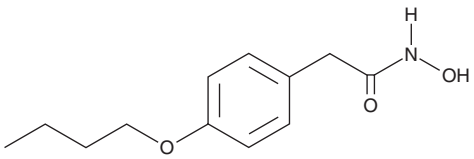
PRODUCT INFORMATION

Bufexamac

Item No. 26068

CAS Registry No.:	2438-72-4
Formal Name:	4-butoxy-N-hydroxy-benzeneacetamide
MF:	$C_{12}H_{17}NO_3$
FW:	223.3
Purity:	≥98%
UV/Vis.:	λ_{max}: 229, 278 nm
Supplied as:	A crystalline solid
Storage:	4°C
Stability:	≥4 years



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

Laboratory Procedures

Bufexamac is supplied as a crystalline solid. A stock solution may be made by dissolving the bufexamac in the solvent of choice, which should be purged with an inert gas. Bufexamac is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of bufexamac in ethanol is approximately 2.5 mg/ml and 30 mg/ml in DMSO and DMF.

Bufexamac is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, bufexamac should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. Bufexamac has a solubility of approximately 0.5 mg/ml in a 1:1 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Bufexamac is an NSAID and inhibitor of the class IIb histone deacetylases HDAC6 and HDAC10.[1] It inhibits the production of IFN-α in peripheral blood mononuclear cells (PBMCs; EC_{50} = 8.9 µM). Bufexamac induces hyperacetylation of tubulin (IC_{50} = 2.9 µM), a major substrate of HDAC6, without increasing acetylation of the class I HDAC substrates H3K5 or H3K9/K14. It also inhibits leukotriene A_4 (LTA_4) hydrolase and aminopeptidase activity (IC_{50}s = 15.86 and 11.59 µM, respectively) and 5-lipoxygenase (5-LO) activity (IC_{50} = 27 µM).[2,3] Bufexamac inhibits the production of leukotriene B_4 (LTB_4; Item No. 20110) in neutrophils (IC_{50} = 12.91 µM) and reduces fMLP-induced neutrophil migration when used at concentrations of 50 and 100 µM.[2] It also reduces neutrophil levels, as well as protein levels of TNF-α and IL-1β, in bronchoalveolar lavage fluid (BALF) in a mouse model of LPS-induced acute lung injury when administered at a dose of 100 mg/kg.

References

1. Bantscheff, M., Hopf, C., Savitski, M.M., *et al.* Chemoproteomics profiling of HDAC inhibitors reveals selective targeting of HDAC complexes. *Nat. Biotechnol.* **29(3)**, 255-265 (2011).
2. Xiao, Q., Dong, N., Yao, X., *et al.* Bufexamac ameliorates LPS-induced acute lung injury in mice by targeting LTA4H. *Sci. Rep.* **6:25298**, (2016).
3. Summers, J.B., Kim, K.H., Mazdiyasni, H., *et al.* Hydroxamic acid inhibitors of 5-lipoxygenase: Quantitative structure-activity relationships. *J. Med. Chem.* **33(3)**, 992-998 (1990).

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