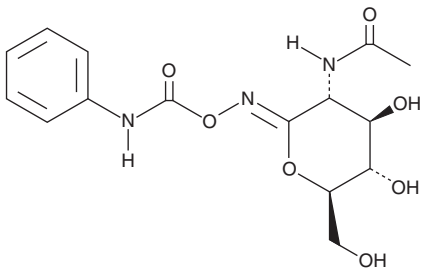
PRODUCT INFORMATION

(Z)-PUGNAc

Item No. 17151

CAS Registry No.: 132489-69-1
Formal Name: (1Z)-δ-lactone-2-(acetylamino)-2-deoxy-N-[[(phenylamino)carbonyl]oxy]-D-gluconimidic acid
MF: $C_{15}H_{19}N_3O_7$
FW: 353.3
Purity: ≥95%
UV/Vis.: λ_{max}: 236 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

(Z)-PUGNAc is supplied as a crystalline solid. A stock solution may be made by dissolving the (Z)-PUGNAc in the solvent of choice, which should be purged with an inert gas. (Z)-PUGNAc is soluble in organic solvents such as DMSO and dimethyl formamide. The solubility of (Z)-PUGNAc in these solvents is approximately 1 and 10 mg/ml, respectively.

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 (Z)-PUGNAc can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of (Z)-PUGNAc in PBS (pH 7.2) is approximately 1 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Proteins can be modified post-translationally by the addition of *O*-linked N-acetylglucosamine (*O*-GlcNAc). Nuclear cytoplasmic *O*-GlcNAcase and acetyltransferase (NCOAT) is a β-N-acetylglucosaminidase that removes GlcNAc from *O*-glycosylated proteins. PUGNAc is a (phenylcarbamoyl)oxime analog of GlcNAc that reversibly inhibits NCOAT (K_i = 40-110 nM).[1,2] It also less potently inhibits other hexosaminidases and exochitinases.[2-4] (Z)-PUGNAc is a stereoisomer of PUGNAc that is a more potent inhibitor of NCOAT than the (E) isomer, both *in vitro* and in cells.[5]

References

1. Horsch, M., Hoesch, L., Vasella, A., *et al.* N-Acetylglucosaminono-1,5-lactone oxime and the corresponding (phenylcarbamoyl)oxime. Novel and potent inhibitors of β-N-acetylglucosaminidase. *Eur. J. Biochem.* **197(3)**, 815-818 (1991).
2. Dong, D.L.Y. and Hart, G.W. Purification and characterization of an *O*-GlcNAc selective N-acetyl-β-D-glucosaminidase from rat spleen cytosol. *J. Biol. Chem.* **269(30)**, 19321-19330 (1994).
3. Hodge, A., Gooday, G.W., and Alexander, I.J. Inhibition of chitinolytic activities from tree species and associated fungi. *Phytochem.* **41(1)**, 77-84 (1996).
4. Macauley, M.S., Bubb, A.K., Martinez-Fleites, C., *et al.* Elevation of global *O*-GlcNAc levels in 3T3-L1 adipocytes by selective inhibition of O-GlcNAcase does not induce insulin resistance. *J. Biol. Chem.* **283(50)**, 34687-34695 (2008).
5. Perreira, M., Kim, E.J., Thomas, C.J., *et al.* Inhibition of *O*-GlcNAcase by PUGNAc is dependent upon the oxime stereochemistry. *Bioorg. Med. Chem.* **14(3)**, 837-846 (2006).

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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