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.The oligosaccharyl transferase complextransfers 14-sugar branched oligosaccharides from dolichyl pyrophosphate to asparagine residues. The complex contains nine protein subunits: Ost1p, Ost2p, Ost3p, Ost4p, Ost5p, Ost6p, Stt3p, Swp1p, and Wbp1p, all of which are integral membrane proteins of the ER. The OST complex interacts with the Sec61p pore complexinvolved in protein import into the ER. Ost2p is the epsilon subunit of the OST complex, one of the original six subunits purified. OST2 is essential, but temperature-sensitivemutants are defective in core oligosaccharide transfer to proteins; O-linked glycosylation is unaffected. Some ts mutants form clumps in liquid culture at the permissive temperature, possibly due to defective separation of mother and daughter cells. Ost2p is homologous to the vertebrateDAD1protein, a putative fourth component of the mammalian OST complex.