**Supplementary Dataset S5. The normalized centrality** **results.** This dataset presents the mean normalized betweenness and closeness centrality results for the CATH, SCOP and IDPs data. The normalized centralities are computed from the unweighted networks obtained by filtering the CR and nMIR relationship matrices using thresholds .

**CATH data:**

**Mean centrality results for CR Networks:**

**Mainly class:**

**Betweenness centrality:**

1-17 column

1 0 0 1 0.02 0 1 1 0 1 1 0 0.07 1 1 1 1

18-34 column

0.05 0 1 1 1 1 1 0 1 1 1 0 1 1 1 0.07 1

35-51 column

1 1 1 0 1 1 1 1 0 1 0 0 1 1 0 1 1

52-68 column

1 0.07 1 1 1 1 0.05 1 1 0 1 0 1 0 0 0 0

69-85 column

0 0 1 0.02 0 0 0.02 0 0.02 0.02 0 0 0 0.02 0.07 0 0

86-90 column

0 0 0.05 0 0

**Closeness centrality:**

1-17 column

1 0 0 1 0.02 0 1 1 0 1 1 0 0.07 1 1 1 1

18-34 column

0.05 0 1 1 1 1 1 0 1 1 1 0 1 1 1 0.07 1

35-51 column

1 1 1 0 1 1 1 1 0 1 0 0 1 1 0 1 1

52-68 column

1 0.07 1 1 1 1 0.05 1 1 0 1 0 1 0 0 0 0

69-85 column

0 0 1 0.02 0 0 0.02 0 0.02 0.02 0 0 0 0.02 0.07 0 0

86-90 column

0 0 0.05 0 0

**Mainly class:**

**Betweenness centrality:**

1-17 column

1 1 0 1 0.05 0 0 1 0 0 1 0 0 1 0 1 1

18-34 column

0 1 1 1 1 1 1 0.02 1 1 1 0 1 1 1 0.05 1

35-51 column

1 1 1 1 1 1 1 0 1 1 0 0 1 1 0 1 1

52-68 column

1 0.05 1 1 1 1 1 0 1 1 0.02 0 0.02 0 0.05 0 0

69-85 column

0.02 0 0 0 0 0 0.05 0 0.05 0 0 0 0 0 0.05 0 0

86-90 column

0.05 0.05 0 0 0

**Closeness centrality:**

1-17 column

1 1 0 1 0.05 0 0 1 0 0 1 0 0 1 0 1 1

18-34 column

0 1 1 1 1 1 1 0.02 1 1 1 0 1 1 1 0.05 1

35-51 column

1 1 1 1 1 1 1 0 1 1 0 0 1 1 0 1 1

52-68 column

1 0.05 1 1 1 1 1 0 1 1 0.02 0 0.02 0 0.05 0 0

69-85 column

0.02 0 0 0 0 0 0.05 0 0.05 0 0 0 0 0 0.05 0 0

86-90 column

0.05 0.05 0 0 0

**Mixed and class:**

**Betweenness centrality:**

1-17 column

1 0 0 1 0 0 0 1 0 0 1 0 0.11 0 1 0 0

18-34 column

0.03 0 1 1 1 1 1 0 0 1 1 0 1 1 1 0.11 1

35-51 column

1 1 1 0 0 1 1 1 0 1 0 0 1 1 0 1 1

52-68 column

0 0.11 0 1 1 1 0.03 0 1 0.03 1 0 0 0.11 0 0 0

69-85 column

1 0 1 1 0 0 0 0 0 0 0 0 0 1 0.11 0 0

86-90 column

0 0 0.03 0 0

**Closeness centrality:**

1-17 column

1 0 0 1 0 0 0 1 0 0 1 0 0.11 0 1 0 0

18-34 column

0.03 0 1 1 1 1 1 0 0 1 1 0 1 1 1 0.11 1

35-51 column

1 1 1 0 0 1 1 1 0 1 0 0 1 1 0 1 1

52-68 column

0 0.11 0 1 1 1 0.03 0 1 0.03 1 0 0 0.11 0 0 0

69-85 column

1 0 1 1 0 0 0 0 0 0 0 0 0 1 0.11 0 0

86-90 column

0 0 0.03 0 0

**Mean centrality results for nMIR Networks:**

**Mainly class:**

**Betweenness centrality:**

1-17 column

0 0 0 0 0 0 0 0.13 0 0 1 0 0.38 0 0.75 1 0

18-34 column

0 0 0.13 1 0 0 1 0 0 1 0 0 0 1 0 0.38 0

35-51 column

0.75 0 0 0 0 0 1 0 0 0 0.75 0 1 0 0 0 1

52-68 column

0 0.38 0 0.75 0 0 0 0 0 0 0.75 0 0.75 0 0 0 0

69-85 column

0 0 0.75 0.13 0 0 0 0 0 0 0 0 0 0.13 0.38 0 0

86-90 column

0 0 0 0 0

**Closeness centrality:**

1-17 column

0 0 0 0 0 0 0 0.13 0 0 1 0 0.38 0 0.75 1 0

18-34 column

0 0 0.13 1 0 0 1 0 0 1 0 0 0 1 0 0.38 0

35-51 column

0.75 0 0 0 0 0 1 0 0 0 0.75 0 1 0 0 0 1

52-68 column

0 0.38 0 0.75 0 0 0 0 0 0 0.75 0 0.75 0 0 0 0

69-85 column

0 0 0.75 0.13 0 0 0 0 0 0 0 0 0 0.13 0.38 0 0

86-90 column

0 0 0 0 0

**Mainly class:**

**Betweenness centrality:**

1-17 column

1 0 0 1 0.13 0 0 1 0 0 0 0 0 0.07 0 1 0

18-34 column

0.07 0.07 1 0 0 0.07 1 0.13 0 0 1 0 0 1 0 0.13 0

35-51 column

0 1 1 0 0 1 0 0 0 1 0 0 0 1 0 0 1

52-68 column

0 0.13 0.07 0.07 1 0 0 0.07 1 0.07 0.13 0.07 0 0.07 0.13 0 0

69-85 column

0.13 0.07 0 0.07 0.07 0 0 0 0.07 0.13 0 0 0 0 0.13 0 0

86-90 column

0.07 0 0.07 0 0

**Closeness centrality:**

1-17 column

1 0 0 1 0.13 0 0 1 0 0 0 0 0 0.07 0 1 0

18-34 column

0.07 0.07 1 0 0 0.07 1 0.13 0 0 1 0 0 1 0 0.13 0

35-51 column

0 1 1 0 0 1 0 0 0 1 0 0 0 1 0 0 1

52-68 column

0 0.13 0.07 0.07 1 0 0 0.07 1 0.07 0.13 0.07 0 0.07 0.13 0 0

69-85 column

0.13 0.07 0 0.07 0.07 0 0 0 0.07 0.13 0 0 0 0 0.13 0 0

86-90 column

0.07 0 0.07 0 0

**Mixed and class:**

**Betweenness centrality:**

1-17 column

1 0 0 1 0 0 0 1 0.21 0 1 0.05 0.16 0 0 0 0

18-34 column

0 0 1 1 0 0 1 0.21 0 1 1 0 0 1 0 0.16 0

35-51 column

0 1 0 0 0 1 0 0 0 1 0 0 1 1 0.21 0 1

52-68 column

0 0.16 0 0 0 0 0.05 0 1 0 1 0.05 0.21 0.05 0.21 0 0

69-85 column

1 0 1 0.05 0 0 0 0 0 0 0 0 0 0.05 0.16 0 0

86-90 column

0 0 0 0 0

**Closeness centrality:**

1-17 column

1 0 0 1 0 0 0 1 0.21 0 1 0.05 0.16 0 0 0 0

18-34 column

0 0 1 1 0 0 1 0.21 0 1 1 0 0 1 0 0.16 0

35-51 column

0 1 0 0 0 1 0 0 0 1 0 0 1 1 0.21 0 1

52-68 column

0 0.16 0 0 0 0 0.05 0 1 0 1 0.05 0.21 0.05 0.21 0 0

69-85 column

1 0 1 0.05 0 0 0 0 0 0 0 0 0 0.05 0.16 0 0

86-90 column

0 0 0 0 0

**SCOP data:**

**Mean centrality results for CR Networks:**

**All class:**

**Betweenness centrality:**

1-17 column

1 1 0 1 0.05 0 1 1 0 0 1 0 0.05 0 1 1 1

18-34 column

0.05 0 1 1 1 1 1 0 1 1 1 0 1 1 1 0.05 1

35-51 column

1 1 1 1 1 1 1 1 0 1 0 0 1 0 0 1 1

52-68 column

0 0 0 1 1 1 0.05 0 1 1 1 0 1 0 0.05 0 0

69-85 column

0 0 1 0.02 0 0 0.05 0 0 0 0 0 0 0.02 0.05 0 0

86-90 column

0 0 0.05 0 0

**Closeness centrality:**

1-17 column

1 1 0 1 0.05 0 1 1 0 0 1 0 0.05 0 1 1 1

18-34 column

0.05 0 1 1 1 1 1 0 1 1 1 0 1 1 1 0.05 1

35-51 column

1 1 1 1 1 1 1 1 0 1 0 0 1 0 0 1 1

52-68 column

0 0 0 1 1 1 0.05 0 1 1 1 0 1 0 0.05 0 0

69-85 column

0 0 1 0.02 0 0 0.05 0 0 0 0 0 0 0.02 0.05 0 0

86-90 column

0 0 0.05 0 0

**All class:**

**Betweenness centrality:**

1-17 column

1 0 0 1 0.08 0 0 1 0 1 1 0 0 0 0 1 1

18-34 column

0 0 1 1 1 1 1 0 0 1 1 0 1 1 1 0.05 1

35-51 column

1 1 1 1 1 1 1 1 1 1 0.08 0 1 1 0 1 1

52-68 column

1 0.05 1 1 1 1 0 0 1 1 0.05 0 0 0.03 0.08 0 0

69-85 column

0.05 0.03 0 0.03 0.03 0 0.08 0 0.03 0.05 0 0 0 0 0.05 0 0

86-90 column

0 0.03 0 0 0

**Closeness centrality:**

1-17 column

1 0 0 1 0.08 0 0 1 0 1 1 0 0 0 0 1 1

18-34 column

0 0 1 1 1 1 1 0 0 1 1 0 1 1 1 0.05 1

35-51 column

1 1 1 1 1 1 1 1 1 1 0.08 0 1 1 0 1 1

52-68 column

1 0.05 1 1 1 1 0 0 1 1 0.05 0 0 0.03 0.08 0 0

69-85 column

0.05 0.03 0 0.03 0.03 0 0.08 0 0.03 0.05 0 0 0 0 0.05 0 0

86-90 column

0 0.03 0 0 0

**/ class:**

**Betweenness centrality:**

1-17 column

1 0 0 1 0.03 0 0 1 0 0 1 0 0.18 0 1 0 1

18-34 column

0.03 0 1 1 1 1 1 0.18 0 1 1 0 1 1 1 0.18 1

35-51 column

1 1 1 0 0 1 1 1 0 1 0.18 0 1 1 0 0 1

52-68 column

0 0.18 0 1 1 1 0.03 0 1 0.03 1 0 0 0 0.18 0 0

69-85 column

1 0 1 0 0 0 0.03 0 0 0 0 0 0 1 0.18 0 0

86-90 column

0 0 0.03 0 0

**Closeness centrality:**

1-17 column

1 0 0 1 0.03 0 0 1 0 0 1 0 0.18 0 1 0 1

18-34 column

0.03 0 1 1 1 1 1 0.18 0 1 1 0 1 1 1 0.18 1

35-51 column

1 1 1 0 0 1 1 1 0 1 0.18 0 1 1 0 0 1

52-68 column

0 0.18 0 1 1 1 0.03 0 1 0.03 1 0 0 0 0.18 0 0

69-85 column

1 0 1 0 0 0 0.03 0 0 0 0 0 0 1 0.18 0 0

86-90 column

0 0 0.03 0 0

**+ class:**

**Betweenness centrality:**

1-17 column

1 0 1 1 0.05 0 1 1 0 0 1 0 0.10 0 1 1 1

18-34 column

0.08 0 1 1 1 1 1 0.02 0 1 1 1 1 1 1 0.10 1

35-51 column

1 1 1 0 1 1 1 1 1 1 0 0 1 1 0 1 1

52-68 column

1 0.10 1 1 1 1 0.08 1 1 0.08 0.05 0 0.02 0.10 0.05 0 0

69-85 column

0.05 0 0.05 0.02 0 0 0.05 0 0 0 0 0 0 0.02 0.10 0 0

86-90 column

0 0 0.08 0 0

**Closeness centrality:**

1-17 column

1 0 1 1 0.05 0 1 1 0 0 1 0 0.10 0 1 1 1

18-34 column

0.08 0 1 1 1 1 1 0.02 0 1 1 1 1 1 1 0.10 1

35-51 column

1 1 1 0 1 1 1 1 1 1 0 0 1 1 0 1 1

52-68 column

1 0.10 1 1 1 1 0.08 1 1 0.08 0.05 0 0.02 0.10 0.05 0 0

69-85 column

0.05 0 0.05 0.02 0 0 0.05 0 0 0 0 0 0 0.02 0.10 0 0

86-90 column

0 0 0.08 0 0

**Mean centrality results for nMIR Networks:**

**All class:**

**Betweenness centrality:**

1-17 column

0 0 0 0 0 0 0.17 0 0.17 0 0.17 0 0.67 0 0.67 0 0

18-34 column

0.17 0 0 1 0 0 1 0 0 1 0 0 0 1 1 0.67 0

35-51 column

0 0 0 0 0 0 0 0 0 0 0 0 1 0 0.17 0 1

52-68 column

0 0.67 0 0.67 0 0 0 0 0 0 0.67 0 0.67 0.67 0 0 0

69-85 column

0 0 0.67 0.17 0 0 0 0 0 0 0 0 0 0.17 0.67 0 0

86-90 column

0 0 0.17 0 0

**Closeness centrality:**

1-17 column

0 0 0 0 0 0 0.17 0 0.17 0 0.17 0 0.67 0 0.67 0 0

18-34 column

0.17 0 0 1 0 0 1 0 0 1 0 0 0 1 1 0.67 0

35-51 column

0 0 0 0 0 0 0 0 0 0 0 0 1 0 0.17 0 1

52-68 column

0 0.67 0 0.67 0 0 0 0 0 0 0.67 0 0.67 0.67 0 0 0

69-85 column

0 0 0.67 0.17 0 0 0 0 0 0 0 0 0 0.17 0.67 0 0

86-90 column

0 0 0.17 0 0

**All class:**

**Betweenness centrality:**

1-17 column

0 0 0.29 1 0 0 0 0 0 0 0 0 0.43 0 0 1 1

18-34 column

0.29 0 0 0 0 0 1 0 0 0 1 0 0 1 0 0.43 0

35-51 column

0 0 0 0.29 1 1 0 0 0 1 0 0 0 0 0 1 0

52-68 column

0 0.43 1 1 0 0 0 0 1 1 0.14 0 0 0 0 0 0

69-85 column

0.14 0.29 0 0 0.29 0 0 0 1 0 0 0 0 0 0.43 0 0

86-90 column

0 1 0.29 0 0

**Closeness centrality:**

1-17 column

0 0 0.29 1 0 0 0 0 0 0 0 0 0.43 0 0 1 1

18-34 column

0.29 0 0 0 0 0 1 0 0 0 1 0 0 1 0 0.43 0

35-51 column

0 0 0 0.29 1 1 0 0 0 1 0 0 0 0 0 1 0

52-68 column

0 0.43 1 1 0 0 0 0 1 1 0.14 0 0 0 0 0 0

69-85 column

0.14 0.29 0 0 0.29 0 0 0 1 0 0 0 0 0 0.43 0 0

86-90 column

0 1 0.29 0 0

**/ class:**

**Betweenness centrality:**

1-17 column

1 0 0 1 0 0 0 1 0 0 0 0 0.14 0 0 0 0

18-34 column

0.21 0 1 1 0 0 1 0.29 0 0 1 0 0 1 0 0.14 0

35-51 column

0 0 0 0 0 1 0 0 0 0 0.29 0 1 0 0.29 0 1

52-68 column

0 0 0 0 0 0 0.21 0 0 0.21 1 0 0 0.14 0.29 0.14 0

69-85 column

1 0.14 1 0 0 0 0.29 0 0 0 0 0 0 1 0.14 0 0

86-90 column

0 0 0.21 0 0

**Closeness centrality:**

1-17 column

1 0 0 1 0 0 0 1 0 0 0 0 0.14 0 0 0 0

18-34 column

0.21 0 1 1 0 0 1 0.29 0 0 1 0 0 1 0 0.14 0

35-51 column

0 0 0 0 0 1 0 0 0 0 0.29 0 1 0 0.29 0 1

52-68 column

0 0 0 0 0 0 0.21 0 0 0.21 1 0 0 0.14 0.29 0.14 0

69-85 column

1 0.14 1 0 0 0 0.29 0 0 0 0 0 0 1 0.14 0 0

86-90 column

0 0 0.21 0 0

**+ class:**

**Betweenness centrality:**

1-17 column

0.22 0 0 0 0.78 0 1 0.22 0 0 1 0.11 0 0 1 0 0

18-34 column

0.78 0.78 0.22 0 0 0 0 0 0 0 1 0 0 0 0 0.11 0

35-51 column

0 1 1 0 0 0 0 0 0 0 0 0 0 1 0 0 1

52-68 column

0 0 0 0 0 0 0.78 0 1 0.78 0.22 0 1 0.11 0.78 0 0

69-85 column

0.22 0 0.22 0.11 0 0 0.78 0 0 0 0 0 0 0.11 0.11 0 0

86-90 column

0 0 0.78 0 0

**Closeness centrality:**

1-17 column

0.29 0 0 0 1 0 1.29 0.29 0 0 1.29 0.14 0 0 1.29 0 0

18-34 column

1 1 0.29 0 0 0 0 0 0 0 1.29 0 0 0 0 0.14 0

35-51 column

0 1.29 1.29 0 0 0 0 0 0 0 0 0 0 1.29 0 0 1.29

52-68 column

0 0 0 0 0 0 1 0 1.29 1 0.29 0 1.29 0.14 1 0 0

69-85 column

0.29 0 0.29 0.14 0 0 1 0 0 0 0 0 0 0.14 0.14 0 0

86-90 column

0 0 1 0 0

**IDPs data:**

**Mean centrality results for CR Networks:**

**Betweenness centrality:**

1-17 column

0 0 0 0 0 0.05 1 0 0 1 1 1 0 0 0 1 1

18-34 column

0.02 0 1 1 1 1 1 0 1 1 1 0 1 1 1 0 1

35-51 column

1 1 1 0 0.02 1 1 0 0 1 0 1 1 1 0 1 1

52-68 column

1 0 0 1 1 1 0 0 1 0 1 0 0 0 1 0 1

69-85 column

1 0.05 0 0 0 0 0 0.05 0.02 1 0 0 0 0 0 0 1

86-90 column

0.02 0 0.02 0.02 1

Closeness centrality:

1-17 column

0 0 0 0 0 0.05 1 0 0 1 1 1 0 0 0 1 1

18-34 column

0.02 0 1 1 1 1 1 0 1 1 1 0 1 1 1 0 1

35-51 column

1 1 1 0 0.02 1 1 0 0 1 0 1 1 1 0 1 1

52-68 column

1 0 0 1 1 1 0 0 1 0 1 0 0 0 1 0 1

69-85 column

1 0.05 0 0 0 0 0 0.05 0.02 1 0 0 0 0 0 0 1

86-90 column

0.02 0 0.02 0.02 1

**Mean centrality results for nMIR Networks:**

**Betweenness centrality:**

1-17 column

0 0 0.12 0 0.06 0.12 0 0 0.06 0 1 0 0.06 0.06 0 1 1

18-34 column

0.12 0 0 1 0 1 0.06 0 0 0.06 0 0 0 0 0 0 0

35-51 column

0 1 1 0.12 0 1 1 0 0 0 0 0 0 0 0.06 1 1

52-68 column

0 0.06 0.06 0 1 1 0 0 0 0 1 0 0 0 1 0 0.06

69-85 column

1 0.12 0 0 1 0 0.06 0 0 0 0 1 0 0 0 0 0.06

86-90 column

0 0 0.12 0 0

**Closeness centrality:**

1-17 column

0 0 0.12 0 0.06 0.12 0 0 0.06 0 1 0 0.06 0.06 0 1 1

18-34 column

0.12 0 0 1 0 1 0.06 0 0 0.06 0 0 0 0 0 0 0

35-51 column

0 1 1 0.12 0 1 1 0 0 0 0 0 0 0 0.06 1 1

52-68 column

0 0.06 0.06 0 1 1 0 0 0 0 1 0 0 0 1 0 0.06

69-85 column

1 0.12 0 0 1 0 0.06 0 0 0 0 1 0 0 0 0 0.06

86-90 column

0 0 0.12 0 0