



**Figure S5. Comparison of estimated and experimental  $C_\alpha$  displacement amplitudes.**

Amplitudes of  $C_\alpha$  displacements estimated using reconstructed in-phase trajectories are compared with displacements obtained from the averages of all crystal structures in  $WPD_{open}$  and  $WPD_{closed}$  conformation listed in Table S1. Estimated and experimental displacements are shown in blue and black, respectively.