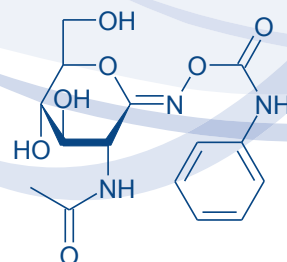


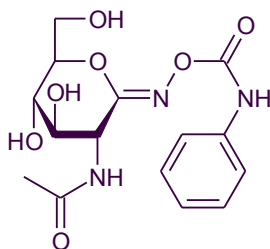
PUGNAc

Product Code: **EA06838**
 CAS Number: **132489-69-1**
 Chemical Formula: **C₁₂H₁₅NO₈**
 Molecular Weight: **301.25**



Synonyms: *O*-(2-Acetamido-2-deoxy-D-glucopyranosylidene)amino *N*-phenyl carbamate

The enzyme inhibitor *O*-(2-Acetamido-2-deoxy-D-glucopyranosylidene)amino *N*-phenyl carbamate is more commonly referred to as PUGNAc.



PUGNAc is a potent inhibitor of the enzyme *O*-GlcNAcase which cleaves β -*O*-linked 2-acetamido-2-deoxy-beta-D-glucopyranoside (abbreviated as *O*-Linked *N*-acetylglucosamine or *O*-GlcNAc) from serine and threonine residues of post-translationally modified proteins. *O*-GlcNAc is a common post-translational modification of proteins in the nucleus and cytoplasm and is believed to be dynamically regulated in similar fashion to protein phosphorylation.¹

PUGNAc is also an inhibitor of the functionally related enzyme β -hexosaminidase, exhibiting little selectivity between the two.² The *Z* oxime stereoisomer (shown above) has been identified as a significantly more potent inhibitor of *O*-GlcNAcase than the *E* isomer in both *in vitro* and intact cellular experiments.³ In rats, PUGNAc has been shown to provide a protective effect on cardiac function after trauma-haemorrhage, mediated through an increase in levels of protein *O*-GlcNAc.⁴

References:

1. RS Haltiwanger et al, *J. Biol. Chem.*, **1998**, 273, 3611.
2. GE Whitworth et al, *J. Am. Chem. Soc.*, **2007**, 129, 635.
3. M Perreira et al, *Bioorg. Med. Chem.*, **2006**, 14, 837 and *Bioorg. Med. Chem.*, **2006**, 14, 7359.
4. L Zou et al, *Shock*, **2007**, 27, 402.