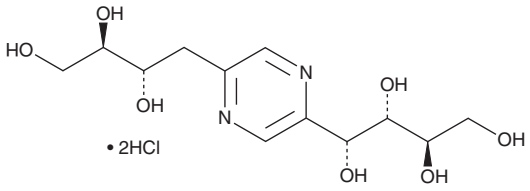
PRODUCT INFORMATION

2,5-Deoxyfructosazine (hydrochloride)

Item No. 18662

CAS Registry No.: 17460-13-8
Formal Name: (1R,2S,3R) 1-[5-[(2S,3R)-2,3,4-trihydroxybutyl]-2-pyrazinyl]-1,2,3,4-butanetetrol, dihydrochloride
Synonym: NSC 270912
MF: $C_{12}H_{20}N_2O_7 \bullet 2HCl$
FW: 377.2
Purity: ≥98%
UV/Vis.: λ_{max}: 274 nm
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years



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

Laboratory Procedures

2,5-Deoxyfructosazine (hydrochloride) is supplied as a crystalline solid. A stock solution may be made by dissolving the 2,5-deoxyfructosazine (hydrochloride) in the solvent of choice, which should be purged with an inert gas. 2,5-Deoxyfructosazine (hydrochloride) is soluble in the organic solvent DMSO. The solubility of 2,5-deoxyfructosazine (hydrochloride) in DMSO is approximately 3 mg/ml.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of 2,5-deoxyfructosazine (hydrochloride) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of 2,5-deoxyfructosazine (hydrochloride) in PBS, pH 7.2, is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

2,5-Deoxyfructosazine is a pyrazine derivative that can be found in cured tobacco and is used as a flavoring agent in the food and tobacco industry.[1,2] Pyrazines, including 2,5-deoxyfructosazine, can be produced either by pyrolytic decomposition of natural compounds or by the reaction of sugars with alcoholic ammonia.[2] 2,5-Deoxyfructosazine is also formed by the breakdown of D-glucosamine at neutral pH.[3,4] Like glucosamine, 2,5-deoxyfructosazine has DNA strand breakage activity and strongly inhibits IL-2 production by *Jurkat* cells stimulated with phytohemagglutinin (IC_{50} = ~1.25 mM).[3-5]

References

1. Henry, N., Delépée, R., Seigneuret, J.M. , *et al. Talanta* **99**, 816-823 (2012).
2. Rodgman, A. and Perfetti, T.A. The Chemical Components of Tobacco and Tobacco Smoke, Second Edition. *CRC Press* (2013).
3. Zhu, A., Huang, J.-B., Clark, A., *et al. Carbohyd. Res.* 342(18), 2745-2749 (2007).
4. Shimamura, T., Takamori, A., Ukeda, H., *et al. Biosci. Biotechnol. Biochem.* **67(2)**, 295-299 (2003).
5. Sumoto, K., Irie, M., Mibu, N., *et al. Chem. Pharm. Bull. (Tokyo)* **39(3)**, 792-794 (1991).

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