

**Supplementary Figure Legend**

**Fig.S1** Average topological properties with error bars of each topological property for eight protein categories. Error bar is standard error.

**Fig.S2** Violin plots of each topological property for eight protein categories.

**Fig.S3** The cumulative fraction distributions of each topological property for eight protein categories.

**Fig.S4** Average biological properties with error bars of each topological property for eight protein categories. Error bar is standard error.

**Fig.S5** Violin plots of each biological property for eight protein categories.

**Fig.S6** The cumulative fraction distributions of each biological property for eight protein categories.