A769662 is a cell-permeable, direct activator of AMP-activated protein kinase (AMPK) with an EC₅₀ of 116 nM (Goransson et al.). A 4.1-fold stimulation of AMPK is observed, via an allosteric mechanism, which potentially inhibits dephosphorylation on Thr172 (Goransson et al.; Sanders et al.). A769662 specifically activates β1 subunit–containing AMPK heterotrimers, and its effects are independent of kinases upstream of AMPK. Activation of AMPK can inhibit the mTORC1 signaling pathway (Huang et al.). A769662 is also an inhibitor of Na(+)-K(+)-ATPase (Benziane et al.).

**Product Description**

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**Molecular Name:** A769662  
**Alternative Names:** Not applicable  
**CAS Number:** 844499-71-4  
**Chemical Formula:** C₂₉H₁₂N₂O₃S  
**Molecular Weight:** 360.4 g/mol  
**Purity:** ≥ 98%  
**Chemical Name:** 6,7-dihydro-4-hydroxy-3-(2'-(hydroxy[1,1'-biphenyl]-4-yl)-6-oxothieno[2,3-b]pyridine-5-carbonitrile

**Physical Appearance:** A crystalline solid  
**Storage:** Product stable at -20°C as supplied. Protect from prolonged exposure to light. Stable as supplied for 12 months from date of receipt.  
**Solubility:**  
- DMSO ≤ 55 mM  
- Absolute ethanol ≤ 1 mM  
For example, to prepare a 10 mM stock solution in DMSO, resuspend 10 mg in 2.77 mL of 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.  

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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
· Inhibits proliferation of mesenchymal stem cells (de Meester et al.).

REPROGRAMMING
· Inhibits reprogramming of mouse fibroblasts to induced pluripotent stem cells (Vazquez-Martin et al.).

CANCER RESEARCH
· Delays tumor onset in PTEN-deficient mice (Huang et al.).

METABOLISM
· Inhibits fatty acid synthesis in primary rat hepatocytes and lowers blood glucose in Sprague Dawley rats (Cool et al.).

References


Related Small Molecules
For a complete list of small molecules available from STEMCELL Technologies, visit www.stemcell.com/smallmolecules or contact us at techsupport@stemcell.com.