Print Date: Dec 7th 2017

Certificate of Analysis

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Product Name: **A 769662** **Catalog No.: 3336** **Batch No.: 8**

CAS Number: 844499-71-4

IUPAC Name: 6,7-Dihydro-4-hydroxy-3-(2'-hydroxy[1,1'-biphenyl]-4-yl)-6-oxo-thieno[2,3-*b*]pyridine-5-carbonitrile

1. PHYSICAL AND CHEMICAL PROPERTIES

Batch Molecular Formula: $C_{20}H_{12}N_2O_3S.¾H_2O$

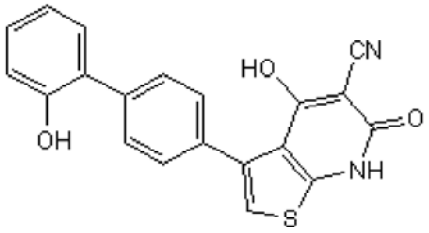
Batch Molecular Weight: 373.9

Physical Appearance: Beige solid

Solubility: DMSO to 100 mM
ethanol to 10 mM

Storage: Store at +4°C

Batch Molecular Structure:



2. ANALYTICAL DATA

HPLC: Shows 98.9% purity

^{1}H NMR: Consistent with structure

Mass Spectrum: Consistent with structure

Microanalysis:

	Carbon	Hydrogen	Nitrogen
Theoretical	64.25	3.64	7.49
Found	64.4	3.37	7.35

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Product Information

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Description:

Potent, reversible AMP-activated protein kinase (AMPK) activator (EC_{50} = 0.8 μM) that displays selectivity towards β1 subunit-containing heterotrimers. Inhibits fatty acid synthesis (IC_{50} = 3.2 μM) and decreases plasma glucose and triglyceride levels in vivo. Also inhibits proliferation of mesenchymal stem cells, and impedes reprogramming of mouse embryonic fibroblasts to iPSCs. Activates autophagy.

Physical and Chemical Properties:

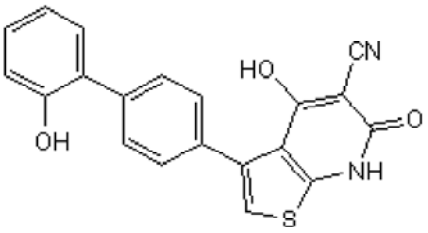
Batch Molecular Formula: $C_{20}H_{12}N_2O_3S.¾H_2O$

Batch Molecular Weight: 373.9

Physical Appearance: Beige solid

Minimum Purity: >98%

Batch Molecular Structure:



Storage: Store at +4°C

CAUTION - This product is light sensitive and we recommend that the solid material and any solutions obtained are protected from exposure to light.

Solubility & Usage Info:

DMSO to 100 mM
ethanol to 10 mM

Stability and Solubility Advice:

Some solutions can be difficult to obtain and can be encouraged by rapid stirring, sonication or gentle warming (in a 45-60°C water bath).

Information concerning product stability, particularly in solution, has rarely been reported and in most cases we can only offer a general guide. Our standard recommendations are:

SOLIDS: Provided storage is as stated on the product label and the vial is kept tightly sealed, the product can be stored for up to 6 months from date of receipt.

SOLUTIONS: We recommend that stock solutions, once prepared, are stored aliquoted in tightly sealed vials at -20°C or below and used within 1 month. Wherever possible solutions should be made up and used on the same day.

References:

Galluzzi *et al* (2017) Pharmacological modulation of autophagy: therapeutic potential and persisting obstacles. Nat.Rev.Drug.Discov.. PMID: 28529316.

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de Meester *et al* (2014) Role of AMP-activated protein kinase in regulating hypoxic survival and proliferation of mesenchymal stem cells. Cardiovasc.Res. ***101*** 20. PMID: 24104879.

Vazquez-Martin *et al* (2012) Activation of AMP-activated protein kinase (AMPK) provides a metabolic barrier to reprogramming somatic cells into stem cells. Cell Cycle ***5*** 974. PMID: 2233578.

Scott *et al* (2008) Thienopyridone drugs are selective activators of AMP-activated protein kinase β1-containing complexes. Chem.Biol. ***15*** 1220. PMID: 19022182.

Sanders *et al* (2007) Defining the mechanism of activation of AMP-activated protein kinase by the small molecule A-769662, a member of the thienopyridone family. J.Biol.Chem. ***282*** 32539. PMID: 17728241.

Cool *et al* (2006) Identification and characterization of a small molecule AMPK activator that treats key components of type 2 diabetes and the metabolic syndrome. Cell Met. ***3*** 403.

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