During N-linked glycosylation of proteins, oligosaccharide chains are assembled on the carrier molecule dolichyl pyrophosphate in the following order: 2 molecules of N-acetylglucosamine, 9 molecules of mannose, and 3 molecules of glucose. These 14-residue oligosaccharide cores are then transferred to asparagine residues on nascent polypeptide chains in the endoplasmic reticulum. As proteins progress through the Golgi apparatus, the oligosaccharide cores are modified by trimming and extension to generate a diverse array of glycosylated proteins. Alg3p is an alpha 1,3 mannosyltransferase that catalyzes the addition of the sixth mannose moiety to the growing lipid-linked oligosaccharide. This is the first sugar added to the LLO in the lumen of the endoplasmic reticulum. The seventh mannose moiety is added by Alg9p. Disruption of ALG3 causes accumulation of lipid-linked oligosaccharides with five mannose residues. The designation RHK1 indicates that mutants are resistant to the HM-1 killer toxin from the yeast Hansenula mrakii, possibly due to defective glycosylation of the toxin receptor. Human ALG3cDNA complements deletion of ALG3 in mutant yeastand has been found to be mutated in the congenital disorder of glycosylation CDG-Id.