**Table S3.** Adjusted *p*-values for tests for multiple comparisons among all methods in the IV-set case.

| Hypothesis | post-hoc procedure | | |
| --- | --- | --- | --- |
| Nemenyi | Holm | Shaffer |
| EBLSHADE versus WW | <1E-13 | <1E-13 | <1E-13 |
| ADELI versus MABC | <1E-13 | <1E-13 | <1E-13 |
| ADELI versus PSO | <1E-13 | <1E-13 | <1E-13 |
| ADELI versus ISCA | <1E-13 | <1E-13 | <1E-13 |
| ADELI versus NNA | <1E-13 | <1E-13 | <1E-13 |
| ADELI versus CWOA | <1E-13 | <1E-13 | <1E-13 |
| ADELI versus WW | <1E-13 | <1E-13 | <1E-13 |
| NDE versus NNA | <1E-13 | <1E-13 | <1E-13 |
| TLBO versus GOTLBO | <1E-13 | <1E-13 | <1E-13 |
| TLBO versus PSO | <1E-13 | <1E-13 | <1E-13 |
| TLBO versus ISCA | <1E-13 | <1E-13 | <1E-13 |
| TLBO versus NNA | <1E-13 | <1E-13 | <1E-13 |
| TLBO versus CWOA | <1E-13 | <1E-13 | <1E-13 |
| STLBO versus GOTLBO | <1E-13 | <1E-13 | <1E-13 |
| STLBO versus PSO | <1E-13 | <1E-13 | <1E-13 |
| STLBO versus NNA | <1E-13 | <1E-13 | <1E-13 |
| STLBO versus CWOA | <1E-13 | <1E-13 | <1E-13 |
| IJAYA versus NNA | 1.61648E-12 | 1.31450E-12 | 1.19016E-12 |
| EBLSHADE versus MABC | 3.75833E-12 | 3.01492E-12 | 2.76712E-12 |
| NDE versus GOTLBO | 4.20286E-12 | 3.32534E-12 | 3.09441E-12 |
| STLBO versus DE | 8.12284E-12 | 6.33760E-12 | 5.98055E-12 |
| IJAYA versus CWOA | 2.31157E-11 | 1.75273E-11 | 1.70193E-11 |
| TLBO versus DE | 4.02505E-11 | 3.00773E-11 | 2.96350E-11 |
| IJAYA versus PSO | 9.52918E-11 | 7.01599E-11 | 7.01599E-11 |
| IJAYA versus ISCA | 1.29115E-09 | 9.36436E-10 | 9.36436E-10 |
| ADELI versus DE | 2.22329E-09 | 1.56363E-09 | 1.41704E-09 |
| EBLSHADE versus GOTLBO | 3.53238E-09 | 2.44550E-09 | 2.25141E-09 |
| NDE versus MABC | 9.68759E-09 | 6.49388E-09 | 6.17451E-09 |
| IJAYA versus WW | 1.72440E-08 | 1.13697E-08 | 1.09907E-08 |
| NDE versus WW | 1.75252E-08 | 1.13697E-08 | 1.11699E-08 |
| EBLSHADE versus DE | 1.82602E-08 | 1.16384E-08 | 1.16384E-08 |
| EBLSHADE versus ISCA | 1.88327E-08 | 1.17963E-08 | 1.16384E-08 |
| EBLSHADE versus PSO | 4.78066E-08 | 2.94194E-08 | 2.94194E-08 |
| ADELI versus GOTLBO | 4.98663E-08 | 3.01390E-08 | 3.01390E-08 |
| EBLSHADE versus CWOA | 7.52618E-08 | 4.46609E-08 | 4.21797E-08 |
| STLBO versus MABC | 8.60481E-08 | 5.01159E-08 | 4.82248E-08 |
| NDE versus ISCA | 9.60138E-08 | 5.48650E-08 | 5.38099E-08 |
| DE versus NNA | 1.60867E-07 | 9.01562E-08 | 9.01562E-08 |
| EBLSHADE versus NNA | 1.68788E-07 | 9.27404E-08 | 9.01562E-08 |
| TLBO versus MABC | 2.16163E-07 | 1.16396E-07 | 1.14020E-07 |
| NDE versus PSO | 4.07575E-07 | 2.14985E-07 | 2.14985E-07 |
| STLBO versus WW | 4.16995E-07 | 2.15371E-07 | 2.15371E-07 |
| TLBO versus WW | 6.32636E-07 | 3.19794E-07 | 3.19794E-07 |
| NDE versus CWOA | 8.17751E-07 | 4.04382E-07 | 4.04382E-07 |
| STLBO versus ISCA | 8.33647E-07 | 4.04382E-07 | 4.04382E-07 |
| DE versus CWOA | 1.47836E-06 | 6.98567E-07 | 6.98567E-07 |
| DE versus PSO | 4.48549E-06 | 2.07023E-06 | 2.07023E-06 |
| DE versus ISCA | 3.33823E-05 | 1.50404E-05 | 1.46735E-05 |
| NDE versus DE | 1.56228E-04 | 6.86718E-05 | 6.86718E-05 |
| DE versus WW | 2.41908E-04 | 1.03675E-04 | 1.03675E-04 |
| IJAYA versus GOTLBO | 7.27786E-04 | 2.95913E-04 | 2.95913E-04 |
| MABC versus NNA | 1.28945E-03 | 5.10114E-04 | 5.10114E-04 |
| ADELI versus NDE | 1.70688E-03 | 6.56493E-04 | 6.56493E-04 |
| MABC versus CWOA | 6.56486E-03 | 2.45281E-03 | 2.45281E-03 |
| MABC versus PSO | 1.46075E-02 | 5.29723E-03 | 5.13671E-03 |
| TLBO versus NDE | 2.83112E-02 | 9.95560E-03 | 9.95560E-03 |
| MABC versus ISCA | 6.08528E-02 | 2.07301E-02 | 2.07301E-02 |
| STLBO versus NDE | 6.70463E-02 | 2.21032E-02 | 2.21032E-02 |
| IJAYA versus MABC | 6.92376E-02 | 2.21032E-02 | 2.21032E-02 |
| GOTLBO versus NNA | 1.07776E-01 | 3.31618E-02 | 3.31618E-02 |
| MABC versus WW | 2.35963E-01 | 6.74180E-02 | 6.74180E-02 |
| GOTLBO versus CWOA | 3.72918E-01 | 1.02450E-01 | 1.02450E-01 |
| DE versus GOTLBO | 4.91746E-01 | 1.29691E-01 | 1.29691E-01 |
| ADELI versus EBLSHADE | 6.43762E-01 | 1.62709E-01 | 1.62709E-01 |
| GOTLBO versus PSO | 6.78807E-01 | 1.64107E-01 | 1.64107E-01 |
| GOTLBO versus ISCA | 1.0 | 4.46263E-01 | 4.46263E-01 |
| TLBO versus EBLSHADE | 1.0 | 8.67680E-01 | 8.67680E-01 |
| DE versus EBLSHADE | 1.0 | 1.0 | 1.0 |
| DE versus ADELI | 1.0 | 1.0 | 1.0 |
| DE versus NDE | 1.0 | 1.0 | 1.0 |
| DE versus MABC | 1.0 | 1.0 | 1.0 |
| DE versus TLBO | 1.0 | 1.0 | 1.0 |
| DE versus STLBO | 1.0 | 1.0 | 1.0 |
| DE versus IJAYA | 1.0 | 1.0 | 1.0 |
| EBLSHADE versus ADELI | 1.0 | 1.0 | 1.0 |
| EBLSHADE versus NDE | 1.0 | 1.0 | 1.0 |
| EBLSHADE versus TLBO | 1.0 | 1.0 | 1.0 |
| EBLSHADE versus STLBO | 1.0 | 1.0 | 1.0 |
| EBLSHADE versus IJAYA | 1.0 | 1.0 | 1.0 |
| ADELI versus TLBO | 1.0 | 1.0 | 1.0 |
| ADELI versus STLBO | 1.0 | 1.0 | 1.0 |
| ADELI versus IJAYA | 1.0 | 1.0 | 1.0 |
| NDE versus EBLSHADE | 1.0 | 1.0 | 1.0 |
| NDE versus ADELI | 1.0 | 1.0 | 1.0 |
| NDE versus TLBO | 1.0 | 1.0 | 1.0 |
| NDE versus STLBO | 1.0 | 1.0 | 1.0 |
| NDE versus IJAYA | 1.0 | 1.0 | 1.0 |
| MABC versus DE | 1.0 | 1.0 | 1.0 |
| MABC versus EBLSHADE | 1.0 | 1.0 | 1.0 |
| MABC versus ADELI | 1.0 | 1.0 | 1.0 |
| MABC versus NDE | 1.0 | 1.0 | 1.0 |
| MABC versus TLBO | 1.0 | 1.0 | 1.0 |
| MABC versus GOTLBO | 1.0 | 1.0 | 1.0 |
| MABC versus STLBO | 1.0 | 1.0 | 1.0 |
| MABC versus IJAYA | 1.0 | 1.0 | 1.0 |
| TLBO versus ADELI | 1.0 | 1.0 | 1.0 |
| TLBO versus STLBO | 1.0 | 1.0 | 1.0 |
| TLBO versus IJAYA | 1.0 | 1.0 | 1.0 |
| GOTLBO versus DE | 1.0 | 1.0 | 1.0 |
| GOTLBO versus EBLSHADE | 1.0 | 1.0 | 1.0 |
| GOTLBO versus ADELI | 1.0 | 1.0 | 1.0 |
| GOTLBO versus NDE | 1.0 | 1.0 | 1.0 |
| GOTLBO versus MABC | 1.0 | 1.0 | 1.0 |
| GOTLBO versus TLBO | 1.0 | 1.0 | 1.0 |
| GOTLBO versus STLBO | 1.0 | 1.0 | 1.0 |
| GOTLBO versus IJAYA | 1.0 | 1.0 | 1.0 |
| GOTLBO versus WW | 1.0 | 1.0 | 1.0 |
| STLBO versus EBLSHADE | 1.0 | 1.0 | 1.0 |
| STLBO versus ADELI | 1.0 | 1.0 | 1.0 |
| STLBO versus TLBO | 1.0 | 1.0 | 1.0 |
| STLBO versus IJAYA | 1.0 | 1.0 | 1.0 |
| PSO versus DE | 1.0 | 1.0 | 1.0 |
| PSO versus EBLSHADE | 1.0 | 1.0 | 1.0 |
| PSO versus ADELI | 1.0 | 1.0 | 1.0 |
| PSO versus NDE | 1.0 | 1.0 | 1.0 |
| PSO versus MABC | 1.0 | 1.0 | 1.0 |
| PSO versus TLBO | 1.0 | 1.0 | 1.0 |
| PSO versus GOTLBO | 1.0 | 1.0 | 1.0 |
| PSO versus STLBO | 1.0 | 1.0 | 1.0 |
| PSO versus IJAYA | 1.0 | 1.0 | 1.0 |
| PSO versus ISCA | 1.0 | 1.0 | 1.0 |
| PSO versus NNA | 1.0 | 1.0 | 1.0 |
| PSO versus CWOA | 1.0 | 1.0 | 1.0 |
| PSO versus WW | 1.0 | 1.0 | 1.0 |
| IJAYA versus DE | 1.0 | 1.0 | 1.0 |
| IJAYA versus EBLSHADE | 1.0 | 1.0 | 1.0 |
| IJAYA versus ADELI | 1.0 | 1.0 | 1.0 |
| IJAYA versus NDE | 1.0 | 1.0 | 1.0 |
| IJAYA versus TLBO | 1.0 | 1.0 | 1.0 |
| IJAYA versus STLBO | 1.0 | 1.0 | 1.0 |
| ISCA versus DE | 1.0 | 1.0 | 1.0 |
| ISCA versus EBLSHADE | 1.0 | 1.0 | 1.0 |
| ISCA versus ADELI | 1.0 | 1.0 | 1.0 |
| ISCA versus NDE | 1.0 | 1.0 | 1.0 |
| ISCA versus MABC | 1.0 | 1.0 | 1.0 |
| ISCA versus TLBO | 1.0 | 1.0 | 1.0 |
| ISCA versus GOTLBO | 1.0 | 1.0 | 1.0 |
| ISCA versus STLBO | 1.0 | 1.0 | 1.0 |
| ISCA versus PSO | 1.0 | 1.0 | 1.0 |
| ISCA versus IJAYA | 1.0 | 1.0 | 1.0 |
| ISCA versus NNA | 1.0 | 1.0 | 1.0 |
| ISCA versus CWOA | 1.0 | 1.0 | 1.0 |
| ISCA versus WW | 1.0 | 1.0 | 1.0 |
| NNA versus DE | 1.0 | 1.0 | 1.0 |
| NNA versus EBLSHADE | 1.0 | 1.0 | 1.0 |
| NNA versus ADELI | 1.0 | 1.0 | 1.0 |
| NNA versus NDE | 1.0 | 1.0 | 1.0 |
| NNA versus MABC | 1.0 | 1.0 | 1.0 |
| NNA versus TLBO | 1.0 | 1.0 | 1.0 |
| NNA versus GOTLBO | 1.0 | 1.0 | 1.0 |
| NNA versus STLBO | 1.0 | 1.0 | 1.0 |
| NNA versus PSO | 1.0 | 1.0 | 1.0 |
| NNA versus IJAYA | 1.0 | 1.0 | 1.0 |
| NNA versus ISCA | 1.0 | 1.0 | 1.0 |
| NNA versus CWOA | 1.0 | 1.0 | 1.0 |
| NNA versus WW | 1.0 | 1.0 | 1.0 |
| CWOA versus DE | 1.0 | 1.0 | 1.0 |
| CWOA versus EBLSHADE | 1.0 | 1.0 | 1.0 |
| CWOA versus ADELI | 1.0 | 1.0 | 1.0 |
| CWOA versus NDE | 1.0 | 1.0 | 1.0 |
| CWOA versus MABC | 1.0 | 1.0 | 1.0 |
| CWOA versus TLBO | 1.0 | 1.0 | 1.0 |
| CWOA versus GOTLBO | 1.0 | 1.0 | 1.0 |
| CWOA versus STLBO | 1.0 | 1.0 | 1.0 |
| CWOA versus PSO | 1.0 | 1.0 | 1.0 |
| CWOA versus IJAYA | 1.0 | 1.0 | 1.0 |
| CWOA versus ISCA | 1.0 | 1.0 | 1.0 |
| CWOA versus NNA | 1.0 | 1.0 | 1.0 |
| CWOA versus WW | 1.0 | 1.0 | 1.0 |
| WW versus DE | 1.0 | 1.0 | 1.0 |
| WW versus EBLSHADE | 1.0 | 1.0 | 1.0 |
| WW versus ADELI | 1.0 | 1.0 | 1.0 |
| WW versus NDE | 1.0 | 1.0 | 1.0 |
| WW versus MABC | 1.0 | 1.0 | 1.0 |
| WW versus TLBO | 1.0 | 1.0 | 1.0 |
| WW versus GOTLBO | 1.0 | 1.0 | 1.0 |
| WW versus STLBO | 1.0 | 1.0 | 1.0 |
| WW versus PSO | 1.0 | 1.0 | 1.0 |
| WW versus IJAYA | 1.0 | 1.0 | 1.0 |
| WW versus ISCA | 1.0 | 1.0 | 1.0 |
| WW versus NNA | 1.0 | 1.0 | 1.0 |
| WW versus CWOA | 1.0 | 1.0 | 1.0 |