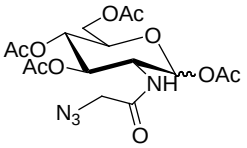
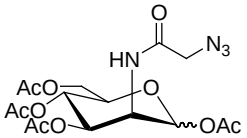
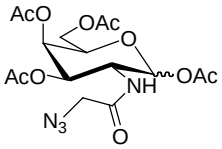
INSTRUCTIONS

Azido Sugars

88903 88904 88905

2202.1

Number	Description	
88903	**GlcNAz** (*N*-azidoacetylglucosamine-tetraacylated), 5mg Molecular Weight: 430.37	
88904	**ManNAz** (*N*-azidoacetylmannosamine-tetraacylated), 5mg Molecular Weight: 430.37	
88905	**GalNAz** (*N*-azidoacetylgalactosamine-tetraacylated), 5mg Molecular Weight: 430.37	

Storage: Upon receipt store at -20°C. Product shipped at ambient temperature.

Introduction

The Thermo Scientific GlcNAz, ManNAz and GalNAz Reagents are azido sugars that provide a highly specific approach for studying glycoproteins through chemoselective ligation. Reactions using the azido sugars occur between a phosphine and an azide via a Staudinger reaction to produce an aza-ylide intermediate that is trapped to form a stable, covalent amide bond (Figure 1).[1] Because phosphines and azides are absent from biological systems, there is minimal background labeling of macromolecules found in cells or lysates.[2]

There are several classes of glycoproteins grouped by the type of carbohydrate and amino acid linkage site. *N*-linked glycosylation is a modification of asparagine amines, whereas *O*-linked glycosylation occurs through the hydroxyl of serine and threonine residues. The azido sugars are bioorthogonal substitutes for endogenous amino sugars. ManNAz is converted by cells to an azido sialic acid derivative that is used for *N*-linked glycosylation of cell surface proteins. GlcNAz and GalNAz are predominantly used to label the *O*-linked glycosylation (*O*-GlcNAc and *O*-GalNAc).

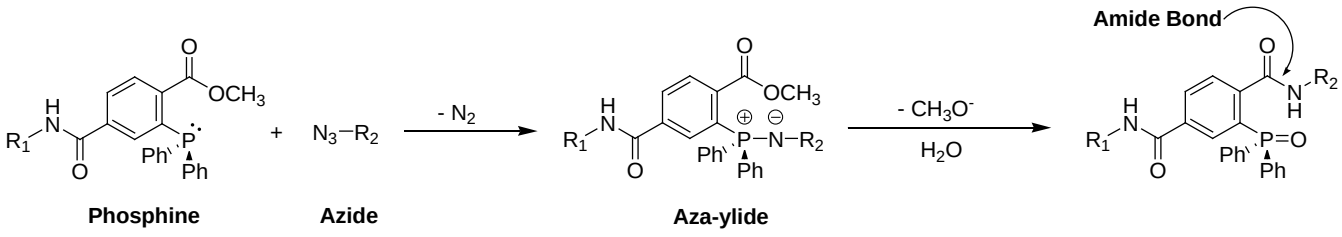


Figure 1. Azido-sugar reaction scheme, which is also referred to as the Staudinger reaction.

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Important Product Information

- Azido sugars are stable under typical laboratory lighting conditions; however, avoid exposing reagents to direct sunlight. If possible, avoid reducing agents in reaction buffers, which may interfere with azide stability.
- Reactions with phosphines and azides are more efficient at high concentrations and temperatures (i.e., 23-37°C). Typical reaction times are less than 4 hours; however, incubating for longer can improve reaction efficiency.
- Dissolve azido sugars in a dry water-miscible organic solvent, such as DMSO, before adding to cell culture media. Store DMSO stock solutions at -20°C for up to 6 months.

Procedure for Labeling Cellular Glycoproteins

A. Additional Materials Required

- Dry dimethyl sulfoxide (DMSO)
- Mammalian cultured cells

B. Procedure

1. Prepare 10mM of the reagent by dissolving 5mg of the azido-sugar reagent in 1.16mL of DMSO.
2. Add the 10mM solution directly to cell culture media for a final concentration of 40µM (1:250 dilution).
3. Incubate cells for at least 72 hours in an incubator to incorporate azido sugars into glycoproteins.

Related Thermo Scientific Products

88901	**Biotin-PEG$_3$-Phosphine**, 10mg
88907	**DyLight 488-Phosphine**, 1mg
88910	**DyLight 550-Phosphine**, 1mg
88911	**DyLight 650-Phosphine**, 1mg
88902	**NHS-Azide**, 10mg
88900	**NHS-Phosphine**, 10mg
88906	**Sulfo-NHS-Phosphine**, 10mg

Cited References

1. Saxon, E. and Bertozzi, C. (2000). Cell surface engineering by a modified Staudinger reaction. *Science* **287:**2007-10.
2. Agard, N., *et al.* (2006). A comparative study of bioorthogonal reactions with azides. *ACS Chemical Biology* **1(10):**644-8.

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