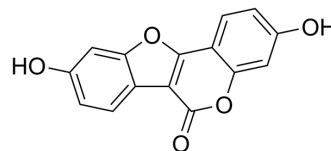


Coumestrol

| | | | |
|---------------------------|-----------------------------------------------|-------|----------|
| Cat. No.: | HY-N2335 | | |
| CAS No.: | 479-13-0 | | |
| Molecular Formula: | C ₁₅ H ₈ O ₅ | | |
| Molecular Weight: | 268.22 | | |
| Target: | Estrogen Receptor/ERR | | |
| Pathway: | Vitamin D Related/Nuclear Receptor | | |
| Storage: | Powder | -20°C | 3 years |
| | | 4°C | 2 years |
| | In solvent | -80°C | 6 months |
| | | -20°C | 1 month |



SOLVENT & SOLUBILITY

| | | | | | |
|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------|------------|------------|
| In Vitro | DMSO : 25 mg/mL (93.21 mM); ultrasonic and warming and heat to 60°C) | | | | |
| | | Solvent Concentration | Mass 1 mg | 5 mg | 10 mg |
| | Preparing Stock Solutions | 1 mM | 3.7283 mL | 18.6414 mL | 37.2828 mL |
| | | 5 mM | 0.7457 mL | 3.7283 mL | 7.4566 mL |
| 10 mM | | 0.3728 mL | 1.8641 mL | 3.7283 mL | |
| Please refer to the solubility information to select the appropriate solvent. | | | | | |
| In Vivo | 1. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline) Solubility: ≥ 2.5 mg/mL (9.32 mM); Clear solution | | | | |

BIOLOGICAL ACTIVITY

| | |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Description | Coumestrol, a phytoestrogen present in soybean products, exhibits activities against cancers, neurological disorders, and autoimmune diseases. It suppresses proliferation of ES2 cells with an IC ₅₀ of 50 μM. |
| IC₅₀ & Target | IC ₅₀ : 50 μM ^[1] |
| In Vitro | Coumestrol exerts chemotherapeutic effects via PI3K and ERK1/2 MAPK pathways. Coumestrol inhibits viability and invasion, and induces apoptosis of ES2 (clear cell-/serous carcinoma origin) cells. In addition, immunoreactive PCNA and ERBB2, markers of proliferation of ovarian carcinoma, are attenuated in their expression in coumestrol-induced death of ES2 cells. Phosphorylation of AKT, p70S6K, ERK1/2, JNK1/2 and p90RSK is inactivated by coumestrol treatment in a dose- and time-dependent manner ^[1] . Coumestrol inhibits proliferation and induces apoptosis in MCF-7 cells, which is prevented by copper chelator neocuproine and ROS scavengers. Coumestrol treatment induces ROS generation coupled to DNA fragmentation, up-regulation of p53/p21, cell cycle arrest at G1/S phase, mitochondrial membrane depolarization and |

caspases 9/3 activation^[2].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay ^{[1][2]}

To determine dose-dependent effects of coumestrol, ES2 cells are treated with different concentrations (0, 1, 10, 20, 50 or 100 μ M) of coumestrol^[1]. Coumestrol is dissolved in DMSO to prepare a 3 mM stock. Breast cancer MCF-7 cells are treated with increasing concentrations of coumestrol for 24, 48 and 72 h. Then, 20 μ L of MTT (5 mg/mL) is added each well and re-incubated for additional 3 h. Formazan blue crystals formed are dissolved in 100 μ L of DMSO. Absorbance is read at 570 nm using ELISA plate reader^[2].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Pharmacol Res. 2019 Sep;147:104366.
- Int J Mol Sci. 2024 Feb 20, 25(5), 2458.
- Food Chem Toxicol. 2020 Feb;136:110952.

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REFERENCES

[1]. Lim W, et al. Coumestrol suppresses proliferation of ES2 human epithelial ovarian cancer cells. J Endocrinol. 2016 Mar;228(3):149-60.

[2]. Zafar A, et al. Cytotoxic activity of soy phytoestrogen coumestrol against human breast cancer MCF-7 cells: Insights into the molecular mechanism. Food Chem Toxicol. 2017 Jan;99:149-161.

Caution: Product has not been fully validated for medical applications. For research use only.

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