

*Role of dolichol in synthesis of N-linked glycoprotein

→ Synthesis of all N-linked glycoprotein begins with synthesis of branched oligosaccharide attached to dolichol pyrophosphate on cytosolic side of endoplasmic reticulum membrane

→ Structure

↓
translocated to lumen of ER & undergoes further glycosylation

↓
oligosaccharide chain is transferred onto asparagine residue of acceptor oligoprotein during entering into ER during synthesis on membrane bound polyribosomes

↓
this is cotranslational modification

Synthesis of dolichol pyrophosphate oligosaccharide

UDP N acetylglucosamine
+
dolichol phosphate

↓
N - acetylglucosamine dolichol
pyrophosphate

↓
UDP-N-acetylglucosamine

↓
5 molecule of mannose from
GDP-mannose added

↓
Dolichol pyrophosphate
oligosaccharide → then transferred
into lumen of ER

↓
further mannose + glucose added

↓
dolichol phosphate - glucose + mannose
Dolichol pyrophosphate
oligosaccharide

↓
Transferred onto acceptor
asparagine residue of
nascent protein chain