

Product Data Sheet

Product Name: Chlorotoxin (trifluoroacetate salt)

Cat. No.: GC92127

Chemical Properties

Cas. No.

Chemical Name	L-methionyl-L-cysteinyl-L-methionyl-L-prolyl-L-cysteinyl-L-phenylalanyl-L-threonyl-L-threonyl-L- α -aspartyl-L-histidyl-L-glutamyl-L-methionyl-L-alanyl-L-arginyl-L-lysyl-L-cysteinyl-L- α -aspartyl-L- α -aspartyl-L-cysteinyl-L-cysteinylglycylglycyl-L-lysylglycyl-L-arginylglycyl-L-lysyl-L-cysteinyl-L-tyrosylglycyl-L-prolyl-L-glutamyl-L-cysteinyl-L-leucyl-L-cysteinyl-L-argininamide, cyclic (2 $\rightarrow$ 19),(5 $\rightarrow$ 28),(16 $\rightarrow$ 33),(20 $\rightarrow$ 35)-tetrakis(disulfide), trifluoroacetate salt
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[illegible]

Formula	C ₁₅₈ H ₂₄₉ N ₅₃ O ₄₇ S ₁₁ ? XCF ₃ COO H	M.Wt	3995.7
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Solubility Water: Sparingly soluble: 1-10 mg/ml Storage -20°C

General tips	For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.
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Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.
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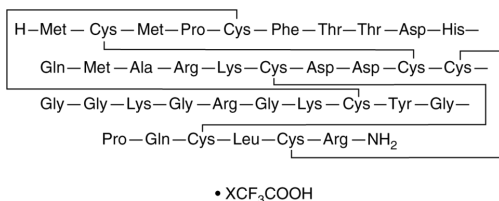
Caution: Product has not been fully validated for medical applications. For research use only.

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Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

Structure



Background

Chlorotoxin is a peptide originally isolated from the venom of the scorpion *L. quinquestratus*.^{1,2} It inhibits chloride currents in rat colonic enterocyte plasma membrane preparations when used at a concentration of 594 nM.¹ Chlorotoxin also binds to, but does not inhibit, matrix metalloproteinase-2 (MMP-2; IC₅₀s = 0.71 and >30 ?M, respectively), as well as neuropilin-1 (NRP-1; IC₅₀ = 0.78 ?M) in cell-free assays.³ It induces paralysis in crayfish (*P. clarkii*) but is not cytotoxic to human U87MG glioma, MCF-7 breast cancer, PC3 prostate cancer, and A549 lung cancer cells.^{1,2} Administration of chimeric antigen receptor (CAR) T cells expressing CAR with chlorotoxin as the targeting domain increase survival and decrease tumor volume in an orthotopic patient-derived xenograft (PDX) mouse model of glioblastoma.⁴ Liposomes containing chlorotoxin and encapsulating doxorubicin decrease tumor volume in a U87 glioma mouse xenograft model.⁵ Fluorescently labeled chlorotoxin has been used for tumor imaging *in vivo*.⁶

References:

- [1]. DeBin, J.A., Maggio, J.E., and Strichartz, G.R. Purification and characterization of chlorotoxin, a chloride channel ligand from the venom of the scorpion. *Am. J. Physiol.* 264(2 Pt 1):C361-C369(1993).
- [2]. Ayed, A.S., Omran, M.A.A.A., Nabil, Z.I., et al. C-terminal amidation of chlorotoxin does not affect tumour cell proliferation and has no effect on toxin cytotoxicity. *Int. J. Pept. Res. Ther.* 27(1):659-667(2021).
- [3]. Farkas, S., Cioca, D., Murányi, J., et al. Chlorotoxin binds to both matrix metalloproteinase 2 and neuropilin 1. *J. Biol. Chem.* 299(9):104998(2023).
- [4]. Wang, D., Starr, R., Chang, W.C., et al. Chlorotoxin-directed CAR T cells for specific and effective targeting of glioblastoma. *Sci. Transl. Med.* 12(533):eaaw2672(2020).
- [5]. Xiang, Y., Liang, L., Wang, X., et al. Chloride channel-mediated brain glioma targeting of chlorotoxin-modified doxorubicin-loaded liposomes. *J. Control Release* 152(3):402-410(2011).
- [6]. Veisheh, M., Gabikian, P., Bahrami, S.B., et al. Tumor paint: A chlorotoxin: Cy.
- [5]. 5 bioconjugate for intraoperative visualization of cancer foci. *Cancer Res.* 67(14):6882-6888(2007).

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