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. Alg1p, which is a beta 1,4 mannosyltransferase, catalyzes the addition of the first mannose moiety to the growing lipid-linked oligosaccharideon the cytosolic side of the endoplasmic reticulum. Mutants cannot add mannose to Dol-PP-GlcNAc2, but are able to convert Man1-Dol-PP-GlcNAc2 to Man5-Dol-PP-GlcNAc2. Alg1p forms two different multimeric complexes, one with Alg2p and the other with Alg11p. Alg1p is homologous to Dictyostelium discoideum MntAp. Human ALG1, also known as mannosyltransferase I, complements the yeast alg1-1 mutationand has been found to be mutated in the congenital disorder of glycosylation CDG-1k.