

## Small Molecules

### Kenpaullone

WNT pathway activator; Inhibits GSK3

Catalog # 72782

10 mg



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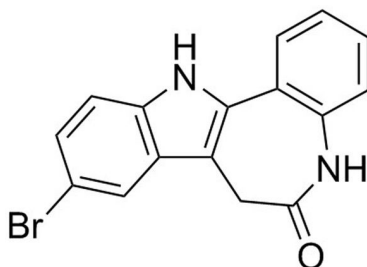
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## Product Description

Kenpaullone is an ATP-competitive inhibitor of several cyclin-dependent kinases (CDKs) as well as glycogen synthase kinase 3 $\beta$  (GSK-3 $\beta$ ; Bain et al.; Leclerc et al.; Zaharevitz et al.). It inhibits GSK-3 $\beta$ , Cdk1/cyclin B, Cdk2/cyclin A, Cdk5/p25, and lymphocyte kinase with IC<sub>50</sub> values of 0.23, 0.4, 0.68, 0.85, and 0.47  $\mu$ M, respectively (Bain et al.; Zaharevitz et al.).

Molecular Name:	Kenpaullone
Alternative Names:	9-Bromopaullone; NSC 664704
CAS Number:	142273-20-9
Chemical Formula:	C <sub>16</sub> H <sub>11</sub> BrN <sub>2</sub> O
Molecular Weight:	327.2 g/mol
Purity:	≥ 98%
Chemical Name:	9-bromo-7,12-dihydro-indolo[3,2-d][1]benzazepin-6(5H)-one
Structure:	



## Properties

Physical Appearance:	A crystalline solid
Storage:	Product stable at -20°C as supplied. Protect from prolonged exposure to light. For product expiry date, please contact <a href="mailto:techsupport@stemcell.com">techsupport@stemcell.com</a> .
Solubility:	· DMSO ≤ 30 mM For example, to prepare a 10 mM stock solution in DMSO, resuspend 1 mg in 306 $\mu$ L of fresh 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

### REPROGRAMMING

- Replaces Klf4 in the generation of induced pluripotent stem (iPS) cells from mouse embryonic fibroblasts (MEFs) transduced with Oct4, Sox2, and c-Myc (Lyssiotis et al.).

### DIFFERENTIATION

- Enhances neuronal differentiation in rat and human neural precursor cell cultures (Castelo-Branco et al.; Lange et al.).
- Promotes survival of motor neurons derived from mouse embryonic stem (ES) cells and from Amyotrophic Lateral Sclerosis (ALS) patient iPS cells (Yang et al.).

### CANCER RESEARCH

- Inhibits KLF4 expression and self-renewal in breast cancer stem cells in vitro (Yu et al.).

## References

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- Leclerc S et al. (2001) Idirubins inhibit glycogen synthase kinase-3  $\beta$  and CDK5/p25, two protein kinases involved in abnormal tau phosphorylation in Alzheimer's disease. A property common to most cyclin-dependent kinase inhibitors? *J Biol Chem* 276(1): 251–60.
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- Yu F et al. (2011) Kruppel-like factor 4 (KLF4) is required for maintenance of breast cancer stem cells and for cell migration and invasion. *Oncogene* 30(18): 2161–72.
- Zaharevitz DW et al. (1999) Discovery and initial characterization of the paullones, a novel class of small-molecule inhibitors of cyclin-dependent kinases. *Cancer Res* 59(11): 2566–9.

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