

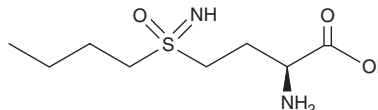
PRODUCT INFORMATION



L-Buthionine-(S,R)-Sulfoximine

Item No. 14484

CAS Registry No.: 83730-53-4
Formal Name: 2S-amino-4-(S-butylsulfonimidoyl)-butanoic acid
Synonyms: BSO, NSC 326231
MF: C₈H₁₈N₂O₃S
FW: 222.3
Purity: ≥98%
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥2 years



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

Laboratory Procedures

L-Buthionine-(S,R)-sulfoximine is supplied as a crystalline solid. Aqueous solutions of L-buthionine-(S,R)-sulfoximine can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of L-buthionine-(S,R)-sulfoximine in PBS, pH 7.2, is approximately 5 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

L-Buthionine-(S,R)-sulfoximine is an irreversible inhibitor of γ -glutamylcysteine synthetase ($K_i < 100 \mu\text{M}$), the rate-limiting enzyme for L-glutathione (GSH) synthesis, that induces oxidative stress in cells by depleting GSH.^{1,2} Administration of L-buthionine-(S,R)-sulfoximine leads to decreased GSH levels in virtually all tissues and is associated with tissue damage and apoptosis.^{3,4} Whereas elevated glutathione levels are associated with tumor cell resistance, L-buthionine-(S,R)-sulfoximine has been shown to enhance the toxicity of various chemotherapeutic agents in drug-resistant tumors.⁵

References

1. Reliene, R. and Schiestl, R.H. Glutathione depletion by buthionine sulfoximine induces DNA deletions in mice. *Carcinogenesis* **27(2)**, 240-244 (2006).
2. Griffith, O.W. Mechanism of action, metabolism, and toxicity of buthionine sulfoximine and its higher homologs, potent inhibitors of glutathione synthesis. *J. Biol. Chem* **257(22)**, 13704-13712 (1982).
3. Takahashi, K., Tatsunami, R., Oba, T., et al. Buthionine sulfoximine promotes methylglyoxal-induced apoptotic cell death and oxidative stress in endothelial cells. *Biol. Pharm. Bull.* **33(4)**, 556-560 (2010).
4. Han, Y.H., Moon, H.J., You, B.R., et al. The effects of buthionine sulfoximine, diethyldithiocarbamate or 3-amino-1,2,4-triazole on propyl gallate-treated HeLa cells in relation to cell growth, reactive oxygen species and glutathione. *Int. J. Mol. Med.* **24(2)**, 261-268 (2009).
5. Lewis-Wambi, J.S., Kim, H.R., Wambi, C., et al. Buthionine sulfoximine sensitizes antihormone-resistant human breast cancer cells to estrogen-induced apoptosis. *Breast Cancer Res.* **10(6)**, 1-13 (2008).

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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