### Chemical Properties

<table>
<thead>
<tr>
<th><strong>Product Name:</strong></th>
<th>Purvalanol A</th>
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</thead>
<tbody>
<tr>
<td><strong>Cas No.:</strong></td>
<td>212844-53-6</td>
</tr>
<tr>
<td><strong>M.Wt:</strong></td>
<td>388.89</td>
</tr>
<tr>
<td><strong>Formula:</strong></td>
<td>C19H25ClN6O</td>
</tr>
</tbody>
</table>

**Chemical Name:** (R)-2-((6-((3-chlorophenyl)amino)-9-isopropyl-9H-purin-2-yl)amino)-3-methylbutan-1-ol

**Canonical SMILES:** ClC1=CC(NC2=C3C(N(C(C)C=N3)=NC(N[C@@H](CO)C(C)C=N2)=CC=C1

**Solubility:** >19.5mg/mL in DMSO

**Storage:** Store at -20°C

**General tips:** For obtaining a higher solubility, please warm the tube at 37°C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

**Shopping Condition:** Evaluation sample solution: ship with blue ice
All other available size: ship with RT, or blue ice upon request

### Biological Activity

**Targets:** Cell Cycle/Checkpoint

**Pathways:** Cyclin-Dependent Kinases

**Description:**

Purvalanol A is a potent and selective inhibitor of CDK with IC50 values of 4, 35, 70, 75 and 850 nM for cdc2-cyclin B, cdk2-cyclin E, cdk2-cyclin A, cdk5-p35 and cdk4-cyclin D1, respectively [1]. Cyclin-dependent kinases (CDKs) are a family of protein kinases and play an important role in regulating the cell cycle. They are also involved in regulating transcription, mRNA processing, and the differentiation of nerve cells.
In MKN45 cells, purvalanol A (30 μM) reduced the expression of antiapoptotic proteins Bcl-2, Bcl-XL and survivin and induced apoptosis. Also, purvalanol A inhibited the phosphorylation of STAT3 by Janus kinase 2 (JAK2) and the expression and phosphorylation of RNA polymerase II, which was involved in transcriptional regulation [2]. In MCF-7 ER(+) cells, purvalanol A induced apoptosis in a caspase-dependent way and increased the levels of spermidine/spermine N1-acetyltransferase (SSAT) and polyamine oxidase (PAO) [3].

In the dentate gyrus (DG) of the rat hippocampus, purvalanol A (40 nmol/3 μl) significantly induced the number of BrdU-positive cells in a time- and concentration-dependent way [4].

Reference: