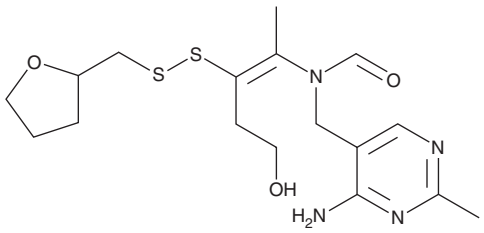
PRODUCT INFORMATION

Fursultiamine

Item No. 33456

CAS Registry No.: 804-30-8
Formal Name: N-[(4-amino-2-methyl-5-pyrimidinyl) methyl]-N-[4-hydroxy-1-methyl-2-[[(tetrahydro-2-furanyl)methyl]dithio]-1-buten-1-yl]-formamide
Synonyms: Fursultiamin, Thiamine Tetrahydrofurfuryl Disulfide, TTFD
MF: $C_{17}H_{26}N_4O_3S_2$
FW: 398.5
Purity: ≥95%
UV/Vis.: λ_{max}: 236 nm
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

Fursultiamine is supplied as a crystalline solid. A stock solution may be made by dissolving the fursultiamine in the solvent of choice, which should be purged with an inert gas. Fursultiamine is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of fursultiamine in ethanol is approximately 1 mg/ml and approximately 5 mg/ml in DMSO and DMF.

Fursultiamine is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, fursultiamine should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. Fursultiamine has a solubility of approximately 0.1 mg/ml in a 1:9 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Fursultiamine is a synthetic derivative of vitamin B_1 (thiamine; Item No. 25332).[1] It reduces LPS-induced increases in IL-6, IL-8, and chemokine (C-C motif) ligand 2 (CCL2) protein levels and decreases in mitochondrial respiration in ARPE-19 retinal pigment epithelial cells when used at concentrations of 100 and 20 µM, respectively.[2] Fursultiamine (50 mg/kg) also reduces the area and severity of laser-induced lesions in a mouse model of choroidal neovascularization (CNV). It increases thiamine levels in various rat tissues, including skeletal muscle and the heart, and prevents physical-fatigue loading decreases in skeletal muscle ATP levels induced by forced swimming with a weight load in rats when administered at a dose of 50 mg/kg.[3] Fursultiamine (100 mg/kg) enhances the protective effects of glucosamine and chondroitin sulfate on cartilage lesion formation in a rabbit model of osteoarthritis.[1]

References

1. Kobayashi, T., Notoya, K., Nakamura, A., *et al.* Fursultiamine, a vitamin B1 derivative, enhances chondroprotective effects of glucosamine hydrochloride and chondroitin sulfate in rabbit experimental osteoarthritis. *Inflamm. Res.* **54(6)**, 249-255 (2005).
2. Do, J.Y., Kim, J., Kim, M.-J., *et al.* Fursultiamine alleviates choroidal neovascularization by suppressing inflammation and metabolic reprogramming. *Invest. Ophthalmol. Vis. Sci.* **61(12)**, 24 (2020).
3. Nozaki, S., Mizuma, H., Tanaka, M., *et al.* Thiamine tetrahydrofurfuryl disulfide improves energy metabolism and physical performance during physical-fatigue loading in rats. *Nutr. Res.* **29(12)**, 867-872 (2009).

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