

**S7\_Fig.** Distribution of dihedral angles for two cases. In the folded case (filled areas) all angles populate a single state. In an unfolded case (framed areas) especially the  $\phi$ -angle of GLY shows a broad variation. The  $\psi$ -angle of GLY is slightly shifted. The  $\phi$ -angle of PRO does not change due to its ring structure, whereas the  $\psi$ -angle shows a second state around 330°.