# Data Sheet

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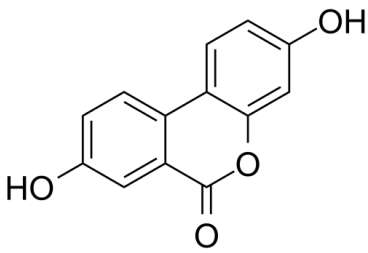
| **Product Name:** | Urolithin A |
| **Cat. No.:** | CS-6305 |
| **CAS No.:** | 1143-70-0 |
| **Molecular Formula:** | C13H8O4 |
| **Molecular Weight:** | 228.20 |
| **Target:** | Apoptosis; Autophagy; DNA/RNA Synthesis; Drug Metabolite; Reactive Oxygen Species |
| **Pathway:** | Apoptosis; Autophagy; Cell Cycle/DNA Damage; Immunology/Inflammation; Metabolic Enzyme/Protease; NF-κB |
| **Solubility:** | DMSO : 30 mg/mL (131.46 mM; Need ultrasonic); H2O : < 0.1 mg/mL (insoluble) |




## BIOLOGICAL ACTIVITY:

Urolithin A, a gut-microbial metabolite of ellagic acid, exerts anti-inflammatory, antiproliferative, and antioxidant properties. Urolithin A induces **autophagy** and **apoptosis**, suppresses cell cycle progression, and inhibits **DNA synthesis**[1][2]. **In Vitro:** Micromolar urolithin A concentrations induces both autophagy and apoptosis. Urolithin A suppresses cell cycle progression and inhibited DNA synthesis in human sw620 colorectal cancer cells[2].

Urolithin A shows antiproliferative effects and inhibits T24 and Caco-2 cell growth with $IC_{50}$s of 43.9 and 49 μM, respectively[3].

Urolithin A exerts a dose- and time-dependent significant arrest at G2/M and S phases after treatments with 50 and 100 μM at 24 and 48 h compared to control cells. It induces cell apoptosis with 50 and 100 μM [4].

Urolithin A shows potent antiproliferative activity on HepG2 cells. When cell death is induced by Urolithin A, the expression of β-catenin, c-Myc and Cyclin D1 are decreased and TCF/LEF transcriptional activation is notably down-regulated. Urolithin A also increases protein expression of p53, p38-MAPK and caspase-3, but suppresses expression of NF-κB p65 and other inflammatory mediators[5]. **In Vivo:** The volume of paw edema is reduced at 1 h after oral administration of urolithin A. In addition, plasma in treated mice exhibited significant oxygen radical antioxidant capacity (ORAC) scores with high plasma levels of the unconjugated form at 1 h after oral administration of urolithin A[6].

## PROTOCOL (Extracted from published papers and Only for reference)

**Cell Assay:** [2]Human colon cancer cells HT-29 are treated for 24 and 48 h at 100 and 50 μM of Urolithin A and Iso Urolithin A aglycones and their glucuronide conjugates. Cell viability and proliferation are measured using a TC10 automated cell counter with the addition of Trypan blue for viability determination. $IC_{50}$ values are determined by MTT assay[2]. **Animal Administration:** [4]Mice: Paw edema is induced in the right hind paw of ICR mice by the subcutaneous injection of 1% λ-carrageenan in pysiological saline (50 μL). The inflammation level is quantified by the volume of paw edema. Urolithin A dissolved in 0.5% carboxymethylcellulose suspension is orally administered to the mice at 1 or 6 h before carrageenan injection. The anti-inflammatory effects of urolithin A on carrageenan-induced edema in mice are analyzed[4].

## References:

[1]. Gong Z, et al. Urolithin A attenuates memory impairment and neuroinflammation in APP/PS1 mice.

[2]. Zhao W, et al. Metabolite of ellagitannins, urolithin A induces autophagy and inhibits metastasis in human sw620colorectal cancer cells. Mol Carcinog. 2018 Feb;57(2):193-200.

[3]. Qiu Z, et al. In vitro antioxidant and antiproliferative effects of ellagic acid and its colonic metabolite, urolithins, on human bladder cancer T24 cells. Food

Chem Toxicol. 2013 Sep;59:428-37.

[4]. González-Sarrías A, et al. Antiproliferative activity of the ellagic acid-derived gut microbiota isourolithin A and comparison with its urolithin A isomer: the role of cell metabolism.Eur J Nutr. 2017 Mar;56(2):831-841.

[5]. Wang Y, et al. In vitro antiproliferative and antioxidant effects of urolithin A, the colonic metabolite of ellagic acid, on hepatocellular carcinomas HepG2 cells. Toxicol In Vitro. 2015 Aug;29(5):1107-15.

[6]. Ishimoto H, et al. In vivo anti-inflammatory and antioxidant properties of ellagitannin metabolite urolithin A. Bioorg Med Chem Lett. 2011 Oct 1;21(19):5901-4.

## CAIndexNames:

6H-Dibenzo[b,d]pyran-6-one, 3,8-dihydroxy-

## SMILES:

O=C1C2=CC(O)=CC=C2C3=CC=C(O)C=C3O1



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