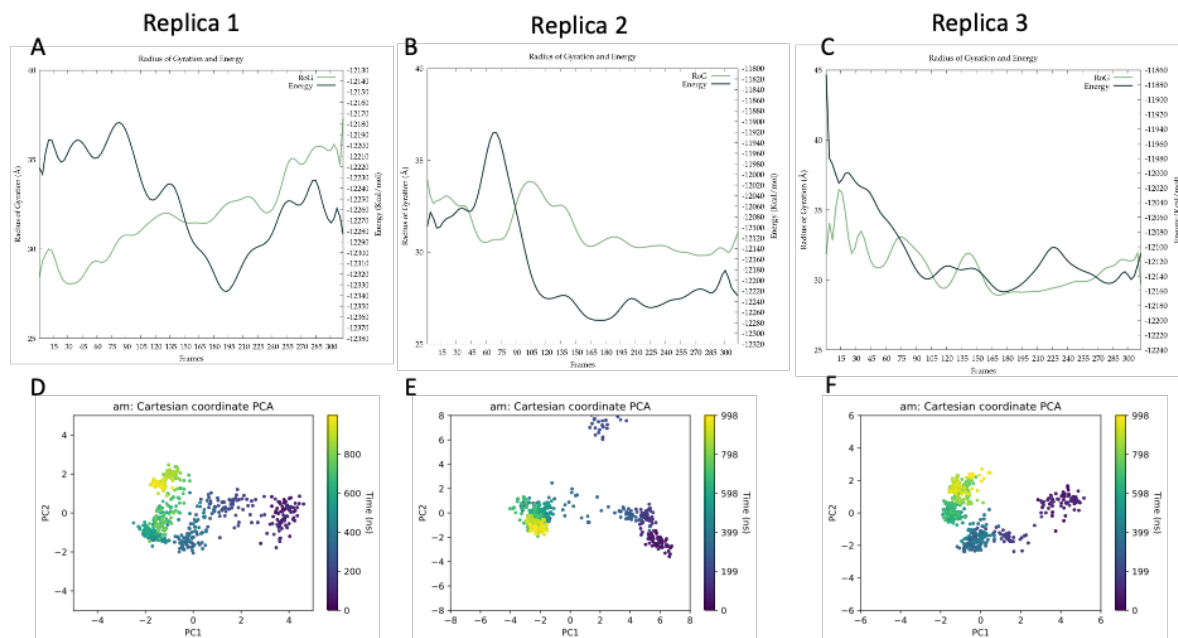
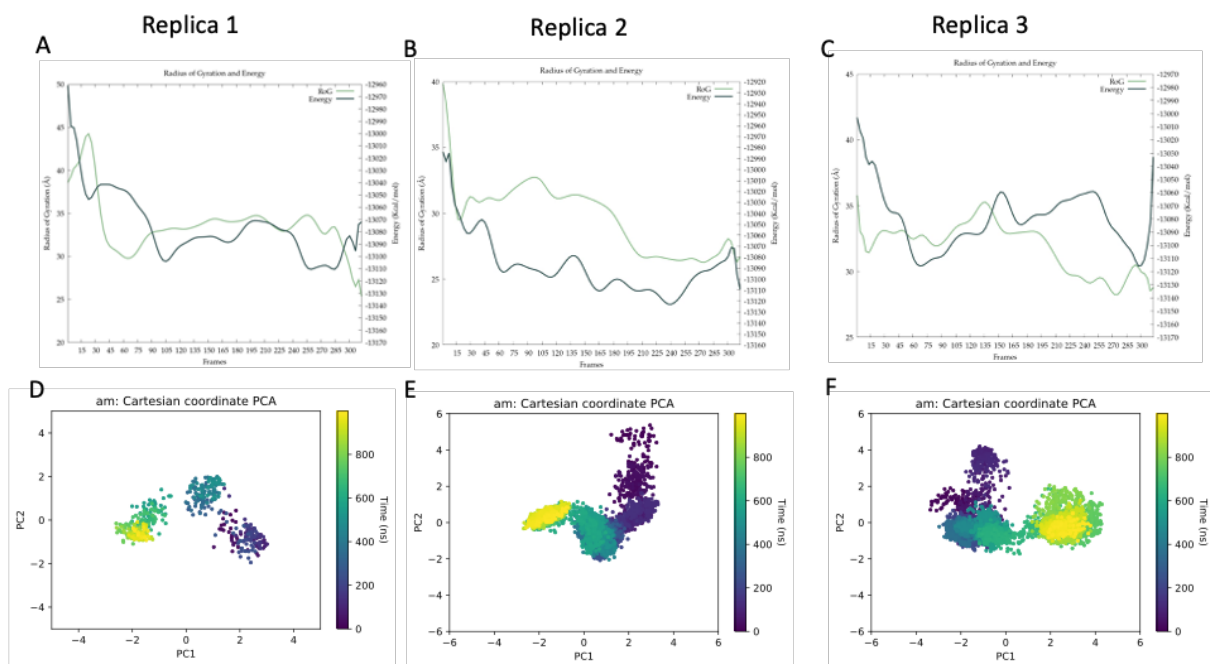


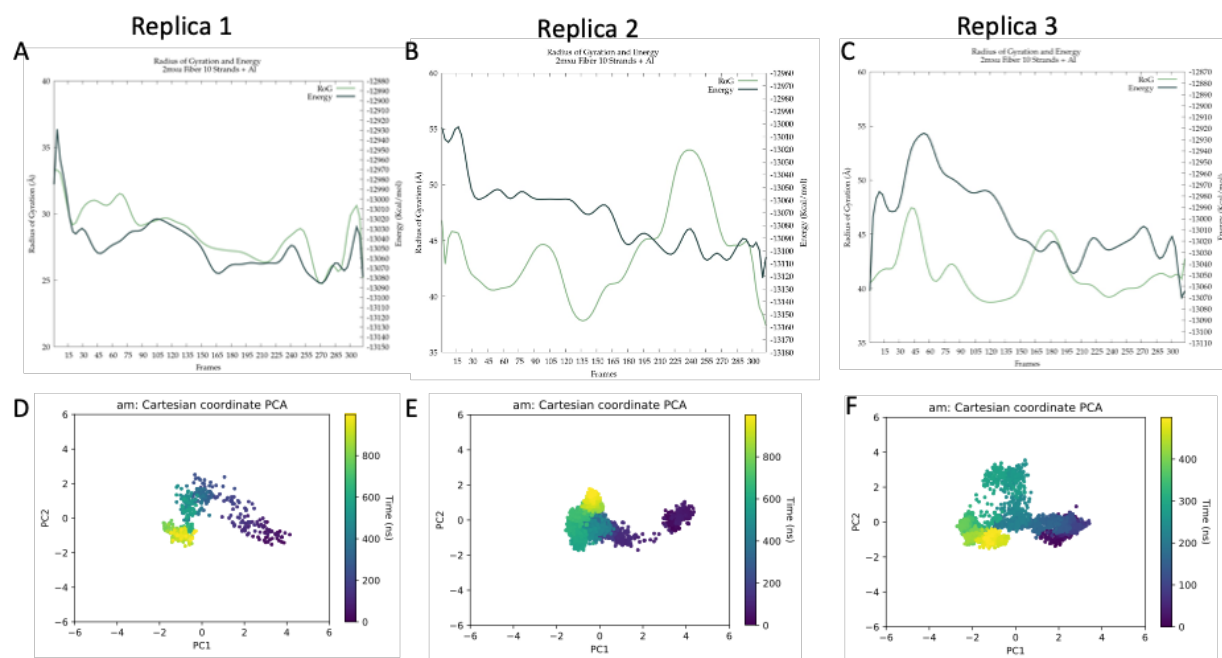
**Supplementary Information: Computational Assessment of the Impact of Cu(II) and Al(III) on  $\beta$ -Amyloid<sub>42</sub> Fibrils: Binding Sites, Structural Stability and Possible Physiological Implications**



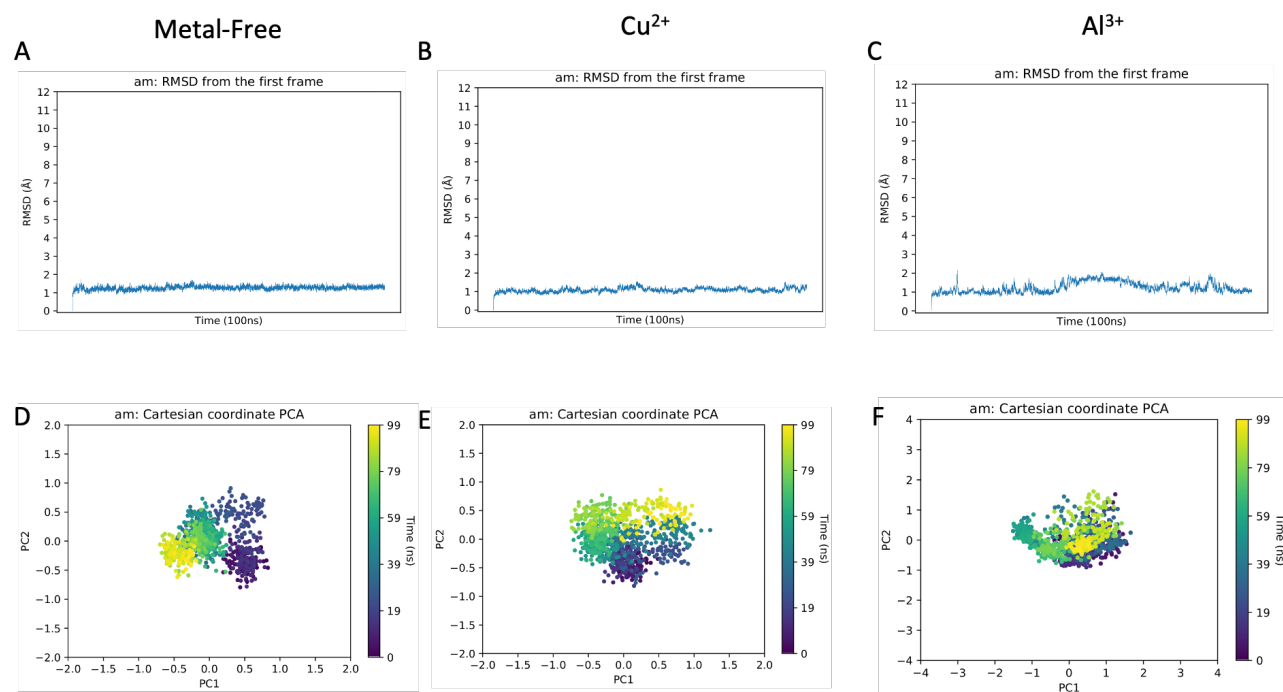
**Supplementary Figure 1.** A, B and C. Energy profile and RoG along the GaMD simulation along the three replicas of the metal free fiber. D, E and F. Principle Component Analysis (PCA) of the same simulations.



**Supplementary Figure 2.** A, B and C. Energy profile and RoG along the GaMD simulation along the three replicas of the Cu(II) binding fiber. D, E and F. Principle Component Analysis (PCA) of the same simulations.



**Supplementary Figure 3.** A, B and C. Energy profile and RoG along the GaMD simulation along the three replicas of the Al(III) binding fiber. D, E and F. Principle Component Analysis (PCA) of the same simulations.



**Supplementary Figure 4.** Stability analysis for classical MDs from the structure on lowest energy well obtained in GaMD simulation. RMSD and PCA analysis performed over 100 ns trajectories of Metal-free system (A and D), Copper-bound system (B and E) and Aluminium-bound system (C and F).