

## Certificate of Analysis

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**Product Name:** Kaempferol

**Catalog No.:** 3603

**Batch No.:** 3

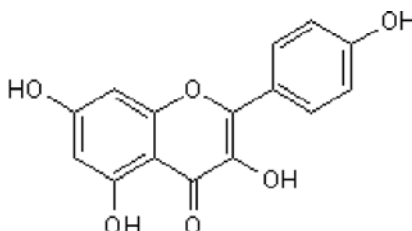
CAS Number: 520-18-3

EC Number: 208-287-6

IUPAC Name: 3,5,7-Trihydroxy-2-(4-hydroxyphenyl)-4H-1-benzopyran-4-one

### 1. PHYSICAL AND CHEMICAL PROPERTIES

**Batch Molecular Formula:** C<sub>15</sub>H<sub>10</sub>O<sub>6</sub>.H<sub>2</sub>O  
**Batch Molecular Weight:** 304.26  
**Physical Appearance:** Yellow solid  
**Solubility:** DMSO to 100 mM  
 ethanol to 100 mM  
**Storage:** Store at +4°C  
**Batch Molecular Structure:**



### 2. ANALYTICAL DATA

**HPLC:** Shows 99.6% purity  
**<sup>1</sup>H NMR:** Consistent with structure  
**Mass Spectrum:** Consistent with structure

**Microanalysis:**

	Carbon	Hydrogen	Nitrogen
Theoretical	59.22	3.98	
Found	59.08	4.01	

Caution - Not Fully Tested • Research Use Only • Not For Human or Veterinary Use

**bio-techne.com**

info@bio-techne.com

techsupport@bio-techne.com

**North America**

Tel: (800) 343 7475

**China**

info.cn@bio-techne.com

Tel: +86 (21) 52380373

**Europe Middle East Africa**

Tel: +44 (0)1235 529449

**Rest of World**

[www.tocris.com/distributors](http://www.tocris.com/distributors)

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**Description:**

Activates the mitochondrial Ca<sup>2+</sup> uniporter (EC<sub>50</sub> = 7 μM). Induces caspase-9-mediated apoptosis in cancer cell lines via downregulation of polo-like kinase 1 (PLK1) expression. Exhibits antioxidant activity and attenuates osteoclastic bone reabsorption in vitro. Also blocks EGF-induced histone H3Ser<sup>10</sup> phosphorylation in mouse epidermal JB6 C141 cells. Activates transcriptional coactivator with PDZ-binding motif (TAZ) and increases osteoblast differentiation of mesenchymal stem cells while inhibiting adipocyte differentiation. Naturally occurring flavonoid found in Gingko biloba and red wine.

**Physical and Chemical Properties:**

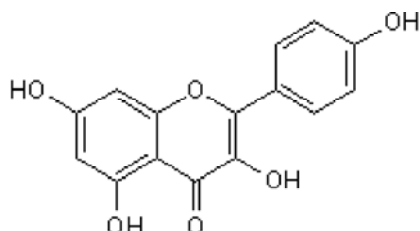
Batch Molecular Formula: C<sub>15</sub>H<sub>10</sub>O<sub>6</sub>.H<sub>2</sub>O

Batch Molecular Weight: 304.26

Physical Appearance: Yellow solid

**Minimum Purity:** ≥98%

**Batch Molecular Structure:**



**References:**

- Byun et al** (2012) TAZ is required for the osteogenic and anti-adipogenic activities of kaempferol. *Bone* **50** 364. PMID: 22108137.
- Kang et al** (2009) Downregulation of PLK-1 expression in kaempferol-induced apoptosis of MCF-7 cells. *Eur.J.Pharmacol.* **611** 17. PMID: 19356725.
- Suh et al** (2009) Kaempferol attenuates 2-deoxy-D-ribose-induced oxidative cell damage in MC3T3-E1 osteoblastic cells. *Biol.Pharm.Bull.* **32** 746. PMID: 19336918.
- Vay et al** (2009) Modulation of Ca<sup>2+</sup> release and Ca<sup>2+</sup> oscillations in HeLa cells and fibroblasts by mitochondrial Ca<sup>2+</sup> uniporter stimulation. *J.Physiol.* **580** 39.
- Cho et al** (2007) Ribosomal S6 kinase 2 is a key regulator in tumor promoter induced cell transformation. *Cancer Res.* **67** 8104. PMID: 17804722.
- Montero et al** (2004) Direct activation of the mitochondrial calcium uniporter by natural plant flavonoids. *Biochem.J.* **384** 19. PMID: 15324303.

**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 100 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.

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