

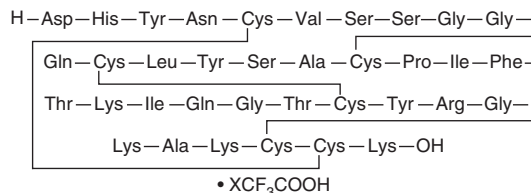
# PRODUCT INFORMATION



## β-Defensin-1 (human) (trifluoroacetate salt)

Item No. 24576

**Synonym:** hBD-1-1  
**MF:**  $C_{167}H_{256}N_{48}O_{50}S_6 \cdot XCF_3COOH$   
**FW:** 3,928.5  
**Purity:** ≥95%  
**Supplied as:** A lyophilized powder  
**Storage:** -20°C  
**Stability:** ≥4 years



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

### Laboratory Procedures

β-Defensin-1 (human) (trifluoroacetate salt) is supplied as a lyophilized powder. A stock solution may be made by dissolving the β-defensin-1 (human) (trifluoroacetate salt) in water. The solubility of β-defensin-1 (human) (trifluoroacetate salt) in water is approximately 1 mg/ml. We do not recommend storing the aqueous solution for more than one day.

### Description

β-Defensin-1 is a peptide with antimicrobial properties that protects the skin and mucosal membranes of the respiratory, genitourinary, and gastrointestinal tracts.<sup>1</sup> It inhibits the growth of *B. adolescentis*, *L. acidophilus*, *B. breve*, *B. vulgatus*, *L. fermentum*, *B. longum*, and *S. thermophilus* in an antimicrobial radial diffusion assay.<sup>2</sup> β-Defensin-1 also inhibits the growth of periodontopathogenic and cariogenic bacteria, including *P. gingivalis* and *S. salivarius*, and of susceptible *M. tuberculosis* H37Rv but not of resistant *M. tuberculosis* RM22 when used at a concentration of 128 μg/ml.<sup>3,4</sup> It blocks human and mouse K<sub>v</sub>1.3 voltage-gated potassium channels (IC<sub>50</sub>s = 11.8 and 13.2 μM, respectively).<sup>5</sup> Overexpression of β-defensin-1 in the human oral squamous cell carcinoma (OSCC) cell lines HSC-3, UM-1, and SCC-9 increases migration and invasion but not proliferation.<sup>6</sup>

### References

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2. Schroeder, B.O., Ehmann, D., Precht, J.C., et al. Paneth cell α-defensin 6 (HD-6) is an antimicrobial peptide. *Mucosal Immunol.* **8**(3), 661-671 (2015).
3. Ouhara, K., Komatsuzawa, H., Yamada, S., et al. Susceptibilities of periodontopathogenic and cariogenic bacteria to antibacterial peptides, β-defensins and LL37, produced by human epithelial cells. *J. Antimicrob. Chemother.* **55**(6), 888-896 (2005).
4. Fattorini, L., Gennaro, R., Zanetti, M., et al. In vitro activity of protegrin-1 and beta-defensin-1, alone and in combination with isoniazid, against *Mycobacterium tuberculosis*. *Peptides* **25**(7), 1075-1077 (2004).
5. Feng, J., Xie, Z., Yang, W., et al. Human beta-defensin 1, a new animal toxin-like blocker of potassium channel. *Toxicon* **113**, (2016).
6. Han, Q., Wang, R., Sun, C., et al. Human beta-defensin-1 suppresses tumor migration and invasion and is an independent predictor for survival of oral squamous cell carcinoma patients. *PLoS One* **9**(3), e91867 (2014).

#### 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.

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