The hydrophobic variants of the original MNG (MNG-3-C10) were evaluated with a few membrane proteins. These MNGs confer enhanced stability to a range of membrane proteins, but the optimal MNG was variable for different membrane proteins. This study indicates that harmony between detergent hydrophobicity and membrane protein tendency to aggregate and denature is key for optimal detergent efficacy. In addition, the current set of MNGs could be utilized to classify our target proteins into two categories; aggregation-sensitive or denaturation-sensitive protein.