

## Product Data Sheet

Product Name: Urocortin III (mouse) (trifluoroacetate salt)

Cat. No.: GC45591

### Chemical Properties

Cas. No.

Formula C186H312N52O52S2.XCF3COOH M.Wt 4173

Solubility DMSO: 1 mg/ml Storage Store at -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.

Shipping Condition Evaluation sample solution: ship with blue ice All other available size: ship with RT, or blue ice upon request.

Structure

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H-Phe-Thr-Leu-Ser-Leu-Asp-Val-Pro-Thr-Asn-
Ile-Met-Asn-Ile-Leu-Phe-Asn-Ile-Asp-Lys-
Ala-Lys-Asn-Leu-Arg-Ala-Lys-Ala-Ala-Ala-
Asn-Ala-Gln-Leu-Met-Ala-Gln-Ile-NH2
• XCF3COOH
  
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### Background

Urocortin III is a neuropeptide hormone and member of the corticotropin-releasing factor (CRF) family which includes mammalian CRF, urocortin, urocortin II, frog sauvagine, and piscine urotensin I.1 Mouse urocortin III shares 90, 40, 37, and 18% identity to human urocortin III, mouse urocortin II, human urocortin, and mouse urocortin, respectively. It is expressed in the hypothalamus, brainstem, lateral septum (LS)/bed nucleus of stria terminalis (BnST) in the CNS and the small intestine, pancreatic  $\beta$ -cells, and skin in the periphery in mice. Urocortin III selectively binds to type 2 CRF receptors ( $K_{is} = 5, 1.8, \text{ and } >100 \text{ nM}$  for rat CRF2 $\alpha$ , rat CRF2 $\beta$ , and human CRF1, respectively). It stimulates cAMP production in CHO cells expressing rat CRF2 $\alpha$  and mouse CRF2 $\beta$  ( $EC_{50}s = 0.073 \text{ and } 0.08 \text{ nM}$ , respectively) as well as in cultured anterior pituitary cells expressing endogenous CRF2 $\beta$ . In vivo, urocortin III (2  $\mu\text{g}$ , i.p.) accelerates metamorphosis of *S. hammondi* tadpoles.2 Urocortin III (20  $\mu\text{g}$ , i.c.v.) increases exploration in the open field test and decreases latency to enter the lit compartment in the dark-light emergence test in mice, indicating anxiolytic-like activity, and mRNA expression is increased in mouse brain in response to restraint.3 It is co-released with insulin to potentiate glucose-stimulated somatostatin release in vitro and in vivo in wild-type mice, however, it is depleted from  $\beta$ -cells in mouse and macaque models of type 2 diabetes, suggesting a role in

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

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glycemic control.4

### References

1. Lewis, K., Li, C., Perrin, M.H., et al. Identification of urocortin III, an additional member of the corticotropin-releasing factor (CRF) family with high affinity for the CRF2 receptor. *Proc. Natl. Acad. Sci. U.S.A.* 98(13), 7570-7575 (2001).
2. Okada, R., Miller, M.F., Yamamoto, K., et al. Involvement of the corticotropin-releasing factor (CRF) type 2 receptor in CRF-induced thyrotropin release by the amphibian pituitary gland. *Gen. Comp. Endocrinol.* 150(3), 437-444 (2007).
3. Venihaki, M., Sakihara, S., Subramanian, S., et al. Urocortin III, a brain neuropeptide of the corticotropin-releasing hormone family: Modulation by stress and attenuation of some anxiety-like behaviours. *J. Neuroendocrinol.* 16(5), 411-422 (2004).
4. van der Meulen, T., Donaldson, C.J., Cáceres, E., et al. Urocortin3 mediates somatostatin-dependent negative feedback control of insulin secretion. *Nat. Med.* 21(7), 769-776 (2015).

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