



**Figure S17. Comparison of WPD loop conformational transitions in TMD simulations with different spring constants on the reduced PC planes.** Projection of WPD loop transitions on (A) PC1-PC2, and (B) PC1-PC3 planes. Black and blue circles represent TMD simulations with spring constant equal to  $3000 \text{ kcal}\cdot\text{mol}^{-1}\cdot\text{\AA}^{-2}$  and  $500 \text{ kcal}\cdot\text{mol}^{-1}\cdot\text{\AA}^{-2}$ , respectively. (C) Transition of WPD loop in the first cycle of both simulations on PC1-PC2 plane. Black ( $\text{TMD}_1$ ) and blue lines ( $\text{TMD}'$ ) represent the WPD loop trajectory during the first loop closing, while red ( $\text{TMD}_1$ ) and green ( $\text{TMD}'$ ) represent the first loop opening.