

Product Data Sheet

Product Name: Buforin IIb TFA

Cat. No.: GC81827

Chemical Properties

Cas. No.

Formula $C_{115}H_{207}N_{43}O_{23} \cdot xC_2HF_3O_2$ M.Wt 2560.15

Solubility DMSO: 50 mg/mL (Need ultrasonic) Storage Sealed storage, away from moisture

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



Background

Buforin IIb TFA (BF2-B TFA) is an anticancer peptide, as well as an Antibacterial and Antifungal agent. Buforin IIb TFA is derived from histone H2A. Buforin IIb TFA activates SAPK/JNK and p38 MAPK. Buforin IIb TFA induces mitochondria-dependent Apoptosis. Buforin IIb TFA achieves selective targeting by interacting with gangliosides on the surface of cancer cells, and can penetrate

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

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cancer cell membranes without causing damage. Buforin IIb TFA exhibits antibacterial activity against Gram-negative bacteria, Gram-positive bacteria and fungi. Buforin IIb TFA can be used in the research of cervical cancer, as well as cancers including leukemia, central nervous system cancer, ovarian cancer, breast cancer, melanoma, colon cancer, non-small cell lung cancer, renal cancer and prostate cancer [1] [2] [3].

In Vivo, Buforin IIb (5-20 mg/kg; i.v.; days 1, 2, 4, 8) TFA induces significant, dose-dependent tumor growth suppression in BALB/c (nu/nu) mice bearing NCI-H460 lung cancer xenografts, with statistically significant differences from controls starting on day 8 ($P < 0.05$) [2].

In Vitro, Buforin IIb (4 μ M; 3-24 h) TFA induces time-dependent activation of SAPK/JNK and p38 MAPK in HeLa cells, which is downstream of ER stress and Ca^{2+} release from the ER [1]. Buforin IIb (4 μ M; 3-24 h) TFA induces time-dependent dysregulation of Bcl-2 family proteins, mitochondrial translocation of Bax, and cytochrome c release in HeLa cells, which are downstream of ER stress and MAPK activation [1]. Buforin IIb (0-200 μ g/mL; 48 h) TFA potently and selectively kills cancer cells, with IC_{50} values of 6 μ g/mL for Jurkat cells, 12 μ g/mL for HeLa cells, 7.2-23.9 μ g/mL for 60 diverse human tumor cell lines, and ~350 μ g/mL for normal human fibroblasts, mouse embryonic fibroblasts, and peripheral blood lymphocytes [2]. Buforin IIb (20 μ g/mL; 24 h) TFA induces mitochondria-dependent apoptosis in Jurkat and HeLa cancer cells, as shown by annexin V/PI staining, DNA fragmentation, and activation of caspase-9, caspase-3, and PARP cleavage [2]. Buforin IIb (24 h) TFA inhibits growth of Escherichia coli K12D31 (MIC 0.4 μ M), Bacillus subtilis CGMCC 1.1087, and Saccharomyces cerevisiae CGMCC 2.399 (MIC 1.5 μ M) with activity comparable to synthetic buforin IIb [3].

References:

- [1]. Jang JH, et al. Buforin IIb induces endoplasmic reticulum stress-mediated apoptosis in HeLa cells. Peptides. 2015 Jul;69:144-9.
- [2]. Lee HS, et al. Mechanism of anticancer activity of buforin IIb, a histone H2A-derived peptide. Cancer letters. 2008 Nov 18;271(1):47-55.
- [3]. Wang Q, et al. Expression and purification of antimicrobial peptide buforin IIb in Escherichia coli. Biotechnology letters. 2011 Nov;33(11):2121-6.

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