

Product data sheet



MedKoo Cat#: 314201 Name: SKQ1 ethanol solution CAS#: 934826-68-3 (bromide) Chemical Formula: C ₃₆ H ₄₂ BrO ₂ P Molecular Weight: 617.61		
Product supplied as:	Liquid	
Purity (by HPLC):	≥ 98%	
Shipping conditions	Ambient temperature	
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years. In solvent: -80°C 3 months; -20°C 2 weeks.	

1. Product description:

SKQ1, also known as Visomitin, plastoquinonyl decyltriphenyl phosphonium or PDTP, is a potent mitochondria-targeted antioxidant. SKQ1 is also an API for making eye drop drug called Visomitin. SKQ1 showed activities (1) to prevent amyloid-β-induced impairment of long-term potentiation in rat hippocampal slices; (2) to reverse aging-related biomarkers in rats; (3) to slow down the development of age-dependent destructive processes in retina and vascular layer of eyes of wistar and OXYS rats; (4) to increase the lifespan of male rodents under LP or SPF conditions. SKQ1 can penetrate cell membranes, and is proposed as an anti-aging treatment. Visomitin, which API is SKQ1, is currently under clinical trials for treating glaucoma in Russia. Note: For the convenience of use, SKQ1 is supplied as solution of 200mg / mL in ethanol-water (1:1, v/v).

2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under “QC And Documents” section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	100.0	161.92
Ethanol	50	80.96
Water	3.33	5.39

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.62 mL	8.10 mL	16.19 mL
5 mM	0.32 mL	1.62 mL	3.24 mL
10 mM	0.16 mL	0.81 mL	1.62 mL
50 mM	0.03 mL	0.16 mL	0.32 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of “Calculator”

6. Recommended literature which reported protocols for in vitro and in vivo study

In vitro study

- Huang B, Zhang N, Qiu X, Zeng R, Wang S, Hua M, Li Q, Nan K, Lin S. Mitochondria-targeted SkQ1 nanoparticles for dry eye disease: Inhibiting NLRP3 inflammasome activation by preventing mitochondrial DNA oxidation. J Control Release. 2023 Nov 18;365:1-15. doi: 10.1016/j.jconrel.2023.11.021. Epub ahead of print. PMID: 37972763.

In vivo study

- Bazhin AV, Yang Y, D'Haese JG, Werner J, Philippov PP, Karakhanova S. The novel mitochondria-targeted antioxidant SkQ1 modulates angiogenesis and inflammatory microenvironment in a murine orthotopic model of pancreatic cancer. Int J Cancer. 2016 Jul 1;139(1):130-9. doi: 10.1002/ijc.30054. Epub 2016 Apr 4. PMID: 26914404.
- Muraleva NA, Stefanova NA, Kolosova NG. SkQ1 Suppresses the p38 MAPK Signaling Pathway Involved in Alzheimer's Disease-Like Pathology in OXYS Rats. Antioxidants (Basel). 2020 Jul 28;9(8):676. doi: 10.3390/antiox9080676. PMID: 32731533; PMCID: PMC7463502.

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7. Bioactivity

Biological target:

SKQ1 is a mitochondrial-targeted antioxidant with the high mitochondrion membrane penetrating ability and potent antioxidant capability.

In vitro activity

The results of this study suggest that SKQ1 nanoparticles have great potential as a new treatment for dry eye disease (DED). Compared with free SKQ1, SKQ1 nanoparticles exhibited significantly higher cytosolic- and mitochondrial-ROS scavenging activity (1.7 and 1.9 times compared to levels of the free SKQ1 group), thus exerting a better in vitro protective effect against H₂O₂-induced cell death in human corneal epithelial cells.

Reference: J Control Release. 2023 Nov 18;365:1-15. <https://pubmed.ncbi.nlm.nih.gov/37972763/>

In vivo activity

At low concentrations, SKQ1 can prevent or alleviate Alzheimer's disease (AD)-like pathology in OXYS rats. This study confirms that dietary supplementation with SKQ1 in OXYS rats (aged 12-18 months) during the active progression of AD-like pathology suppresses its advancement. The beneficial effects of SKQ1 are linked to the suppression of the p38 MAPK signaling pathway activity in the hippocampus.

Reference: Antioxidants (Basel). 2020 Jul 28;9(8):676. <https://pubmed.ncbi.nlm.nih.gov/32731533/>

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.