



Figure 1. Transmembrane protein orientation and classification. Proteins can be arranged with various orientations in the plasma membrane. Both the N-terminus and the C-terminus can be either inside or outside the cell. Proteins can be single pass, meaning that they contain a single transmembrane segment and pass the membrane once, or multi pass, meaning that they contain multiple transmembrane sequences and span the membrane more than one time. Single-pass proteins may further be characterized as Type I proteins or Type II proteins based on their orientation in the membrane. In this figure, the multi-pass proteins were drawn with 3, 4 or 5 transmembrane segments, but within cells, multi-pass proteins may span the membrane various numbers of times.