Small Molecules

OAC1

Inducer of OCT4 expression

Catalog # 72602

5 mg

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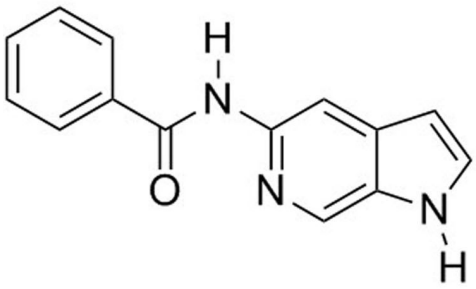
Product Description

OAC1 is an OCT4-activating compound that activates expression through the OCT4 gene promoter (Li et al.). OCT4 (POU5F1) is a transcription factor that is critically involved in the self-renewal of pluripotent stem cells, and its expression is commonly used as a marker for pluripotency. With SOX2, KLF4, and c-MYC, OCT4 is involved in the reprogramming of somatic cells to produce induced pluripotent stem cells (Niwa et al.; Takahashi et al.).

Molecular Name:	OAC1
Alternative Names:	Not applicable
CAS Number:	300586-90-7
Chemical Formula:	$C_{14}H_{11}N_3O$
Molecular Weight:	237.3 g/mol
Purity:	≥ 98%
Chemical Name:	N-1H-pyrrolo[2,3-c]pyridin-5-yl-benzamide
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:	· Absolute ethanol ≤ 10 mM · DMSO ≤ 42 mM For example, to prepare a 10 mM stock solution in DMSO, resuspend 5 mg in 2.11 mL 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

MAINTENANCE AND SELF-RENEWAL
· Mediates ex vivo expansion of cord blood CD34+ hematopoietic stem and progenitor cells (Huang et al.).
REPROGRAMMING
· Enhances the reprogramming efficiency of mouse embryonic fibroblasts transfected with OCT4, SOX2, KLF4, and c-MYC (Li et al.).

References

Huang X et al. (2015) Activation of OCT4 enhances ex vivo expansion of human cord blood hematopoietic stem and progenitor cells by regulating HOXB4 expression. Leukemia. E-pub ahead of print, DOI: 10.1038/leu.2015.189.
Li, W et al. (2012). Identification of Oct4-activating compounds that enhance reprogramming efficiency. Proc Natl Acad Sci U S A 109(51), 20853–8.
Niwa, H et al. (2000). Quantitative expression of Oct-3/4 defines differentiation, dedifferentiation or self-renewal of ES cells. Nat Genet 24(4), 372–6.
Takahashi, K et al. (2007). Induction of pluripotent stem cells from adult human fibroblasts by defined factors. Cell 131(5), 861–72.

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