Small Molecules

Quercetin

mTOR, PI3K/AKT, NF-kB, and tyrosine kinase pathway inhibitor; Inhibits PI3K and SRC kinases

Catalog #	73932	5 g
	73934	10 g

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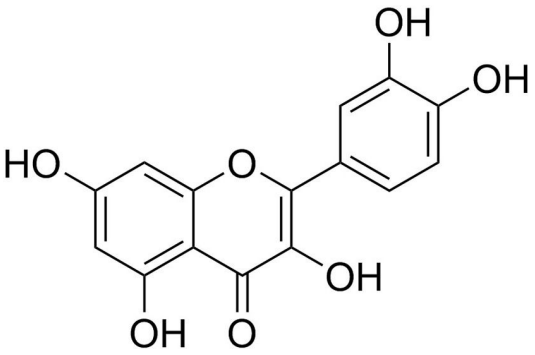
Product Description

Quercetin inhibits phosphoinositide 3-kinase isoforms (beta: IC_{50} = 5.4 µM; gamma: IC_{50} = 2.4 µM; delta: IC_{50} = 3.0 µM) and SRC kinases but only shows slight inhibitory activity against serine/threonine kinases ERK1/2 and p38 alpha, as well as protein kinase C (Navarro-Núñez et al.).

Molecular Name:	Quercetin
Alternative Names:	Not applicable
CAS Number:	117-39-5
Chemical Formula:	$C_{15}H_{10}O_7$
Molecular Weight:	302.2 g/mol
Purity:	≥ 95%
Chemical Name:	2-(3,4-dihydroxyphenyl)-3,5,7-trihydroxy-4H-1-benzopyran-4-one
Structure:	

Properties

Physical Appearance:	A crystalline solid
Storage:	Product stable at room temperature (15 - 25°C) as supplied. Protect product from prolonged exposure to light. For long-term storage store with a desiccant. Stable as supplied for 12 months from date of receipt.
Solubility:	· DMSO ≤ 95 mM · Absolute ethanol ≤ 6 mM For example, to prepare a 10 mM stock solution in DMSO, resuspend 10 mg in 3.31 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. 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

REPROGRAMMING
· Stimulates glycolytic metabolism and promotes reprogramming of somatic cells (Zhang et al.).
· Enhances reprogramming of human primary somatic cells to induced pluripotent stem cells (Zhu et al.).
CANCER RESEARCH
· Induces hypoxia-inducible factor-1α (HIF-1α) and inhibits cell proliferation (Triantafyllou et al.).
· Promotes apoptosis of glioblastoma cells when used together with temozolomide (Sang et al.).
· Reduces tumorigenicity of pancreatic cancer cells (Fan et al.).

References

Fan P et al. (2016) Continuous exposure of pancreatic cancer cells to dietary bioactive agents does not induce drug resistance unlike chemotherapy. Cell Death Dis 7(6): e2246.
Navarro-Núñez L et al. (2010) Effect of quercetin on platelet spreading on collagen and fibrinogen and on multiple platelet kinases. Fitoterapia 81(2): 75–80.
Sang D et al. (2014) Quercetin sensitizes human glioblastoma cells to temozolomide in vitro via inhibition of Hsp27. Acta Pharmacol Sin 35(6): 832–8.
Triantafyllou A et al. (2007) The flavonoid quercetin induces hypoxia-inducible factor-1α (HIF-1α) and inhibits cell proliferation by depleting intracellular iron. Free Radic Res 41(3): 342–56.
Zhang Y et al. (2012) Small molecules, big roles -- the chemical manipulation of stem cell fate and somatic cell reprogramming. J Cell Sci 125(Pt 23): 5609–20.
Zhu S et al. (2010) Reprogramming of human primary somatic cells by OCT4 and chemical compounds. Cell Stem Cell 7(6): 651–5.

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This product is hazardous. Please refer to the Safety Data Sheet (SDS).