

## Klotho-derived Peptide 1 (56-87) (human) TFA

## Chemical Properties

CAS No. :

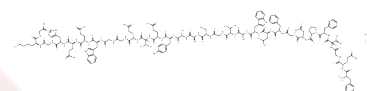
Formula: C149H203N39O43.xCF3COOH

Molecular Weight:

Keep away from moisture,

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Actual storage temperature shall be subject to the COA.



## Biological Description

Description	Klotho-derived Peptide 1 (56-87) (human) TFA, a peptide derived from the human Klotho protein, disrupts TGF- $\beta$ signaling through binding interactions with TGF- $\beta$ receptor type 1 (TGFBR1) and TGF- $\beta$ receptor type 2 (TGFBR2), with Kd values of 1.41 and 14.6 $\mu$ M, respectively. Preincubation with Klotho-derived Peptide 1 (56-87) (human) TFA at 10 $\mu$ g/mL inhibits TGF- $\beta$ -induced increases in fibronectin and $\alpha$ -smooth muscle actin ( $\alpha$ -SMA) expression in NRK-49F rat fibroblasts. In vivo investigations demonstrate that Klotho-derived Peptide 1 (56-87) (human) TFA, administered at 1 mg/kg per day, preferentially accumulates in damaged kidneys and significantly reduces serum creatinine and blood urea nitrogen levels while decreasing renal fibrosis in mouse models of unilateral ureteral obstruction (UUO) and unilateral ischemia-reperfusion injury-induced renal fibrosis. Klotho-derived Peptide 1 (56-87) (human) TFA is therefore valuable for investigations involving renal fibrosis, TGF- $\beta$ signaling modulation, and kidney injury-associated molecular pathways.
Targets(IC50)	TGF-beta/Smad
In vitro	Klotho-derived Peptide 1 (56-87) (human) TFA (3 $\mu$ M, 24 h) blocks TGF- $\beta$ 1-induced $\alpha$ -SMA and fibronectin expression at protein levels by western blot analyses[1]. Klotho-derived Peptide 1 (56-87) (human) TFA (3 $\mu$ M, 24 h) concurrently suppresses the ERK1/2, JNK, and p38 MAPK activation induced by TGF- $\beta$ 1 in LX-2 cells[1].
In vivo	Klotho-derived Peptide 1 (56-87) (human) TFA (1 mg/kg/d) normalizes serum ALT and AST levels ALB and TP levels and inhibits hepatic mRNA expression of numerous fibrosis-related genes such as $\alpha$ -smooth muscle actin (Acta2), Fn1, Col1a1, Col3a1, tissue Inhibitor of metalloproteinase 2 (Timp2), and matrix metalloproteinase-9 (Mmp9) in kl/kl mice[1]. Klotho-derived Peptide 1 (56-87) (human) TFA (1 mg/kg/d; 4weeks) reduces pseudolobule formation, hepatocyte ballooning, and inflammatory infiltration and attenuates collagens deposition in the liver of CCl4 treated mice[1]. Klotho-derived Peptide 1 (56-87) (human) TFA (1 mg/kg/d; i.v.; 1weeks) reduced serum ALT and AST levels after bile duct ligation (BDL) surgery and mitigates hepatic damage and inflammatory infiltration in BDL liver[1].

## Solubility Information

## A DRUG SCREENING EXPERT

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Solubility	H2O: Soluble (< 1 mg/ml refers to the product slightly soluble or insoluble)
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### Reference

Yuan Q, ET AL. A Klotho-derived peptide protects against kidney fibrosis by targeting TGF- $\beta$  signaling. Nat Commun. 2022 Jan 21;13(1):438. doi: 10.1038/s41467-022-28096-z. Erratum in: Nat Commun. 2022 Nov 4;13(1):6640.

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Tel:781-999-4286 E\_mail:info@targetmol.com Address:34 Washington Street,Wellesley Hills,MA 02481