# Tetrac

**Cat. No.:** HY-W008859

**CAS No.:** 67-30-1

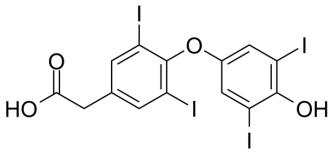
**Molecular Formula:** $C_{14}H_8I_4O_4$

**Molecular Weight:** 747.83

**Target:** Integrin; Endogenous Metabolite

**Pathway:** Cytoskeleton; Metabolic Enzyme/Protease

**Storage:** -20°C, protect from light
* In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)




## SOLVENT & SOLUBILITY

**In Vitro**

DMSO : 100 mg/mL (133.72 mM; Need ultrasonic)

| Preparing Stock Solutions | Solvent / Mass / Concentration | 1 mg | 5 mg | 10 mg |
|---|---|---|---|---|
| | 1 mM | 1.3372 mL | 6.6860 mL | 13.3720 mL |
| | 5 mM | 0.2674 mL | 1.3372 mL | 2.6744 mL |
| | 10 mM | 0.1337 mL | 0.6686 mL | 1.3372 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: 2.5 mg/mL (3.34 mM); Suspended solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (3.34 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (3.34 mM); Clear solution

## BIOLOGICAL ACTIVITY

**Description**

Tetrac (Tetraiodothyroacetic acid), a derivative of L-thyroxine (T4), is a thyrointegrin receptor antagonist. Tetrac blocks the actions of T4 and 3,5,3'-triiodo-L-thyronine (T3) at the cell surface receptor for thyroid hormone on integrin αvβ3. Tetra has anti-angiogenic and anti-tumor activities[1][2].

**In Vitro**

Tetrac (0.01-1 μM; 2-6 d) induces anti-proliferation in HT-29 and HCT116 cells with different K-RAS status[3].
Tetrac (0.1 μM; 30 min) inhibits activation of ERK1/2 in HT-29 and HCT116 cells[3].
Tetrac (0.1 μM; 24 h) inhibits expression of CCND1 and c-Myc, but promotes expression of CASP2 and THBS1[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Proliferation Assay[3]

| | |
|---|---|
| Cell Line: | HT-29 and HCT116 cells |
| Concentration: | 0.01, 0.1, 1 μM |
| Incubation Time: | 0, 2, 4, 6 days |
| Result: | Induced anti-proliferation of K-RAS wild-type colorectal cancer cells. |

Western Blot Analysis[3]

| | |
|---|---|
| Cell Line: | HT-29 and HCT116 cells |
| Concentration: | 0.1 μM |
| Incubation Time: | 30 min |
| Result: | Inhibited constitutively activated ERK1/2, and this inhibition can remove by anti-integrin α vβ3 antibody pretreatment. |

**In Vivo**

Tetrac (35 μg; p.o. for 40 days) inhibits tumor inoculation, growth and integrin expression in mice[4].

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

| | |
|---|---|
| Animal Model: | Wild-type male Balb/C mice aged 8 weeks are inoculated with 102B16F10 or B16LS9 cells [4] |
| Dosage: | 35 μg per day |
| Administration: | P.o. (added to the drinking water) daily for 40 days |
| Result: | Delayed the onset of ocular melanoma.<br>Reduced the S-100 and integrin staining level in the B16F10 mice model. |

## REFERENCES


[1]. Schmohl KA, et, al. Tetrac as an anti-angiogenic agent in cancer. Endocr Relat Cancer. 2019 Jun 1; 26(6):R287-R304.

[2]. Davis PJ, et, al. Nongenomic Actions of Thyroid Hormone: the Integrin Component. Physiol Rev. 2020 Jun 25.

[3]. Chin YT, et, al. Tetrac and NDAT Induce Anti-proliferation via Integrin αvβ3 in Colorectal Cancers With Different K-RAS Status. Front Endocrinol (Lausanne). 2019 Mar 12; 10:130.

[4]. Ashur-Fabian O, et, al. Tetrac Delayed the Onset of Ocular Melanoma in an Orthotopic Mouse Model. Front Endocrinol (Lausanne). 2019 Jan 8; 9:775.

[5]. Rajabi M, et, al. Synthesis of new analogs of tetraiodothyroacetic acid (tetrac) as novel angiogenesis inhibitors for treatment of cancer. Bioorg Med Chem Lett. 2018 Apr 15;28(7):1223-1227.





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