Product Data Sheet

Chemical Properties

Product Name: PDK1 inhibitor
Cas No.: 1001409-50-2
M.Wt: 516.5
Formula: C28H22F2N4O4
Chemical Name: 1-[(3,4-difluorophenyl)methyl]-2-oxo-N-[(1R)-2-[(2-oxo-1,3-dihydrobenzimidazol-5-yl)oxy]-1-phenylethyl]pyridine-3-carboxamide
Canonical SMILES: C1=CC=C(C=C1)C(COC2=CC3=C(C=C2)NC(=O)N3)NC(=O)C4=CC=CN(C4=O)CC5=CC(=C(C=C5)F)F
Solubility: Soluble in DMSO
Storage: Store at -20°C
General tips: For obtaining a higher solubility, please warm the tube at 37°C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.
Shopping Condition: Evaluation sample solution: ship with blue ice
All other available size: ship with RT, or blue ice upon request

Biological Activity

Targets: PI3K/Akt/mTOR Signaling
Pathways: PDK-1
Description:
PDK1 inhibitor is an potent and selective inhibitor of PDK1 with potential as anticancer agent. GSK 2334470, an inhibitor of PDK1, has IC50 value of 0.00251µM and CHEMBL1172241 with IC50 value of 0.085µM. [1] PDPK1 stands for 3-phosphoinositide-dependent protein kinase 1, which is crucial for the activation of AKT/PKB and many other AGC kinases including PKC, S6K, SGK. [2] An important role for PDPK1 is in the signalling pathways activated by several growth factors and hormones
including insulin signaling. PDPK1 functions downstream of PI3K through PDPK1's interaction with membrane phospholipids.[3] PI3K indirectly regulates PDPK1 by phosphorylating phosphatidylinositolos which in turn generates phosphatidylinositol (3,4)-bisphosphate and phosphatidylinositol (3,4,5)-trisphosphate. [4] However, PDPK1 is believed to be constitutively active and does not always require phosphatidylinositolos for its activities. Phosphatidylinositolos are only required for the activation at the membrane of some substrates including AKT. PDPK1 however does not require membrane lipid binding for the efficient phosphorylation of most of its substrates in the cytosol. PDK1 is implicated in the development and progression of melanomas.[5] Many cancer-driving mutations induce activation of PDK1 targets including Akt, S6K (p70 ribosomal S6 kinase) and SGK (serum- and glucocorticoid-induced protein kinase). GSK2334470 is more effective at inhibiting PDK1 substrates that are activated in the cytosol rather than at the plasma membrane. Consistent with this, GSK2334470 inhibited Akt activation in knock-in embryonic stem cells expressing a mutant of PDK1 that is unable to interact with phosphoinositides more potently than in wild-type cells by Immunoblotting.[6] GSK2334470 also suppressed T-loop phosphorylation and activation of RSK2 (p90 ribosomal S6 kinase 2), another PDK1 target activated by the ERK (extracellular-signal-regulated kinase) pathway.[7] GSK2334470 will be useful in probing biological processes controlled by PDK1. Therefore, GSK2334470 is much more specific than other reported PDK1 inhibitors.

Reference:

Caution

FOR RESEARCH PURPOSES ONLY.

NOT FOR HUMAN, VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

Specific storage and handling information for each product is indicated on the product datasheet. Most ApexBio products are stable under the recommended conditions. Products are sometimes shipped at a temperature that differs from the recommended storage temperature. Short-term storage of many products are stable in the short-term at temperatures that differ from that required for long-term storage. We ensure that the product is shipped under conditions that will
maintain the quality of the reagents. Upon receipt of the product, follow the storage recommendations on the product data sheet.