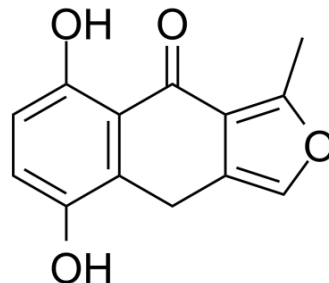


MS-444

| | |
|---------------------------|--|
| Cat. No.: | HY-100685 |
| CAS No.: | 150045-18-4 |
| Molecular Formula: | C ₁₃ H ₁₀ O ₄ |
| Molecular Weight: | 230.22 |
| Target: | Myosin |
| Pathway: | Cytoskeleton |
| Storage: | -20°C, protect from light, stored under nitrogen * In solvent : -80°C, 6 months; -20°C, 1 month (protect from light, stored under nitrogen) |



SOLVENT & SOLUBILITY

| | | | | | | |
|---|--|----------------------|-------------|-------------|-------------|--------------|
| In Vitro | DMSO : 50 mg/mL (217.18 mM; Need ultrasonic) | | | | | |
| | Preparing Stock Solutions | Solvent | Mass | 1 mg | 5 mg | 10 mg |
| | | Concentration | | | | |
| | | 1 mM | | 4.3437 mL | 21.7184 mL | 43.4367 mL |
| | | 5 mM | | 0.8687 mL | 4.3437 mL | 8.6873 mL |
| 10 mM | | 0.4344 mL | 2.1718 mL | 4.3437 mL | | |
| Please refer to the solubility information to select the appropriate solvent. | | | | | | |
| In Vivo | 1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline Solubility: ≥ 12.5 mg/mL (54.30 mM); Clear solution | | | | | |
| | 2. Add each solvent one by one: 10% DMSO >> 90% corn oil Solubility: ≥ 12.5 mg/mL (54.30 mM); Clear solution | | | | | |
| | 3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline) Solubility: ≥ 1.25 mg/mL (5.43 mM); Clear solution | | | | | |

BIOLOGICAL ACTIVITY

| | |
|-------------------------------------|--|
| Description | MS-444 inhibits the activity of purified smooth muscle myosin light chain kinase (MLCK) with an IC ₅₀ value of 10 μM. |
| IC₅₀ & Target | IC ₅₀ : 10 μM (myosin) ^[1] . |
| In Vitro | MS-444 is a small molecule RNA-binding protein HuR (ELAVL1) inhibitor. Colorectal cancer (CRC) cells that display HuR overexpression are treated with MS-444 (1-100 μM) for 48 hr with IC ₅₀ s of 10.98±1.76 μM, 12.84±2.10 μM, 5.60±0.90 μM, 14.21±2.11 μM, and 10.98±1.24 μM for HCT116, HCA-7, RKO, HT-29, and SW480 cells, respectively. Growth inhibition is observed in all CRC lines with IC ₅₀ values ranging from 5.60 μM to 14.21 μM with observable effects seen at 10 μM MS-444. |

Contrasting effects are observed using non-transformed small intestinal (RIE-1 (IC₅₀=40.70±3.53 μM)) and colonic (YAMC (IC₅₀=28.16±3.23 μM)) epithelial cells. Both cell types display properties of normal intestinal epithelial cells and are proficient in 3'UTR AU-rich elements (ARE)-mRNA decay. Both non-transformed cell lines are ~3- to 4-fold less responsive to MS-444-mediated growth inhibition, with IC₅₀ values of 40.70 μM and 28.16 μM (P<0.05)^[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

To test the effects of MS-444 on CRC cell growth in vivo, mice bearing HCT116 cell xenografts receive IP injections of MS-444 (25 mg/kg bw) or vehicle every 48 hr. Over the experiment course, mice do not display any adverse effects and maintained similar weights. Anti-tumor effects of MS-444 are observed with approximately 1.7-fold reduction in tumor size. Mice treated with MS-444 show a marked 2- to 3-fold decrease in microvessel density (MVD), indicating the anti-angiogenic potential of MS-444^[2].
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PROTOCOL

Cell Assay ^[2]

Human colorectal cancer cell lines RKO, HCA-7, HCT116, HT-29, SW480 and the non-transformed intestinal epithelial cell lines RIE-1, YAMC are treated with varying concentrations of MS-444 (1-100 μM) for 48 hr. Cell survival is measured by MTT assay after incubation of cells for 48 hr with MS-444. Relative cell survival is calculated as percentage normalized to DMSO vehicle-treated cells and plotted to determine IC₅₀^[2].
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Animal Administration ^[2]

Mice^[2]
Athymic nude (Nu/Nu) mice are used. HCT116 (2×10⁶ cells) and HCA-7 (2.5×10⁶ cells) resuspended in PBS are injected into the dorsal subcutaneous tissue. Mice (n=5 per group) receive intraperitoneal (IP) injections of MS-444 (25 mg/kg) dissolved in PBS/5% N-Methyl Pyrrolidine (NMP) or vehicle control every 48 hr. Tumor growth is assayed^[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

- [1]. Satoshi Nakanishi. et al. MS-444, a new inhibitor of myosin light chain kinase from Micromonosporasp.KY7123. The Journal Of Antibiotics. 1995,48(9):948-951.
- [2]. Fernando F. Blanco.et al, Impact of HuR inhibition by the small molecule MS-444 on colorectal cancer cell tumorigenesis. Oncotarget. 2016 Nov 8; 7(45): 74043-74058.

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

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