PLK1 and BRD4 Dual Inhibitor – BI-2536

**Chemical Name:** (R)-4-((8-cyclopentyl-7-ethyl-5-methyl-6-oxo-5,6,7,8-tetrahydropteridin-2-yl)amino)-3-methoxy-N-(1-methylpiperidin-4-yl)benzamide

<table>
<thead>
<tr>
<th>Molecular Weight</th>
<th>521.65</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formula</td>
<td>C_{28}H_{39}N_{7}O_{3}</td>
</tr>
<tr>
<td>Purity</td>
<td>$\geq$98%</td>
</tr>
<tr>
<td>CAS#</td>
<td>755038-02-9</td>
</tr>
<tr>
<td>Solubility</td>
<td>DMSO up to 40 mM</td>
</tr>
</tbody>
</table>
| Storage          | Powder: 4 °C 1 year  
                             DMSO: 4 °C 3 months  
                             -20 °C 1 year |

**Biological Activity:**

BI-2536 is a potent inhibitor of PLK1 (Polo-like kinase 1, IC$_{50}$ ~0.83 nM) and BRD4 (IC$_{50}$ ~37 nM). It also inhibits PLK2 and PLK3 with IC$_{50}$ of 3.5 nM and 9.0 nM, respectively. BI-2536 treatment ranging from 10 nM to 100 nM leads to the blocking of the recruitment of γ-tubulin and phosphorylation of Apc6 at mitotic centrosomes, inhibition of cohesin release from chromosome arms, induction of monopolar spindles, and other Plk1 dependent processes. BI-2536 inhibits the growth of a panel of 32 human cancer cell lines with EC$_{50}$ of 2-25 nM. It also displaces BRD4 from chromatin and suppresses c-Myc expression. The combination of inhibitory activities on independent kinase and bromodomain oncogenic pathways exemplifies a new strategy for rational single-agent polypharmacological targeting.

**How to Use:**

**In vitro:** BI-2536 was used at 0.1-1 µM in vitro.

**In vivo:** BI-2536 was dosed to mice by IV injection at 50 mg/kg once or twice a week in xenograft models. (Formulated in hydrochloric acid (0.1 N), and diluted with 0.9% NaCl)

**Reference:**


Products are for research use only. Not for human use.