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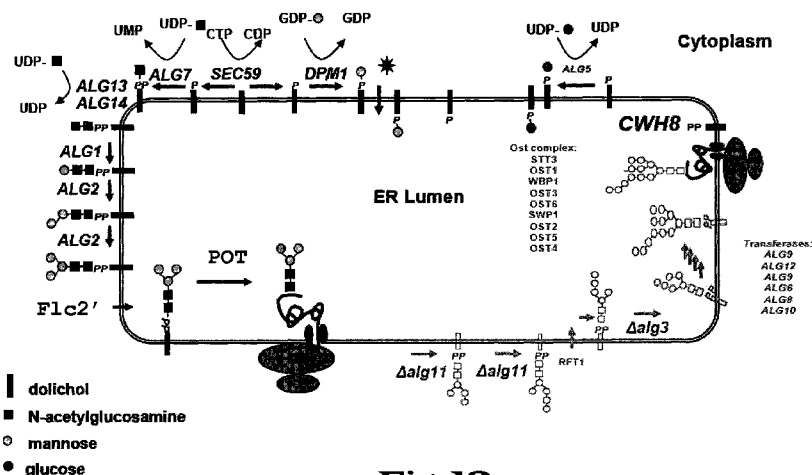


Fig. 12

(57) Abstract: The invention improves glycoprotein production and protein glycosylation engineering in eukaryotes, specifically the production of human-like complex or hybrid glycosylated proteins in lower eukaryotes such as yeasts. The invention provides glycosylation modified eukaryotic host cells capable of producing glycosylation optimized proteins useful as immunoglobulins and other therapeutic proteins, and provides cells capable of producing glycoproteins having glycan structures similar to glycoproteins produced in human cell. The invention further provides proteins with human-like glycan structures and novel compositions thereof producible by these cells.