Small Molecules

TWS119

WNT pathway activator; Inhibits GSK3β

Catalog # 73512 1 mg
73514 10 mg

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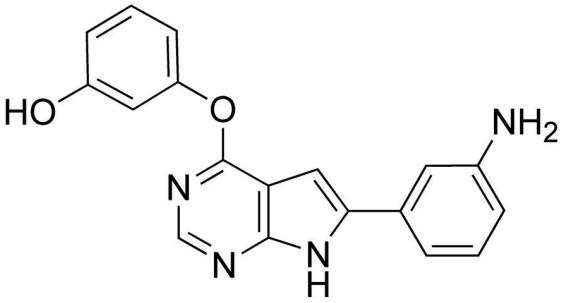
Product Description

TWS119 is a potent disubstituted pyrrolopyrimidine inhibitor of glycogen synthase kinase 3 beta (GSK3β) with an IC_{50} of 30 nM and Kd of 126 nM (Ding et al.). GSK3 is a serine/threonine kinase that is a key inhibitor of the WNT pathway; therefore TWS119 functions as a WNT pathway activator.

Molecular Name:	TWS119
Alternative Names:	GSK 3B Inhibitor XII
CAS Number:	601514-19-6
Chemical Formula:	$C_{18}H_{14}N_4O_2$
Molecular Weight:	318.3 g/mol
Purity:	≥ 90%
Chemical Name:	3-[[6-(3-aminophenyl)-7H-pyrrolo[2,3-d]pyrimidin-4-yl]oxy]phenol
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 techsupport@stemcell.com.
Solubility:	· DMSO ≤ 60 mM · Absolute ethanol ≤ 0.9 mM For example, to prepare a 10 mM stock solution in DMSO, resuspend 1 mg in 314 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

DIFFERENTIATION
· Induces differentiation of mouse embryonal carcinoma and embryonic stem cells to neurons (Ding et al.).
· Induces production of T memory stem cell-like (T-SCM) cells from mouse or human CD8+ T cells with evidence of increased persistence, proliferation, and anti-tumor activity after adoptive transfer of mouse-derived T-SCM (Forget et al.; Gattinoni et al.).

MAINTENANCE
· Maintains the bi-potent, quiescent state in hepatic stellate cells of Wistar rats (Kordes et al.).

CANCER
· Inhibits cell proliferation and induces apoptosis in human alveolar rhabdomyosarcoma cells (Zeng et al.).

References

Ding S et al. (2003) Synthetic small molecules that control stem cell fate. Proc Natl Acad Sci U S A 100(13): 7632–7.
Forget M-A et al. (2012) Stimulation of Wnt/ß-catenin pathway in human CD8+ T lymphocytes from blood and lung tumors leads to a shared young/memory phenotype. PLoS One 7(7): e41074.
Gattinoni L et al. (2009) Wnt signaling arrests effector T cell differentiation and generates CD8+ memory stem cells. Nat Med 15(7): 808–13.
Kordes C et al. (2008) Canonical Wnt signaling maintains the quiescent stage of hepatic stellate cells. Biochem Biophys Res Commun 367(1): 116–23.
Zeng F-Y et al. (2010) Glycogen synthase kinase 3 regulates PAX3-FKHR-mediated cell proliferation in human alveolar rhabdomyosarcoma cells. Biochem Biophys Res Commun 391(1): 1049–55.

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This product is hazardous. Please refer to the Safety Data Sheet (SDS).