# Product data sheet

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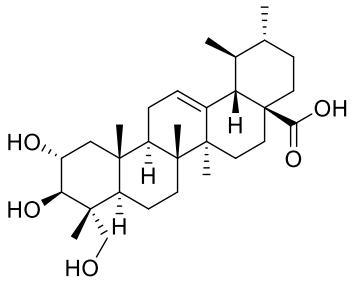
|---|---|
| MedKoo Cat#: 601122<br>Name: Asiatic Acid<br>CAS#: 464-92-6<br>Chemical Formula: $C_{30}H_{48}O_5$<br>Exact Mass: 488.35017<br>Molecular Weight: 488.7 |  |
| Product supplied as: | Powder |
| Purity (by HPLC): | ≥ 98% |
| Shipping conditions | Ambient temperature |
| Storage conditions: | Powder: -20°C 3 years; 4°C 2 years. |
| | In solvent: -80°C 3 months; -20°C 2 weeks. |

**1. Product description:**

Asiatic acid is a pentacyclic triterpene isolated from a variety of plants, including C. asiatica, used in traditional medicines. In addition to anti-inflammatory actions, asiatic acid stimulates wound healing by increasing collagen production. It has been found to induce cell cycle arrest and apoptosis in breast cancer cells and block angiogenesis in cells and tumors from glioblastomas. It also reduces neuronal damage and cognitive defects resulting from glutamate administration in vivo in mice while demonstrating protective effects against glutamate-induced apoptosis in isolated SH-SY5Y cells.

**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 | 59.83 | 122.43 |
| DMSO:PBS (pH 7.2) (1:3) | 0.25 | 0.51 |
| DMF | 20.0 | 40.92 |
| Ethanol | 10.0 | 20.46 |

**4. Stock solution preparation table:**

| **Concentration / Solvent Volume / Mass** | **1 mg** | **5 mg** | **10 mg** |
|---|---|---|---|
| 1 mM | 2.05 mL | 10.23 mL | 20.46 mL |
| 5 mM | 0.41 mL | 2.05 mL | 4.09 mL |
| 10 mM | 0.20 mL | 1.02 mL | 2.05 mL |
| 50 mM | 0.04 mL | 0.20 mL | 0.41 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

1. Yang Z, Feng L, Huang J, Zhang X, Lin W, Wang B, Cui L, Lin S, Li G. Asiatic acid protects articular cartilage through promoting chondrogenesis and inhibiting inflammation and hypertrophy in osteoarthritis. Eur J Pharmacol. 2021 Jun 24;907:174265. doi: 10.1016/j.ejphar.2021.174265. Epub ahead of print. PMID: 34174266.
2. Li J, Chen K, Huang J, Chu D, Tian M, Huang K, Ma C. Asiatic Acid Induces Endoplasmic Reticulum Stress and Activates the Grp78/IRE1α/JNK and Calpain Pathways to Inhibit Tongue Cancer Growth. Front Pharmacol. 2021 May 26;12:690612. doi: 10.3389/fphar.2021.690612. PMID: 34122116; PMCID: PMC8187906.

In vivo study

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1. Li H, Tian X, Ruan Y, Xing J, Meng Z. Asiatic acid alleviates Ang-II induced cardiac hypertrophy and fibrosis via miR-126/PIK3R2 signaling. Nutr Metab (Lond). 2021 Jul 13;18(1):71. doi: 10.1186/s12986-021-00596-7. PMID: 34256802; PMCID: PMC8278598.
2. Fang M, Wan W, Li Q, Wan W, Long Y, Liu H, Yang X. Asiatic acid attenuates diabetic retinopathy through TLR4/MyD88/NF-κB p65 mediated modulation of microglia polarization. Life Sci. 2021 Jul 15;277:119567. doi: 10.1016/j.lfs.2021.119567. Epub 2021 May 6. PMID: 33965378.

**7. Bioactivity**

Biological target:

Asiatic acid, a pentacyclic triterpene found in Centella asiatica, induces apoptosis in melanoma cells.

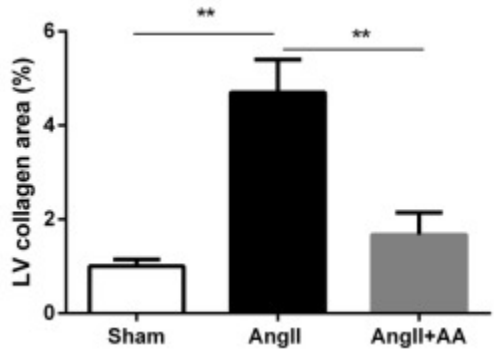
In vitro activity

This study began by assessing the impact of AA (Asiatic Acid) on tongue cancer cell viability via an MTT assay, which revealed that AA application significantly suppressed the viability of these cells with an IC50 value of approximately 40°μM (Figure 1A). Consistent with this, AA treatment (40°μM) significantly suppressed the colony forming activity of Tca8113 cells (Figure 1B).

Reference: Front Pharmacol. 2021; 12: 690612. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8187906/

In vivo activity

AngII infusion rats showed a significant increase in the ratio of weight/tibia length (HW/TL), and this increase was attenuated in AA (Asiatic Acid)-treated rats (Fig. 2a). The thickness of the left ventricular post wall at the end-diastole (LVPWd) and the end-systole (LVPWs) was higher in AngII infusion rats, while AA treatment attenuated these alterations (Fig. 2b). Results of WGA staining showed that the cell size of cardiomyocytes was significantly increased in the myocardium of the Ang-II infusion animal model, which was significantly attenuated in AA-treated rats (Fig. 2c). To determine the effect of AA on cardiac fibrosis, heart sections were stained with Masson's staining. In Fig. 2d, interstitial fibrosis is demonstrated by the blue areas. Quantitative data revealed increased collagen deposition in AngII-induced rats, while was significantly attenuated in AA-treated rats (Fig. 2d). Meanwhile, significant increase of ANP and β-MHC protein expression was observed in the hypertrophic rat myocardium, while their expression was inhibited in AA-treated rat (Fig. 2e). Collectively, AA treatment can inhibit AngII-induced cardiac hypertrophy and fibrosis.




Reference: Nutr Metab (Lond). 2021; 18: 71. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8278598/

*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.*