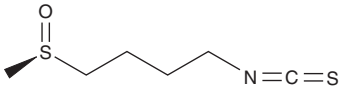
PRODUCT INFORMATION

L-Sulforaphane

Item No. 14797

CAS Registry No.:	142825-10-3
Formal Name:	1-isothiocyanato-4-[(R)-methylsulfinyl]-butane
Synonyms:	L-SFN, (R)-SFN, (R)-Sulforaphane
MF:	$C_6H_{11}NOS_2$
FW:	177.3
Purity:	≥98%
UV/Vis.:	λ_{max}: 246 nm
Supplied as:	A solution in ethanol
Storage:	-80°C
Stability:	≥2 years



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

Laboratory Procedures

L-Sulforaphane is supplied as a solution in ethanol. To change the solvent, simply evaporate the ethanol under a gentle stream of nitrogen and immediately add the solvent of choice. Solvents such as DMSO and dimethyl formamide purged with an inert gas can be used. The solubility of L-sulforaphane in these solvents is approximately 16 and 3 mg/ml, respectively.

L-Sulforaphane is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, the ethanol solution of L-sulforaphane should be diluted with the aqueous buffer of choice. The solubility of L-Sulforaphane in PBS (pH 7.2) is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

L-Sulforaphane is an isothiocyanate derived from the natural compound glucoraphanin, which is abundant in cruciferous vegetables, including broccoli.[1]It has powerful antioxidant, anti-inflammatory, and anti-carcinogenic effects.[1,2] L-Sulforaphane, at 40 µM, activates nuclear factor erythroid 2-related factor 2- (Nrf2) mediated gene expression by disrupting its association with Kelch-like ECH-associated protein 1 (Keap1), allowing Nrf2 to enter the nucleus to alter transcription.[3,4] In this way, sulforaphane induces the expression of phase II detoxification enzymes, which in turn provide diverse beneficial effects.[1,5]

References

1. James, D., Devaraj, S., Bellur, P., *et al.* Novel concepts of broccoli sulforaphanes and disease: Induction of phase II antioxidant and detoxification enzymes by enhanced-glucoraphanin broccoli. *Nutr. Rev.* **70(11)**, 654-665 (2012).
2. Liang, H. and Yuan, Q. Natural sulforaphane as a functional chemopreventive agent: Including a review of isolation, purification and analysis methods. *Crit. Rev. Biotechnol.* **32(3)**, 218-234 (2012).
3. La Marca, M., Beffy, P., Della Croce, C., *et al.* Structural influence of isothiocyanates on expression of cytochrome P450, phase II enzymes, and activation of Nrf2 in primary rat hepatocytes. *Food Chem. Toxicol.* **50(8)**, 2822-2830 (2012).
4. Dinkova-Kostova, A.T., Holtzclaw, W.D., Cole, R.N., *et al.* Direct evidence that sulfhydryl groups of Keap1 are the sensors regulating induction of phase 2 enzymes that protect against carcinogens and oxidants. *Proc. Natl. Acad. Sci. USA* **99(18)**, 11908-11913 (2012).
5. Munday, R. and Munday, C.M. Induction of phase II detoxification enzymes in rats by plant-derived isothiocyanates: Comparison of allyl isothiocyanate with sulforaphane and related compounds. *J. Agric. Food. Chem.* **52(7)**, 1867-1871 (2004).

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