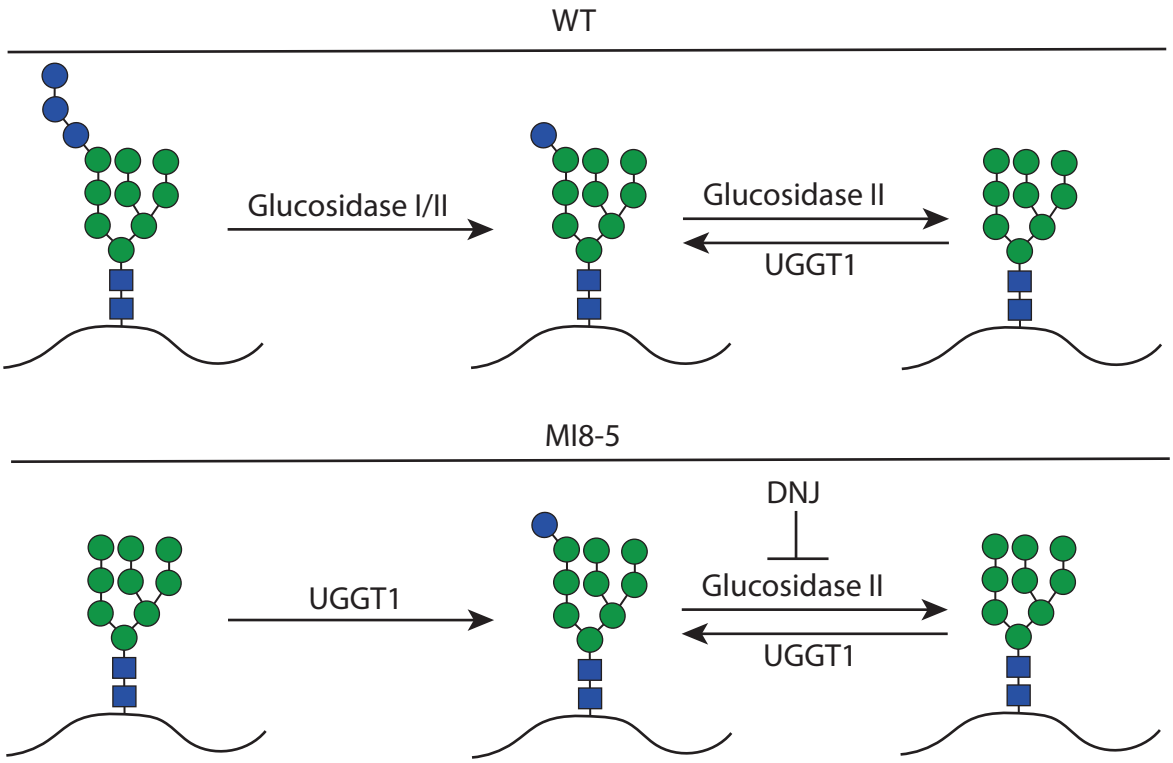
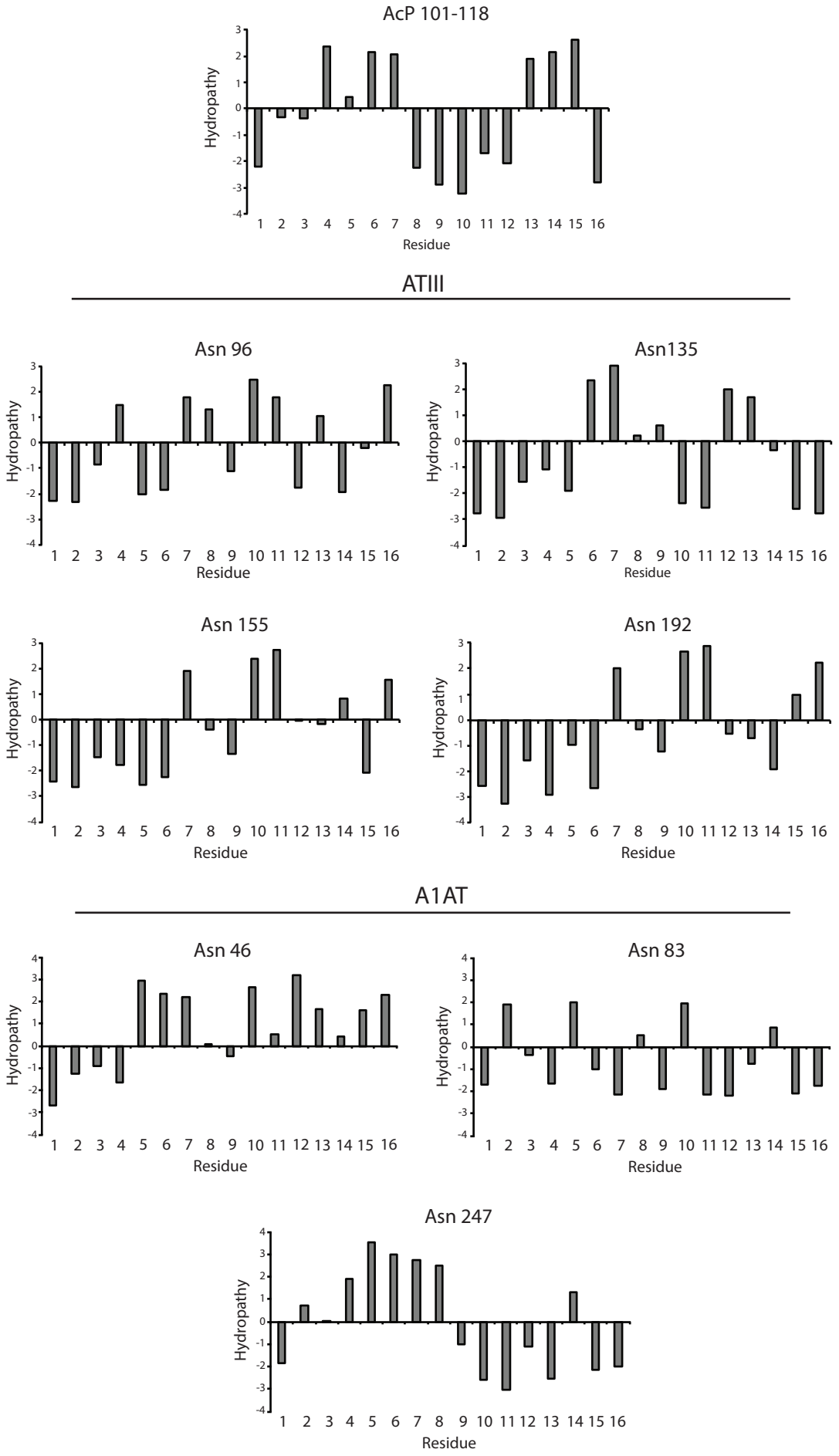


Supplemental Figure 1. Schematic of N-glycan processing in Wild-type and MI8-5 CHO cells. Wild type CHO cells transfer glycans with three glucoses to acceptor sites. After sequential trimming by glucosidases I/II, a monoglucosylated glycan is generated. A monoglucosylated glycan can also be formed by further trimming of a monoglucosylated glycan by glucosidase II to a non-glycosylated glycan and subsequent reglucosylation by UGGT1. Monoglucosylated glycans in wild type cells therefore are not solely formed by the activity of UGGT1. MI8-5 CHO cells transfer glycans with no glucoses. Glucosylation by UGGT1forms monoglucosylated glycans. Monoglucosylated glycans can be trimmed by glucosidase II and reglucosylated by UGGT1. Monoglucosylated glycans are formed only by UGGT1 activity. Glucosidase II activity is inhibited by DNJ in order to stabilize monoglucosylated glycans.



Supplemental Figure 2. Hydropathy plots of acid phosphatase (AcP 101-118), ATIII and A1AT glycan regions. Kyte-Doolittle scores of amino acids C-terminal to the glycan using a window size of 5 amino acids are depicted. The asparagine residue for each glycan is positioned at 0. Positive values represent hydrophobicity. Oscillating hydrophobicity profiles with a hydrophobic patch of three or more amino acids are correlated with increased reglucosylation by UGGT1. AcP 101-118 is depicted as an example of a well-reglucosylated susbtrate possessing a characteristic hydophathy profile (Taylor et al, 2003). Note that ATIII does not contain any such hydropathy profiles while A1AT possesses two.