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Stero- and Chemoselectivity of Nitrenoid Amidoglycosylation Reactions of Glucal 3-Carbamates

The amidoglycosylation reaction of glucal 3-carbamates proceeds via a metal nitrenoid intermediate to generate oxazolidinone-protected mannosamine derivatives. The reaction is stereospecific, forming a new carbon-nitrogen bond *cis* to the C3-oxygen bond. In addition, a new carbon-oxygen bond is formed at the anomeric carbon with preference for the α -anomer. Small amounts of the β -anomer were isolated as well as a byproduct, dihydro-4-pyranone. The amidoglycosylation reaction studied was optimized for the best solvent and equivalents of alcohol. The effect of solvent and amounts of alcohol were studied for this effect on the reaction yield and the amount of byproduct, dihydro-4-pyranone, it produced. Studies were also done on the mechanism of the by product, dihydro-4-pyranone.

