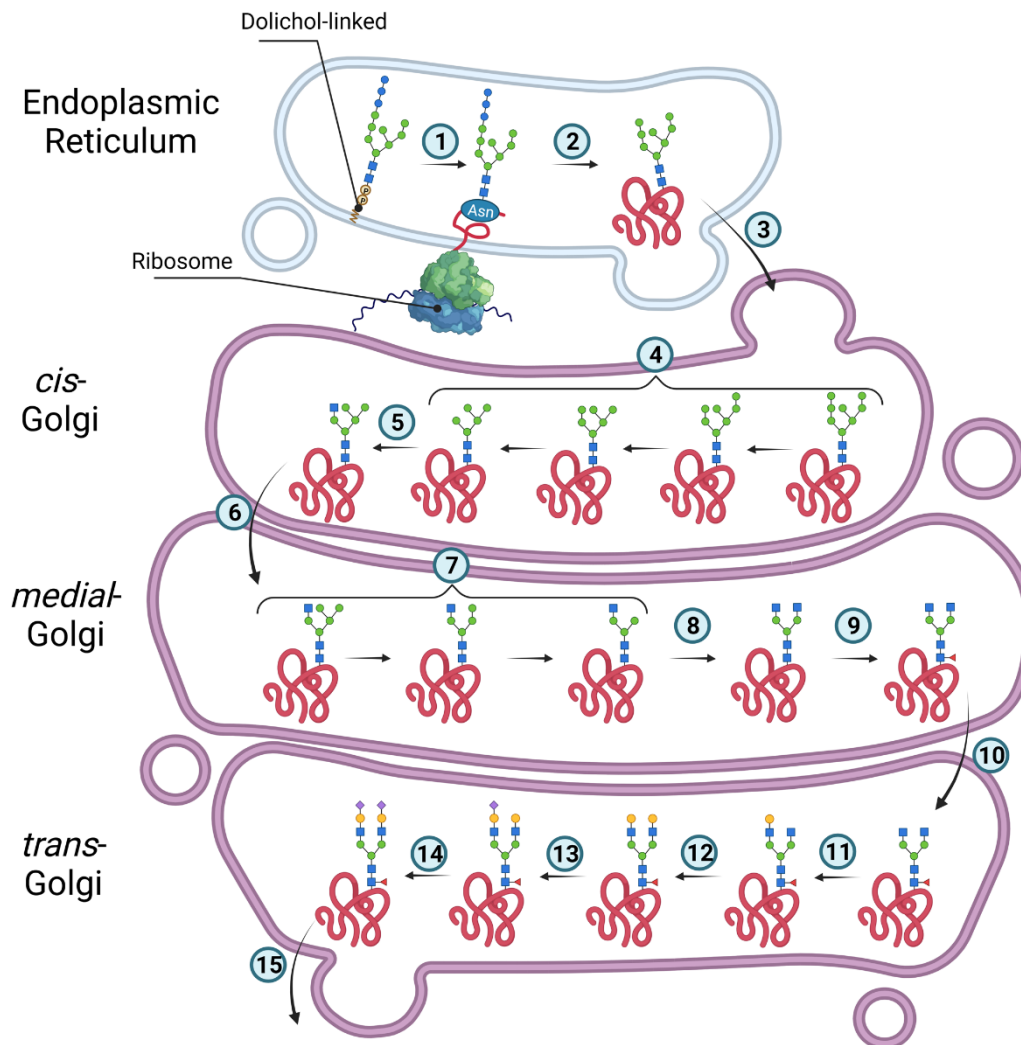


## Supplementary Material

### 1 Supplementary Figures



**Supplementary Figure 1.** Schematic illustration of the synthesis of a mammalian disialylated diantennary N-glycan. (1) In the endoplasmic reticulum (ER), the oligosaccharyltransferase (OST) co-translationally catalyze the transfer of the N-glycan precursor from dolichol to the carboxamide side chain of Asn within the nascent protein. (2) During protein folding and quality control, glucosidases trim the N-glycan. (3) Subsequently, the glycoprotein is vesicularly transferred to the cis-Golgi apparatus. (4) The trimming of the Man residues continues (5) and an N-acetylglucosamine (GlcNAc) is added. (6) Following that, the glycoprotein is transferred to the medial- Golgi. (7) Here, mannosidases release two more Man residues, (8) a further GlcNAc is added, and (9) a core fucose can be added as well. (10) In the trans-Golgi, the conversion of N-glycans continues with (11 and 12) the addition of galactose (Gal). (13 and 14) Finally, sialic acid is transferred to the diantennary N-glycan

and (15) the mature glycoprotein is transported to the cellular membrane. For more detailed information, please see (1, 2). The figure legend is based on (3). Created with BioRender.com.

## 2 REFERENCES

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