



**Supplementary information, Figure S10** Conformational changes of Rpn10 and Rpn11 between proteasome-ATP $\gamma$ S and proteasome-ADP-AIFx. **(A)** Side and top views of Rpn10 and Rpn11 (model in orange) associated with AAA-ATPase ring (map in grey) in the proteasome-ATP $\gamma$ S map (EMD 2596, PDB ID: 4CR4) [18]. The position of the N-ring pore is indicated by a red star. **(B)** Side and top views of Rpn10 (model in green) and Rpn11 (model in purple) associated with AAA-ATPase ring (map in blue) in the proteasome-ADP-AIFx map. **(C)** Side and top views of the overlaid relative models between the two states, indicating their position variation from the ATP $\gamma$ S state to the ADP-AIFx state.