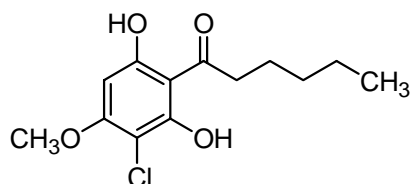


Product Information

DIF-3

Product Number **D 0567**
Store at Room Temperature

Cas #: 113411-17-9
Chemical Name: 1-(3-Chloro-2,6-dihydroxy-4-methoxyphenyl)-1-hexanone
Synonym: Differentiation-inducing factor 3



Product Description

Molecular Formula: C₁₃H₁₇ClO₄
Molecular Weight: 272.7

Differentiating-inducing factor 3 (DIF-3), a natural active metabolite of DIF-1, is a cell cycle inhibitor and anti-leukemic agent. DIFs act across species, including mammalian cells (human leukemia K562 and HeLa cells). DIF-3 is the most potent anti-tumor agent of six DIF analogues tested (DIF-1, DIF-2, 2-MICIF, DMPH, and THPH). DIF-3 inhibits cell cycle by inducing G0/G1

arrest. DIF-3 suppresses cyclin D1 expression at both the mRNA and protein level. The DIF-3 effect on cyclin D1 protein is via accelerated proteolysis mediated by a proteasome (abrogated by ALLN, proteasome inhibitor). DIF-3 activates GSK-3 β via dephosphorylation of Ser 9 and phosphorylation of Tyr 216 and causes nuclear translocation. DIF-3 is unique in the activation of GSK-3 β without apoptosis induction.

Storage/Stability

Store at room temperature. Light sensitive. Stored under nitrogen.

References

1. Takahashi-Yanaga, F., et al., *Dictyostelium* differentiation-inducing factor-3 activates glycogen synthase kinase-3 β and degrades cyclin D1 in mammalian cells. *J. Biol. Chem.*, **8** (2003).
2. Kubohara, Y., effects of differentiation-inducing factors of *Dictyostelium discoideum* on human leukemia K562 cells: DIF-3 is the most potent anti-leukemic agent. *Eur. J. Pharmacol.*, **38**, 57-62 (1999).
3. Masento, M.S., et al., Differentiation-inducing factor from the slime mould *Dictyostelium discoideum* and its analogues. Synthesis, structure and biological activity. *Biochem. J.*, **256**, 23-28 (1988).
4. Morris, H.R., et al., Structure elucidation of two differentiation-inducing factors (DIF-2 and DIF-3) from the cellular slime mould *Dictyostelium discoideum*. *Biochem. J.*, **249**, 903-906 (1988).

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