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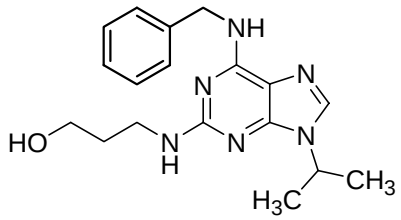
ProductInformation

Boheime

Product Number **B 0435**
Store at –20 °C

Cas # 189232-42-6
Chemical Name: 2-(3-Hydroxypropylamino)-6-benzylamino-9-isoproylpurine



Product Description
Molecular Formula: $C_{18}H_{24}N_6O$
Molecular Weight: 340.4

Cyclin-dependent kinases (cdk-1 – cdk-8) together with their endogenous activator proteins, cyclins, form the autonomous oscillator that controls the cell cycle in embryonic as well as somatic and germline cells in the mature animal. The complex interaction and physiological regulation of cyclins and cdks have been reviewed.[1] The activity of Cdks is controlled through dephosphorylation, subcellular localization, and complex-formation with cyclins whose expression level is tightly regulated in correspondence to cell cycle phases. Dysregulation of cdks is known to occur in primary tumors and tumor cell lines. Small molecule inhibitors of cdks, in particular purine-like molecules, are potential therapeutic agents.[2] Other cdk inhibitors include staurosporine, flavopiridole, butyrolactone, and paullones among others.

Bohemine is a synthetic purine analogue, cell-permeable cdk inhibitor similar to olomoucine.[3] The IC_{50} for *in vitro* recombinant cdk1/Cyclin B, cdk2/Cyclin E kinase assays are 1.1 μm,[3] 0.8 μm,[4] respectively. IC_{50} for growth inhibition of tumor cell lines are 28, 113, 27, 58, and 45 μm for MCF7, K562, CEM, HOS, and G361,[3] respectively. Paradoxically, bohemine and other cdk inhibitors arrest cell cycle at G1/S phase, but in combination with ionomycin, bohemine activates mature bovine oocytes to DNA synthesis and cell division.[5]

Bohemine is an addition to the growing arsenal of tools that would further understanding of the tightly orchestrated molecular associations and events that constitute the cell cycle.

Storage/Stability
Store at –20 °C, protected from light and air sensitive.

References

1. Murray, A.W., Recycling the cell cycle: cyclins revisited. Cell, **116**, 221-234 (2004).
2. Vesely, J., et al., Inhibition of cyclin-dependent kinases by purine analogues. Eur. J. Biochem., **224**, 771-786 (1994).
3. Krystof, V., et al., Synthesis and biological activity of olomoucine II. Bioorg. Med. Chem. Lett., **12**, 3283-3286 (2002).
4. Otyepka, M., et al., Docking-based development of purine-like inhibitors of cyclin-dependent kinase-2. J. Med. Chem., **43**, 2506-2513 (2000).
5. Alberio, R., et al., Activation of bovine oocytes by specific inhibition of cyclin-dependent kinases. Mol. Reprod. Dev., **55**, 422-432 (2000).

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