**Product Name:** BTB06584  
**Cat. No.:** HY-15877  
**CAS No.:** 219793-45-0  
**Molecular Formula:** C_{19}H_{12}ClNO_{6}S  
**Molecular Weight:** 417.82  
**Target:** ATP Synthase  
**Pathway:** Membrane Transporter/Ion Channel  
**Solubility:** DMSO: ≥ 47 mg/mL

**BIOLOGICAL ACTIVITY:**

BTB06584 is an IF1–dependent selective inhibitor of the mitochondrial F1Fo–ATPase.

Target: ATPase

in vitro: BTB06584 inhibits F1Fo–ATPase activity with no effect on ΔΨm or O2 consumption. ATP consumption was decreased following inhibition of respiration, and ischaemic cell death was reduced. BTB06584 efficiency was increased by IF1 overexpression and reduced by silencing the protein. BTB06584 may represent a valuable tool to selectively inhibit mitochondrial F1Fo–ATPase activity without compromising ATP synthesis and to limit ischaemia–induced injury caused by reversal of the mitochondrial F1Fo–ATPsynthase.

in vivo: BTB06584 rescues defective haemoglobin synthesis in zebrafish pinotage (pnt) mutants in which expression of the Atpif1a gene is lost.

**PROTOCOL (Extracted from published papers and Only for reference)**

Cell assay [1] Ischaemia/reperfusion experiments in HL–1 cells were performed using an airtight gas chamber filled with 95% N2/5% CO2 after replacing the Claycomb medium with an ischaemic medium (in mM: NaCl 125, KCl 8, 2–deoxyglucose 20, Na lactate 0.5, MgSO4 1.25, CaCl2 1.25, KH2PO4 1.2, NaHCO3 6.25, HEPES 20; pH 7.4). The chamber was stored for 7 h in an incubator at 37°C. Reperfusion consisted of replacing the ischaemic medium with an oxygenated reperfusion medium (NaHCO3 25mM, CaCl2 1mM, HEPES 10mM; pH 7.4) and storing the culture plates for 1 h in a normoxic incubator. Five experimental groups were considered: sham, control (ischaemia/reperfusion without any intervention), cyclosporine A (Csa) 200 nM a potent inhibitor of the mitochondrial permeability transition pore (mPTP), diazoxide 10 μM, a mitochondrial K–ATP channel opener, and BTB06584 100 μM. Animal administration [1] Zebrafish were housed in a multi–rack aquarium system at the Royal Veterinary College and kept on a constant 14/10 h light/dark cycle at 27–29°C, bred and staged as described. BTB06584 (0.1 mM in DMSO) and DMSO alone as control, were diluted to a final concentration of 1 μM in aquarium water and added to embryos from a pnt heterozygous cross at 1 day post fertilization (dpf). This BTB06584 concentration was chosen as it did not induce any toxicity on the animal, as was reported with greater concentrations. At 3 dpf, larvae were examined under a Nikon SMZ1500 microscope and scored as having red or clear blood. The experiment was repeated four times. Images were taken using a Digital Sight DS–2 Mv camera and associated Digital Sight imaging software.

**References:**

Caution: Product has not been fully validated for medical applications. For research use only.

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