>Solvent</th>
<th>Preparing Stock Solutions</th>
<th>Mass</th>
<th>1 mg</th>
<th>5 mg</th>
<th>10 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Concentration</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>1 mM</td>
<td>1.2331 mL</td>
<td>6.1655 mL</td>
<td>12.3309 mL</td>
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<tr>
<td></td>
<td></td>
<td>5 mM</td>
<td>0.2466 mL</td>
<td>1.2331 mL</td>
<td>2.4662 mL</td>
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<tr>
<td></td>
<td></td>
<td>10 mM</td>
<td>0.1233 mL</td>
<td>0.6165 mL</td>
<td>1.2331 mL</td>
</tr>
</tbody>
</table>

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

**BIOLOGICAL ACTIVITY**

Description
Vinblastine is a cytotoxic alkaloid used against various cancer types. Vinblastine inhibits the formation of microtubule and suppresses nAChR with an IC₅₀ of 8.9 μM.

IC₅₀ & Target
IC₅₀: 8.9 μM(nAChR)[1]

In Vitro
Vinblastine does not depolymerize spindle microtubules, yet it powerfully blocks mitosis (for example, IC₅₀ 0.8 nM in HeLa cells) and cells die by apoptosis[2]. In NB4 cells, vinblastine produces alteration of p53 and DNA fragmentation. Vinblastine treatment has an antiproliferative effect via the induction of apoptosis producing Bax/Bcl-2 imbalance. Vinblastine treatment suppresses NFκB expression and depresses NFκB-DNA binding activity while maintaining JNK activation that subsequently results in apoptotic response through caspase-dependent pathway[3]. Vinblastine is found to trigger apoptosis as evidenced by the loss of mitochondrial membrane potential, the release of both cytochrome c and apoptosis inducing factor, activation of caspase-9 and 3, and cleavage of Poly (ADP-ribose)-Polymerase[4].

In Vivo
Vinblastine is a widely used anticancer drug with undesired side effects. Its conjugation with carrier molecules could be an
efficient strategy to reduce these side effects[5].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

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REFERENCES