**Product Description**

Purvalanol A is a cell-permeable, potent, and selective inhibitor of cyclin-dependent kinases (CDKs). CDKs and cyclins form a stoichiometric complex which is necessary for the CDK subunit to gain its protein kinase activity. It has been shown that these CDK/cyclin complexes play a key role in initiating G2/M transitions of the cell cycle (Jackman & Pines). Purvalanol A acts through competitive inhibition of ATP binding, to inhibit CDK1/cyclin B (IC$_{50}$ = 4 nM), CDK2/cyclin A (IC$_{50}$ = 70 nM), CDK2/cyclin E (IC$_{50}$ = 35 nM), CDK4/cyclin D1 (IC$_{50}$ = 850 nM) and CDK5-p35 (IC$_{50}$ = 75 nM; Bain et al.; Gray et al.), thereby arresting cells in G1 and G2.

**Molecular Name:** Purvalanol A

**Alternative Names:** NG 60

**CAS Number:** 212844-53-6

**Chemical Formula:** C$_{19}$H$_{25}$ClN$_6$O$_3$

**Molecular Weight:** 388.9 g/mol

**Purity:** ≥ 98%

**Chemical Name:** (2R)-2-[[6-[(3-chlorophenyl)amino]-9-(1-methylethyl)-9H-purin-2-yl]amino]-3-methyl-1-butanol

**Structure:**

![Chemical Structure of Purvalanol A](image)

**Properties**

**Physical Appearance:** A crystalline solid

**Storage:** Product stable at -20°C as supplied. Protect product from prolonged exposure to light. For long-term storage store with a desiccant. For product expiry date, please contact techsupport@stemcell.com.

**Solubility:**
- DMSO ≤ 75 mM
- Absolute ethanol ≤ 25 mM

For example, to prepare a 10 mM stock solution in DMSO, resuspend 1 mg in 257 μL of DMSO.

Prepare stock solution fresh before use. Information regarding stability of small molecules in solution has rarely been reported, however, as a general guide we recommend storage in DMSO at -20°C. Aliquot into working volumes to avoid repeated freeze-thaw cycles. The effect of storage of stock solution on compound performance should be tested for each application.

Compound has low solubility in aqueous media. For use as a cell culture supplement, stock solution should be diluted into culture medium immediately before use. Avoid final DMSO concentration above 0.1% due to potential cell toxicity.
Published Applications

CANCER RESEARCH
- Inhibits proliferation in exponentially growing cancer cell lines and reversibly arrests synchronised cells in G1 and G2 phase of cell cycle (Villerbu et al.).
- Induces apoptosis in MCF-7 estrogen receptor positive breast cancer cells (Obakan et al.).
- Suppresses cancer progression associated with Src up-regulation by the coordinated inhibition of cell cycle progression and tyrosine kinase signaling (Hikita et al.).

References

Related Small Molecules
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