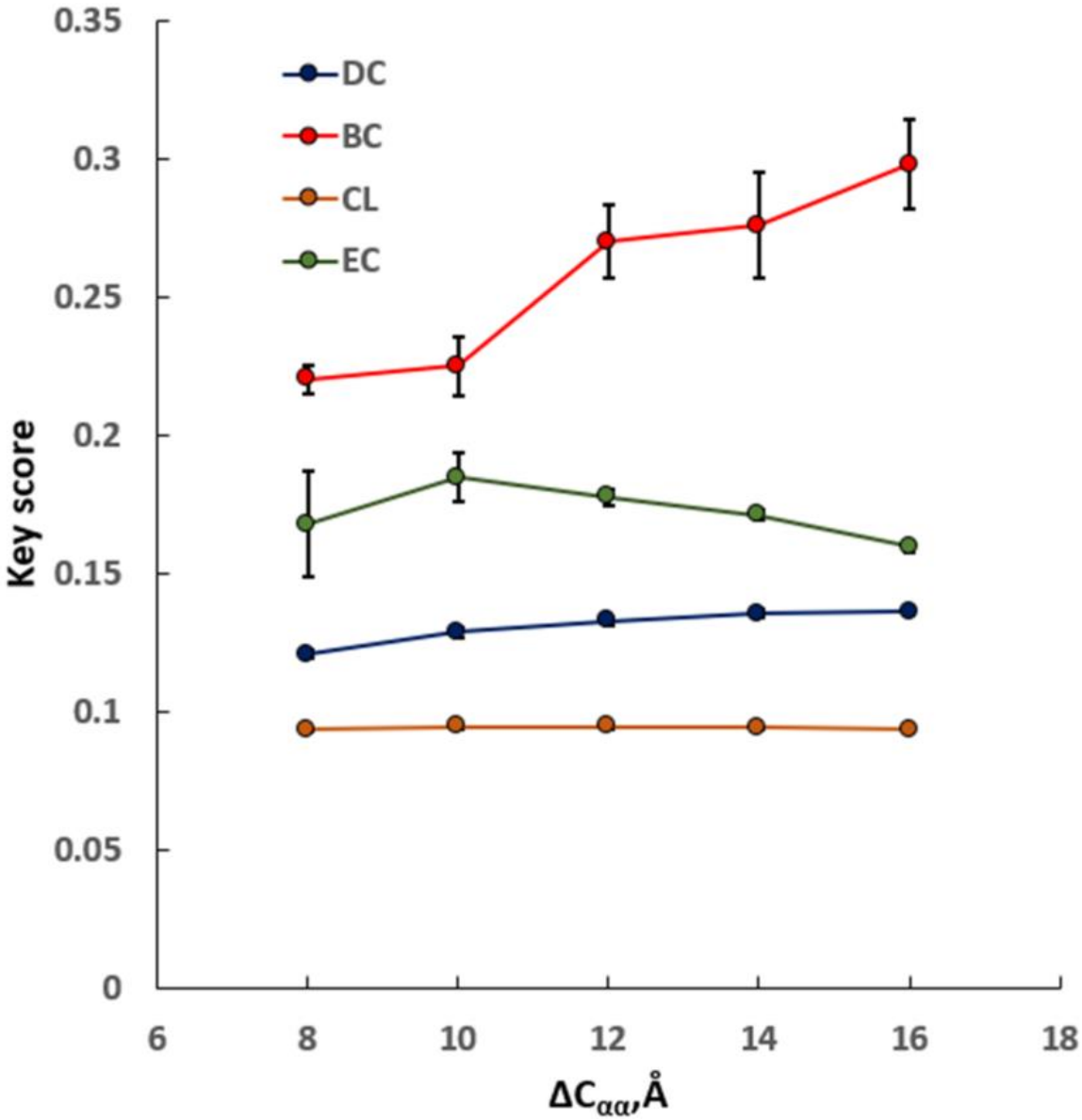

Figure S1. Key scores calculated using Degree centrality (DC), Betweenness centrality (BC), Closeness centrality (CC) and Eigenvector centrality (EG) for LSP-based networks using increasing ΔCαα cutoff levels. Five consecutive 2 ns long intervals were used for the calculation. Standard errors are shown. Note the significant increase of the BC key scores after 12Å cutoff value.

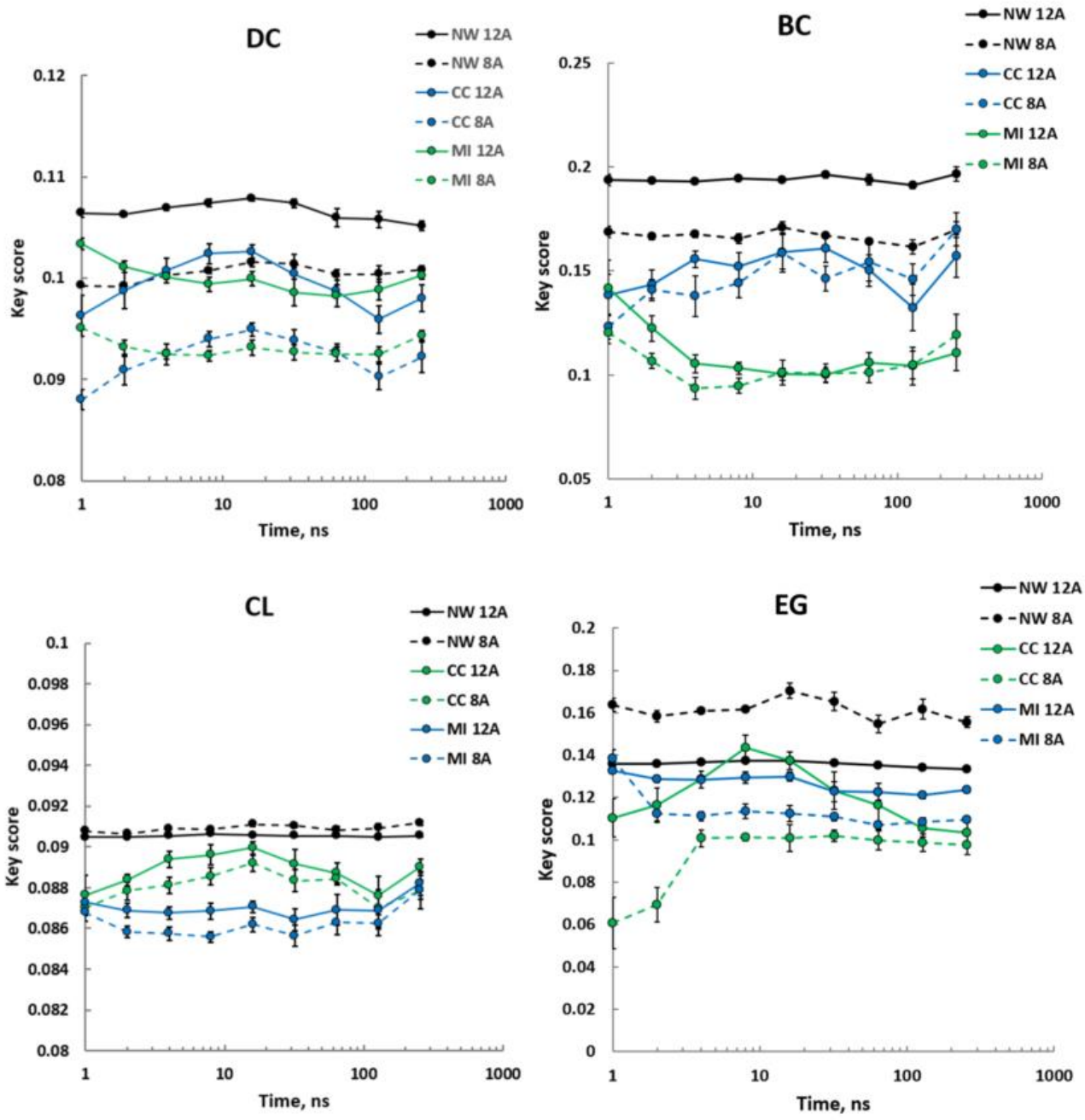

Figure S2. Key scores calculated using Degree centrality (DC), Betweenness centrality (BC), Closeness centrality (CC) and Eigenvector centrality (EG) for Non-weighted (NW) Cross-Correlation based (CC) and Linear Mutual Information based (MI) PRNs using two ΔCαα cutoff levels: 8Å and 12Å. Five consecutive intervals of varying length (X-axis) were used for the calculation. Standard errors are shown. Note the absence of significant increase of the scores for CC and MI-based PRNs. Certain increase was registered for the NW-based scores for DC and BC metrics.

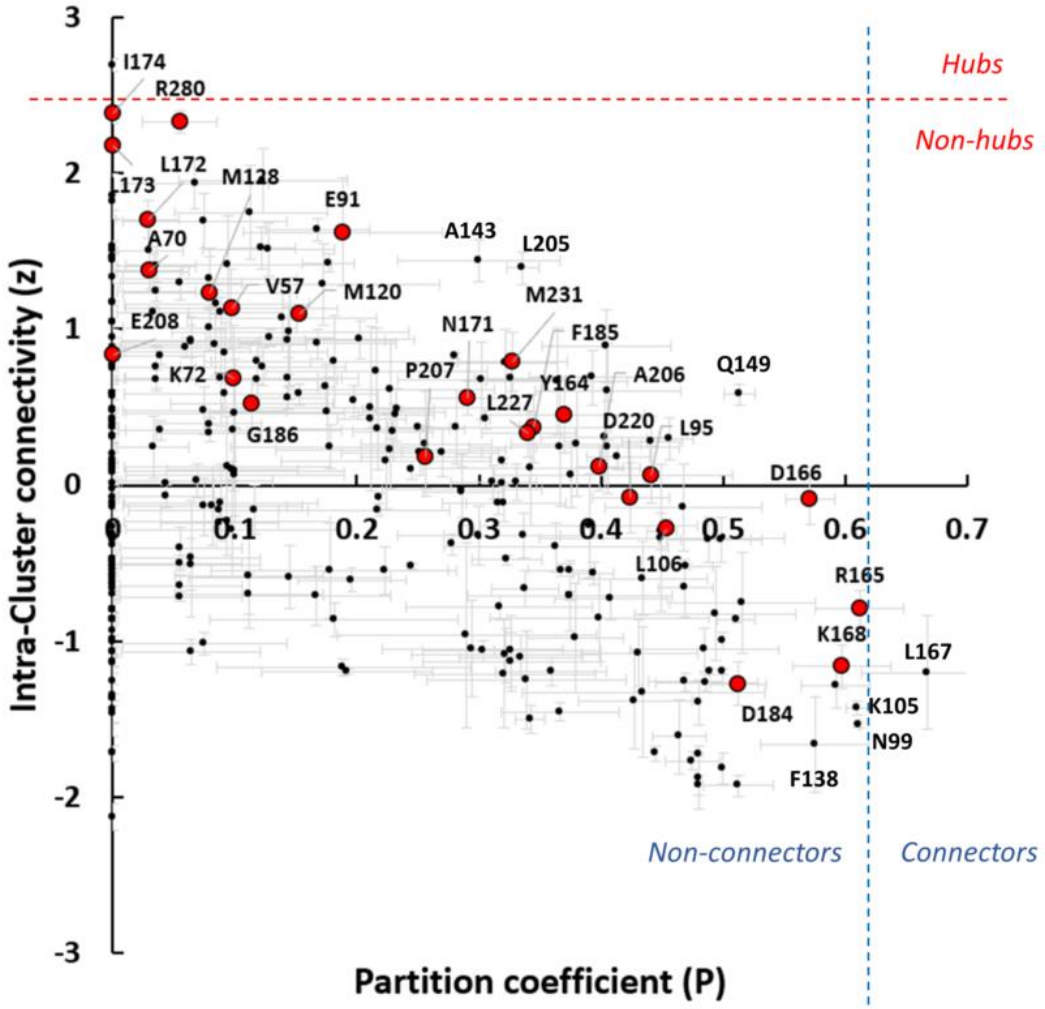

Figure S3. Guimerà and Amaral (60) "cartography" graph for LSP-based PRN. Calculations were made on five 16 ns consecutive intervals at 12Å ΔCαα cutoff level. Standard error bars are shown. 26 Key residues shown as red dots. Red and blue dotted lines show critical values defined by Guimerà and Amaral that distinguish topological characteristics of the network nodes.

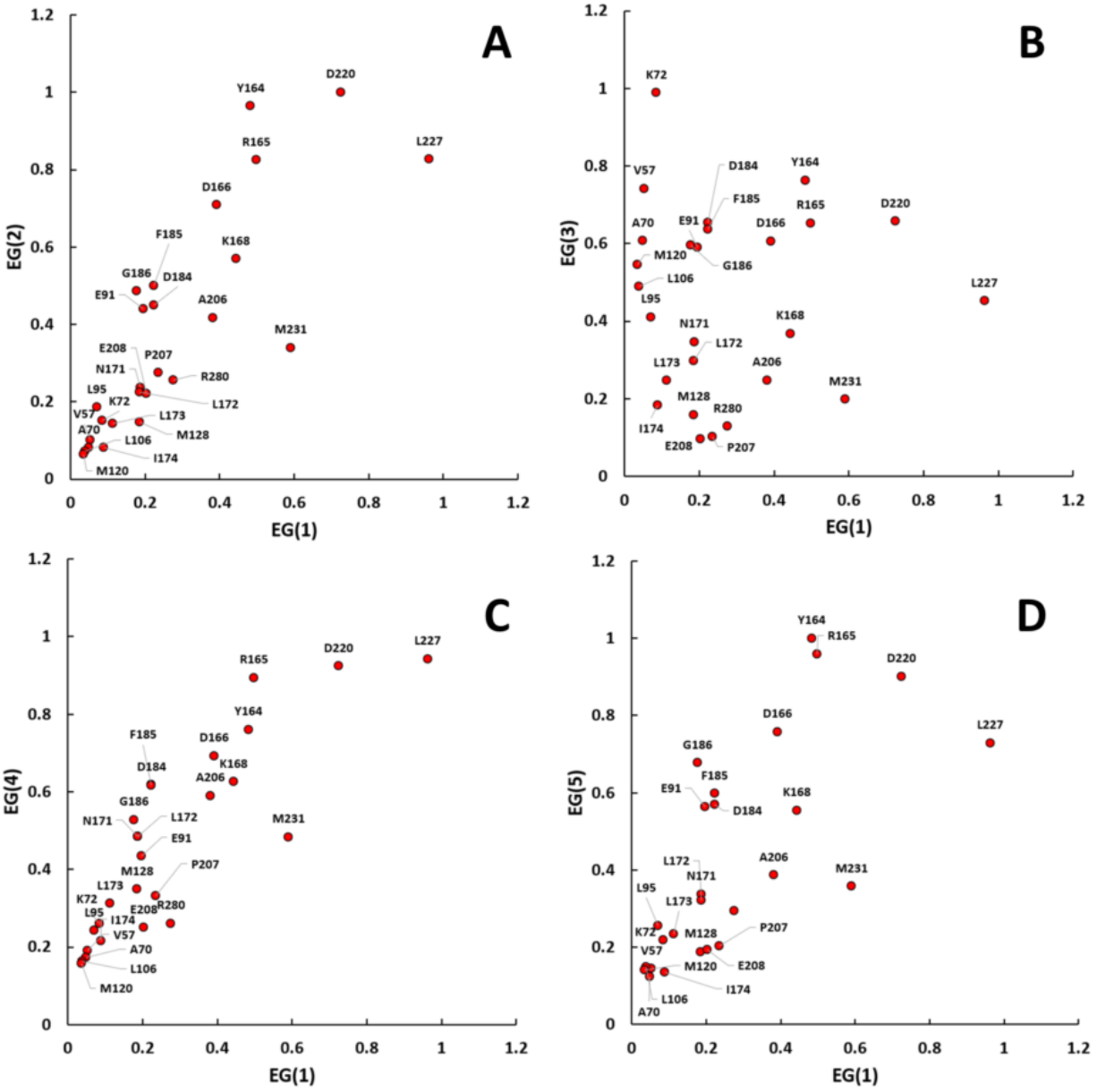

Figure S4. Scatterplots of Eigenvector centralities for the 26 keys residues in five consecutive 16 ns long intervals (EG(1) through EG(5)) in LSP-based PRNs. Values for EG(2)-EG(5) were plotted against EG(1) to visualize consistency of the EG values between the five repetitions. Note the different distribution of points on the EG(3) vs EG(1) plot (B) compared to the other three distributions (A), (C) and (D). While in the (A), (C) and (D) cases all highly scored residues belong to the larger C-lobe, in the (B) case N-lobe residues V57, A70, K72, L95, L106, M120 have very high EG values with the C-lobe residues having reduced EG values. This indicates that in the PRN created from the third interval (EG3) the larges Eigenvalue is associated with the N-lobe while in the other four PRNs it is associated with the C-lobe. Such instability can be associated with the very close values between two largest eigenvalues (Figure 4). Calculations were made at 12Å ΔCαα cutoff level.