# MSA-2

**Cat. No.:** HY-136927

**CAS No.:** 129425-81-6

**Molecular Formula:** $C_{14}H_{14}O_5S$

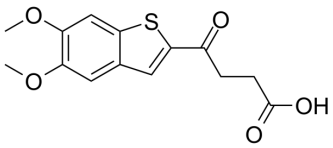
**Molecular Weight:** 294.32

**Target:** STING

**Pathway:** Immunology/Inflammation

**Storage:** 4°C, protect from light

* In solvent : -80°C, 2 years; -20°C, 1 year (protect from light)



## SOLVENT & SOLUBILITY

**In Vitro**

DMSO : 50 mg/mL (169.88 mM; Need ultrasonic)

| Preparing Stock Solutions | Solvent / Mass / Concentration | 1 mg | 5 mg | 10 mg |
|---|---|---|---|---|
| | 1 mM | 3.3977 mL | 16.9883 mL | 33.9766 mL |
| | 5 mM | 0.6795 mL | 3.3977 mL | 6.7953 mL |
| | 10 mM | 0.3398 mL | 1.6988 mL | 3.3977 mL |

Please refer to the solubility information to select the appropriate solvent.

**In Vivo**

1. Add each solvent one by one: 50% PEG300 >> 50% saline
   Solubility: 25 mg/mL (84.94 mM); Suspended solution; Need ultrasonic
2. Add each solvent one by one: 1% (w/v) carboxymethylcellulose (CMC)
   Solubility: 5 mg/mL (16.99 mM); Suspended solution; Need ultrasonic
3. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (7.07 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (7.07 mM); Clear solution

## BIOLOGICAL ACTIVITY

**Description**

MSA-2, a potent and orally available non-nucleotide STING agonist, is bound to STING as a noncovalent dimer with nanomolar affinity. MSA-2 shows $EC_{50}$s of 8.3 and 24 μM for human STING isoforms WT and HAQ, respectively. MSA-2 stimulates interferon-β secretion in tumors, induces tumor regression with durable antitumor immunity, and synergizes with anti-PD-1 in syngeneic mouse tumor models[1][2].

**In Vivo**

MSA-2 dosed via either PO or SC regimens achieved comparable exposure in both tumor and plasma. MSA-2 also exhibits dose-dependent antitumor activity when administered by IT, SC, or PO routes, and dosing regimens were identified that

induced complete tumor regressions in 80 to 100% of treated animals[1].
MSA-2 (PO: 60 mg/kg or SC: 50 mg/kg; single dose) that effectively inhibits tumor growth induced substantial elevations of IFN-β, interleukin-6 (IL-6), and TNF-α in tumor[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

| | |
|---|---|
| Animal Model: | MC38 tumor-bearing C57BL6 mice[1] |
| Dosage: | 60 mg/kg |
| Administration: | P.o. ; s.c (50 mg/kg); single dose |
| Result: | PO or SC doses of MSA-2 that effectively inhibited tumor growth induced substantial elevations of IFN-β, interleukin-6 (IL-6), and TNF-α in tumor. |

## CUSTOMER VALIDATION

- Nature. 2023 Apr;616(7958):806-813.
- Adv Mater. 2022 Dec 28;e2209910.
- J Hematol Oncol. 2022 Oct 8;15(1):142.
- Mol Cell. 2023 Apr 14;S1097-2765(23)00243-5.
- Cell Death Differ. 2023 Nov 25.

See more customer validations on www.MedChemExpress.com

## REFERENCES

[1]. Pan BS, et al. An orally available non-nucleotide STING agonist with antitumor activity. Science. 2020;369(6506):eaba6098.

[2]. Liu J, et al. Identification of MSA-2: An oral antitumor non-nucleotide STING agonist. Signal Transduct Target Ther. 2021;6(1):18. Published 2021 Jan 12.



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