

# PRODUCT INFORMATION

## Melittin (trifluoroacetate salt)

Item No. 17494

**MF:**  $C_{131}H_{229}N_{39}O_{31} \cdot XCF_3COOH$

**FW:** 2,846.5

**Purity:**  $\geq 95\%$

**Supplied as:** A crystalline solid

**Storage:**  $-20^\circ C$

**Stability:**  $\geq 2$  years

H—Gly—Ile—Gly—Ala—Val—Leu—Lys—Val—Leu—  
Thr—Thr—Gly—Leu—Pro—Ala—Leu—Ile—Ser—Trp—  
Ile—Lys—Arg—Lys—Arg—Gln—Gln—NH<sub>2</sub>  
• XCF<sub>3</sub>COOH

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

### Laboratory Procedures

Melittin (trifluoroacetate salt) is supplied as a crystalline solid. A stock solution may be made by dissolving the melittin (trifluoroacetate salt) in the solvent of choice. Melittin (trifluoroacetate salt) is soluble in organic solvents such as DMSO and dimethyl formamide, which should be purged with an inert gas. The solubility of melittin (trifluoroacetate salt) in these solvents is approximately 25 mg/ml.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of melittin (trifluoroacetate salt) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of melittin (trifluoroacetate salt) in PBS, pH 7.2, is approximately 3 mg/ml. We do not recommend storing the aqueous solution for more than one day.

### Description

Melittin is a small protein that is the principal cytotoxic component of venom of the honey bee, *A. mellifera*.<sup>1</sup> Structurally, melittin consists of two  $\alpha$ -helical segments forming a bent rod, with hydrophilic residues on the convex side and hydrophobic sites on the concave side.<sup>1,2</sup> This allows melittin molecules to assemble as tetramers on membrane surfaces and form pores, resulting in cell death. Bee venom is also known to stimulate phospholipase A<sub>2</sub> (PLA<sub>2</sub>) activity, and this may be linked to melittin-mediated pore production as well as the presence of low molecular weight PLA<sub>2</sub> enzymes in the venom.<sup>2,3</sup> Melittin also has antimicrobial properties, which, combined with its cytolytic properties, extends its potential for therapeutic applications.<sup>3</sup>

### References

1. Terwilliger, T.C. and Eisenberg, D. The structure of melittin. II. Interpretation of the structure. *J. Biol. Chem.* **257**(11), 6016-6022 (1982).
2. Kourie, J.I. and Shorthouse, A.A. Properties of cytotoxic peptide-formed ion channels. *Am. J. Physiol. Cell Physiol.* **278**, C1063-C1087 (2000).
3. Moreno, M. and Giral, E. Three valuable peptides from bee and wasp venoms for therapeutic and biotechnological use: Melittin, apamin and mastoparan. *Toxins* **7**, 1126-1150 (2015).

#### 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

Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

Copyright Cayman Chemical Company, 07/08/2021

#### CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD  
ANN ARBOR, MI 48108 · USA

**PHONE:** [800] 364-9897  
[734] 971-3335

**FAX:** [734] 971-3640

CUSTSERV@CAYMANCHEM.COM  
WWW.CAYMANCHEM.COM