

# PRODUCT INFORMATION

**ACTH(4-10) (human, mouse, rat, porcine, bovine, ovine) (trifluoroacetate salt)**  
Item No. 27106

<b>Formal Name:</b>	L-methionyl-L- $\alpha$ -glutamyl-L-histidyl-L-phenylalanyl-L-arginyl-L-tryptophyl-glycine, trifluoroacetate salt	
<b>Synonyms:</b>	Adrenocorticotropin (4-10), Corticotropin (4-10)	H—Met—Glu—His—Phe—Arg—Trp—Gly—OH
<b>MF:</b>	C <sub>44</sub> H <sub>59</sub> N <sub>13</sub> O <sub>10</sub> S • XCF <sub>3</sub> COOH	• XCF <sub>3</sub> COOH
<b>FW:</b>	962.1	
<b>Purity:</b>	≥95%	
<b>Supplied as:</b>	A solid	
<b>Storage:</b>	-20°C	
<b>Stability:</b>	≥4 years	

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

## Laboratory Procedures

ACTH (4-10) (human, mouse, rat, porcine, bovine, ovine) (trifluoroacetate salt) is supplied as a solid. A stock solution may be made by dissolving the ACTH (4-10) (human, mouse, rat, porcine, bovine, ovine) (trifluoroacetate salt) in water. The solubility of ACTH (4-10) (human, mouse, rat, porcine, bovine, ovine) (trifluoroacetate salt) in water is approximately 1 mg/ml. We do not recommend storing the aqueous solution for more than one day.

## Description

Adrenocorticotropin hormone (ACTH) (4-10) is an endogenous peptide fragment of ACTH, a peptide hormone produced by the anterior pituitary gland that is involved in the biological stress response.<sup>1</sup> ACTH (4-10) is found in the septal nuclei, the third ventricle, and ventral horn motor neurons.<sup>1,2</sup> The amino acid sequence of ACTH (4-10) is common to ACTH and the  $\alpha$ - and  $\beta$ -melanocyte stimulating hormones.<sup>3</sup> ACTH (4-10) is an agonist of melanocortin receptor 3 (MC3R) and MC4R (EC<sub>50</sub>s = 23 and 330 nM for the human recombinant receptors, respectively). It increases mean arterial pressure (ED<sub>50</sub> = 287 nmol/kg) and heart rate (ED<sub>50</sub> = 313 nmol/kg) in rats.<sup>4</sup> It also improves aortic and coronary blood flow and left ventricular developed pressure following cardiac ischemia and reperfusion when administered at a dose of 200  $\mu$ g/kg in rats, as well as reduces the infarct size and decreases caspase-3 activity.<sup>5</sup> ACTH (4-10) (10  $\mu$ g per animal) accelerates motor function improvements in a rat model of sciatic nerve crush.<sup>2</sup>

## References

1. Strand, F.L., Lee, S.J., Zuccarelli, L.A., *et al.* Non-corticotropin ACTH peptides modulate nerve development and regeneration. *Rev. Neurosci.* **4(4)**, 321-363 (1993).
2. Strand, F.L. David and Goliath - the slingshot that started the neuropeptide revolution. *Eur. J. Pharmacol.* **405(1-3)**, 3-12 (2000).
3. Miwa, H., Gantz, I., Konda, Y., *et al.* Structural determinants of the melanocortin peptides required for activation of melanocortin-3 and melanocortin-4 receptors. *J. Pharmacol. Exp. Ther.* **273(1)**, 367-372 (1995).
4. Van Bergen, P., Janssen, P.M.L., Hoogerhout, P., *et al.* Cardiovascular effects of  $\gamma$ -MSH/ACTH-like peptides: Structure-activity relationship. *Eur. J. Pharmacol.* **294(2-3)**, 795-803 (1995).
5. Juhasz, B., Der, P., Szodoray, P., *et al.* Adrenocorticotropin hormone fragment (4-10) attenuates the ischemia/reperfusion-induced cardiac injury in isolated rat hearts. *Antioxid. Redox Signal.* **9(11)**, 1851-1861 (2007).

### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

### WARRANTY AND LIMITATION OF REMEDY

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