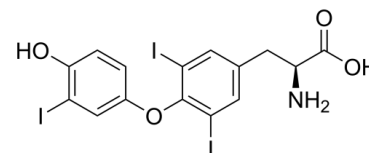


Data Sheet

Product Name:	Liothyronine
Cat. No.:	CS-4141
CAS No.:	6893-02-3
Molecular Formula:	C ₁₅ H ₁₂ I ₃ NO ₄
Molecular Weight:	650.97
Target:	Endogenous Metabolite; Thyroid Hormone Receptor
Pathway:	Metabolic Enzyme/Protease; Vitamin D Related/Nuclear Receptor
Solubility:	1M NaOH : 50 mg/mL (ultrasonic;warming;heat to 60°C);DMSO : 50 mg/mL (ultrasonic)



BIOLOGICAL ACTIVITY:

Liothyronine is an active form of thyroid hormone. Liothyronine binds to thyroid hormone receptors **TR α** and **TR β** with **K_ds** of 2.33 and 2.29 nM for hTR α and hTR β , respectively. Liothyronine also binds to PVR and blocks the interaction of TIGIT/PVR^{[1][2][3]}. IC50 & Target:TR β 1^{[1][2]} *In Vitro*: hepatocarcinoma Liothyronine (T3, 100 nM) stimulates the proliferation of hepatocarcinoma cells in which TR β 1 is overexpressed^[1]. Liothyronine binds to the human β 1 thyroid hormone receptor (hTR β 1), and changes its conformation. Liothyronine promotes growth, induces differentiation and regulates metabolic effects^[2].

PROTOCOL (Extracted from published papers and Only for reference)

Cell Assay: ^[1]Thyroid hormone depleted (Td) serum is prepared. The growth of hepatocarcinoma cells in methylcellulose is performed. To determine the effect of Liothyronine (T3) on the growth of cells, cells are plated at a density of 3×10^4 cells/60 mm dish on day 0, and incubated in medium containing 5% regular serum, 5% Td or 5% Td and 100 nM T3. The colony formation in methylcellulose is scored 3 weeks after initial plating^[1].

References:

- [1]. Lin KH, et al. Stimulation of proliferation by 3,3',5-triiodo-L-thyronine in poorly differentiated human hepatocarcinoma cells overexpressing beta 1 thyroid hormone receptor. *Cancer Lett.* 1994 Oct 14;85(2):189-94.
- [2]. Bhat MK, et al. Conformational changes of human beta 1 thyroid hormone receptor induced by binding of 3,3',5-triiodo-L-thyronine. *Biochem Biophys Res Commun.* 1993 Aug 31;195(1):385-92.
- [3]. Hiroaki Shiohara, et al. Discovery of novel indane derivatives as liver-selective thyroid hormone receptor β (TR β) agonists for the treatment of dyslipidemia. *Bioorg Med Chem.* 2012 Jun 1;20(11):3622-34.
- [4]. Zhou X, et al. Repositioning liothyronine for cancer immunotherapy by blocking the interaction of immune checkpoint TIGIT/PVR. *Cell Commun Signal.* 2020 Sep 7;18(1):142.

CAIndexNames:

L-Tyrosine, O-(4-hydroxy-3-iodophenyl)-3,5-diiodo-

SMILES:

OC1=C(C=C(C=C1))OC2=C(C=C(C=C2))C[C@@H](C(O)=O)N)I

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

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