# Compstatin TFA

**Cat. No.:** HY-P1036A

**Molecular Formula:** $C_{68}H_{100}F_3N_{23}O_{19}S_2$

**Molecular Weight:** 1664.79

**Sequence Shortening:** ICVVQDWGHHRCT-NH2 (Disulfide bridge: Cys2-Cys12)

ICVVQDWGHHRCT-NH2 (Disulfide bridge: Cys2-Cys12) (TFA salt)

**Target:** Complement System

**Pathway:** Immunology/Inflammation

**Storage:** Sealed storage, away from moisture and light

Powder -80°C 2 years

-20°C 1 year

* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture and light)

## SOLVENT & SOLUBILITY

**In Vitro**

DMSO : 110 mg/mL (66.07 mM; Need ultrasonic)

$H_2O$ : 50 mg/mL (30.03 mM; Need ultrasonic)

| Preparing Stock Solutions | Solvent / Mass / Concentration | 1 mg | 5 mg | 10 mg |
|---|---|---|---|---|
| | 1 mM | 0.6007 mL | 3.0034 mL | 6.0068 mL |
| | 5 mM | 0.1201 mL | 0.6007 mL | 1.2014 mL |
| | 10 mM | 0.0601 mL | 0.3003 mL | 0.6007 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: ≥ 2.75 mg/mL (1.65 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.75 mg/mL (1.65 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.75 mg/mL (1.65 mM); Clear solution

## BIOLOGICAL ACTIVITY

**Description**

Compstatin TFA, a 13-residue cyclic peptide, is a potent inhibitor of the complement system C3 with species specificity. Compstatin TFA binds to baboon C3 and is resistant to proteolytic cleavage in baboon blood (similar to humans). Compstatin TFA inhibits only the activation of primates' complement system. Compstatin TFA exhibits $IC_{50}$ values of 63 μM and 12 μM for classical and alterative complement pathway, respectively[1][2][3].

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| **In Vitro** | Compstatin exhibits an in vitro half-life in human blood of about 2 hr[2].<br>In solution, compstatin forms a β-turn at residues Gln-5–Gly-8 with the disulfide bridge Cys-2–Cys12, residues Ile-1–Val-4, and Thr-13, forming a hydrophobic cluster[3].<br>MCE has not independently confirmed the accuracy of these methods. They are for reference only. |
| **In Vivo** | Compstatin (21 mg/kg) produces complete inhibition when given as a combination of bolus injection and infusion.<br>Compstatin completely inhibits in vivo heparin/protamine-induced complement activation without adverse effects on heart rate or systemic arterial, central venous, and pulmonary arterial pressures[1].<br>Compstatin is stable in baboon plasma for more than 24 h[1].<br>Pig xenografts survival is significantly longer in the Compstatin perfused group than in the control group[2].<br>MCE has not independently confirmed the accuracy of these methods. They are for reference only. |

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| Animal Model: | Juvenile baboons (P. Anubis) weighing 10.5-28.8 kg[1]. |
| Dosage: | 50, 25 mg/kg 60 min after heparin and 2 min before protamine. |
| Administration: | A bolus injection. |
| Result: | Completely inhibited complement activation induced by heparin–protamine complexes. |

## CUSTOMER VALIDATION

- J Mater Chem B. 2019, 7, 4207-4216.

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## REFERENCES


[1]. Soulika AM, et al. Inhibition of heparin/protamine complex-induced complement activation by Compstatin in baboons. Clin Immunol. 2000 Sep;96(3):212-21.

[2]. Fiane AE, et al. Compstatin, a peptide inhibitor of C3, prolongs survival of ex vivo perfused pig xenografts. Xenotransplantation. 1999 Feb;6(1):52-65.

[3]. Bert J C Janssen, et al. Structure of compstatin in complex with complement component C3c reveals a new mechanism of complement inhibition. J Biol Chem. 2007 Oct 5;282(40):29241-7.

[4]. A Sahu, et al. Inhibition of human complement by a C3-binding peptide isolated from a phage-displayed random peptide library. J Immunol. 1996 Jul 15;157(2):884-91.





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