Small Molecules

PD98059

MEK/ERK pathway inhibitor; Inhibits MEK1 and MEK2

Catalog #	72172	1 mg
	72174	5 mg

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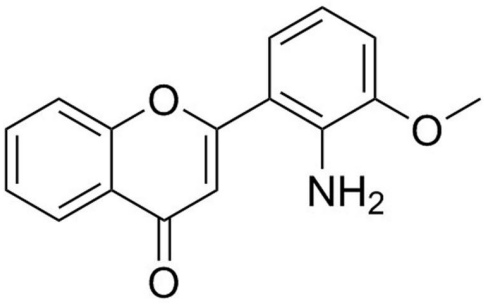
Product Description

PD98059 is a selective, cell permeable inhibitor of the MEK/ERK pathway that acts by preventing the activation of MEK1 (IC_{50} = 2 - 7 µM) and MEK2 (IC_{50} = 50 µM) by upstream kinases. It does not inhibit activated MEK, or the p38 MAPK pathway (Alessi et al.; Davies et al.; Dudley et al.).

Molecular Name:	PD98059
Alternative Names:	Not applicable
CAS Number:	167869-21-8
Chemical Formula:	$C_{16}H_{13}NO_3$
Molecular Weight:	267.3 g/mol
Purity:	≥ 98%
Chemical Name:	2-(2-amino-3-methoxyphenyl)-4H-1-benzopyran-4-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 techsupport@stemcell.com.
Solubility:	· DMSO ≤ 70 mM · Absolute ethanol ≤ 1.8 mM For example, to prepare a 10 mM stock solution in DMSO, resuspend 1 mg in 374 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

MAINTENANCE AND SELF-RENEWAL
· Enhances the growth and self-renewal of mouse embryonic stem (ES) cells (Burdon et al.; Qi et al.).
· Permits derivation of mouse ES cells from the refractory CBA mouse strain (Buehr and Smith).
DIFFERENTIATION
· Blocks the differentiation of mouse ES cells (Burdon et al.).
· Enhances adipogenic differentiation and blocks osteogenic differentiation of human mesenchymal stem cells (Jaiswal et al.).
CANCER RESEARCH
· Decreases number of AML blast colonies with minimal effect on normal hematopoietic progenitors (Milella et al.).

References

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Buehr M & Smith A. (2003) Genesis of embryonic stem cells. Philos Trans R Soc Lond B Biol Sci 358(1436): 1397–402; discussion 1402.
Burdon T et al. (1999) Suppression of SHP-2 and ERK signalling promotes self-renewal of mouse embryonic stem cells. Dev Biol 210(1): 30–43.
Davies SP et al. (2000) Specificity and mechanism of action of some commonly used protein kinase inhibitors. Biochem J 351(Pt 1): 95–105.
Dudley DT et al. (1995) A synthetic inhibitor of the mitogen-activated protein kinase cascade. Proc Natl Acad Sci U S A 92(17): 7686–9.
Jaiswal RK et al. (2000) Adult human mesenchymal stem cell differentiation to the osteogenic or adipogenic lineage is regulated by mitogen-activated protein kinase. J Biol Chem 275(13): 9645–52.
Milella M et al. (2001) Therapeutic targeting of the MEK/MAPK signal transduction module in acute myeloid leukemia. J Clin Invest 108(6): 851–9.
Qi X et al. (2004) BMP4 supports self-renewal of embryonic stem cells by inhibiting mitogen-activated protein kinase pathways. Proc Natl Acad Sci U S A 101(16): 6027–32.

Related Small Molecules

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