**Twin Research and Human Genetics Supplementary Material**

**The Genetic Relationship Between Psychological Distress, Somatic Distress, Affective Disorders and Substance Use in Young Australian Adults: A Multivariate Twin Study**

Lun-Hsien Chang, Baptiste Couvy-Duchesne, Sarah E. Medland, Nathan A. Gillespie, Ian B. Hickie, Richard Parker, and Nicholas G. Martin

**Supplementary Table S1. Number of complete MZ and DZ twin pairs whose twin members are cases (1) or controls (0) for each of the binary psychiatric diagnoses of affective disorders (AD) or substance use (SU). (0,0) means both twin 1 and twin 2 are controls. (0,1) means twin 1 is a control and twin 2 is a case. (1,0) means twin 1 is a case and twin 2 is a control. (1,1) means both twins are cases.**

|  | | | **MZ twin pairs (twin1, twin2)** | | | |  | **DZ twin pairs (twin1, twin2)** | | | |  | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Scale** | **Diagnosis** |  | **(0, 0)** | **(0, 1)** | **(1, 0)** | **(1, 1)** |  | **(0, 0)** | **(0, 1)** | **(1, 0)** | **(1, 1)** |  | **Total twin pairs** | **Total twin individuals** |
| AD | major depressive disorder |  | 258 | 46 | 39 | 27 |  | 328 | 67 | 60 | 20 |  | 845 | 2132 |
|  | | | | | | | | | | | | | | |
|  | agoraphobia |  | 361 | 6 | 3 | 0 |  | 467 | 4 | 4 | 0 |  | 845 | 2132 |
|  | | | | | | | | | | | | | | |
|  | depressive episodes |  | 252 | 49 | 40 | 29 |  | 324 | 69 | 61 | 21 |  | 845 | 2132 |
|  | | | | | | | | | | | | | | |
|  | panic attack |  | 283 | 33 | 35 | 19 |  | 362 | 55 | 49 | 9 |  | 845 | 2132 |
|  | | | | | | | | | | | | | | |
|  | panic disorder |  | 355 | 8 | 6 | 1 |  | 447 | 11 | 17 | 0 |  | 845 | 2132 |
|  | | | | | | | | | | | | | | |
|  | social anxiety |  | 275 | 39 | 34 | 22 |  | 341 | 55 | 63 | 16 |  | 845 | 2132 |
|  | | | | | | | | | | | | | | |
| SU | alcohol use |  | 41 | 24 | 32 | 273 |  | 29 | 43 | 35 | 368 |  | 845 | 2132 |
|  | | | | | | | | | | | | | | |
|  | drug use ever |  | 131 | 44 | 32 | 163 |  | 133 | 89 | 79 | 174 |  | 845 | 2132 |
|  | cannabis use ever |  | 117 | 28 | 22 | 74 |  | 138 | 75 | 59 | 83 |  | 596 | 1663 |
|  | | | | | | | | | | | | | | |
|  | tobacco use ever |  | 103 | 49 | 43 | 175 |  | 130 | 76 | 80 | 189 |  | 845 | 2132 |
|  | | | | | | | | | | | | | | |

**Supplementary Table S2. Tests concerning thresholds (t) and covariances (c) for binary diagnoses in affective disorders (AD) or substance use (SU). The tests compare the fit between the base model and a submodel (H1t- H4c). Modelling results shown are the difference in log-likelihoods. Superscript a indicates p value between 0.001 and 0.01. Superscript b indicates p value < 0.001.**

|  | | | **Homogeneity of thresholds** | | | |  | **Homogeneity of covariances** | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Scale** | **Diagnosis** |  | **H1t** | **H2t** | **H3t** | **H4t** |  | **H1c** | **H2c** | **H3c** | **H4c** |
| AD | major depressive disorder |  | 2.87 | 0.61 | 1.11 | 4.65 |  | 0.59 | 0.06 | 3.74 | 27.14b |
|  | | | | | | | | | | | |
|  | agoraphobia |  | 1.72 | 1.09 | NC | NC |  | 0.66 | -0.00 | 0.00 | NC |
|  | | | | | | | | | | | |
|  | depressive episodes |  | 2.89 | 0.69 | 0.89 | 4.59 |  | 0.37 | 0.00 | 3.98 | 26.90b |
|  | | | | | | | | | | | |
|  | panic attack |  | 1.80 | 1.13 | 0.64 | 0.03 |  | 0.73 | 2.01 | 5.90 | 17.42a |
|  | | | | | | | | | | | |
|  | panic disorder |  | 8.42 | 0.26 | 2.36 | 0.01 |  | 0.22 | 0.00 | 2.45 | 2.83 |
|  | | | | | | | | | | | |
|  | social anxiety |  | 2.95 | 4.73 | 1.29 | 0.01 |  | 3.83 | 0.05 | 4.24 | 23.20b |
|  | | | | | | | | | | | |
| SU | alcohol use |  | 6.44 | 9.24a | 2.10 | 0.01 |  | 1.78 | 4.11 | 2.54 | 113.58b |
|  | | | | | | | | | | | |
|  | drug use ever |  | 6.02 | 2.89 | 2.65 | 0.02 |  | 2.74 | 0.67 | 20.22b | 167.30b |
|  | | | | | | | | | | | |
|  | cannabis use ever |  | 5.81 | 1.79 | 1.61 | 0.06 |  | 5.29 | 0.87 | 16.66b | 104.91b |
|  | | | | | | | | | | | |
|  | tobacco use ever |  | 0.43 | 1.17 | 2.83 | 0.03 |  | 1.97 | 1.43 | 3.47 | 128.77b |
|  | | | | | | | | | | | |
| NC: not calculable | | | | | | | | | | | |

**Supplementary Table S3. Tests concerning means (m), variances (v) and covariances (c) for affective disorder IRT (AD-IRT), psychological (PSYCH6) and somatic distress (SOMA6) subscale, and substance use IRT (SU-IRT). The tests compare the fit between the base model and a submodel (H1m- H4c). Modelling results shown are the difference in log-likelihoods. Superscript a indicates p value between 0.001 and 0.01. Superscript b indicates p value < 0.001.**

|  | | | **Homogeneity of means** | | | |  | **Homogeneity of variances** | | | |  | **Homogeneity of covariances** | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Scale** | **Phenotype** |  | **H1m** | **H2m** | **H3m** | **H4m** |  | **H1v** | **H2v** | **H3v** | **H4v** |  | **H1c** | **H2c** | **H3c** | **H4c** |
| AD | AD-IRT |  | 5.22 | 6.49 | 0.02 | 2.96 |  | 2.66 | 0.50 | 0.16 | 16.75b |  | 1.07 | 0.58 | 14.19b | 38.22b |
|  | | | | | | | | | | | | | | | | |
| PSYCH6 | IRT score |  | 1.29 | 1.67 | 3.54 | 0.00 |  | 0.81 | 0.79 | 0.19 | 0.01 |  | 0.22 | 1.85 | 6.71a | 13.46b |
|  | | | | | | | | | | | | | | | | |
| SOMA6 | IRT score |  | 5.09 | 5.11 | 4.40 | -0.00 |  | 1.72 | 0.01 | 0.75 | 0.02 |  | 4.46 | 0.12 | 10.60a | 15.01b |
|  | | | | | | | | | | | | | | | | |
| SU | SU-IRT |  | 1.33 | 1.50 | 2.97 | 0.03 |  | 0.97 | 0.28 | 0.07 | 0.15 |  | 3.94 | 3.09 | 16.32b | 111.96b |
|  | | | | | | | | | | | | | | | | |

**Supplementary Table S4. Model-fitting results for univariate ACE or ADE models for diagnoses in affective disorders (AD), substance use (SU), psychological (PSYCH6) and somatic distress (SOMA6) subscale. The univariate ADE models and their nested sub-models are shown in blue. Model-fitting statistics are (1) -2LL: twice negative log-likelihood, (2) DF: degrees of freedom, (3) diff DF: difference in degrees of freedom to previous submodel, (4) diffLL: difference in log-likelihood, (5) AIC: Akaike's information criterion, (6) p: p value, (7) CI: confidence interval, (8) A: additive genetic factors, (9) C: common environmental factors, (10) E: unique environmental factors.**

|  | | | | **Goodness-of-fit statistics** | | | | | |  | **Parameter estimates (95% CI)** | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Scale** | **Diagnosis** | **Model** |  | **-2LL** | **DF** | **AIC** | **diff DF** | **diff LL** | **p** |  | **A** | **C/D** | **E** |
| AD | agoraphobia | ACE |  | 206.61 | 2069 | -3931.4 |  |  |  |  | 0.00 ( 0.00-0.66 ) | 0.00 ( 0.00-0.00 ) | 1.00 ( 1.00-1.00 ) |
|  | | | | | | | | | | | | | |
|  |  | **AE** |  | **206.61** | **2070** | **-3933.4** | **1** | **0.00** | **0.999** |  | **0.00 ( 0.00-0.00 )** |  | **1.00 ( 1.00-1.00 )** |
|  | | | | | | | | | | | | | |
|  |  | CE |  | 206.61 | 2070 | -3933.4 | 1 | 0.00 | 1.000 |  |  | 0.00 ( 0.00-0.00 ) | 1.00 ( 1.00-1.00 ) |
|  | | | | | | | | | | | | | |
|  |  | E |  | 206.61 | 2071 | -3935.4 | 2 | -0.00 | 1.000 |  |  |  | 1.00 ( 1.00-1.00 ) |
|  | | | | | | | | | | | | | |
|  | AD-IRT | ADE |  | 8934.85 | 2068 | 4798.85 |  |  |  |  | 0.06 ( 0.00-0.37 ) | 0.28 ( 0.00-0.42 ) | 0.66 ( 0.58-0.75 ) |
|  | | | | | | | | | | | | | |
|  |  | **AE** |  | **8936.80** | **2069** | **4798.80** | **1** | **1.95** | **0.162** |  | **0.32 ( 0.23-0.39 )** |  | **0.68 ( 0.61-0.77 )** |
|  | | | | | | | | | | | | | |
|  |  | E |  | 8987.26 | 2070 | 4847.26 | 2 | 52.41 | 0.000 |  |  |  | 1.00 ( 1.00-1.00 ) |
|  | | | | | | | | | | | | | |
|  | major depressive disorder | ADE |  | 1941.69 | 2069 | -2196.3 |  |  |  |  | 0.26 ( 0.00-0.56 ) | 0.17 ( 0.00-0.59 ) | 0.57 ( 0.41-0.75 ) |
|  | | | | | | | | | | | | | |
|  |  | **AE** |  | **1941.86** | **2070** | **-2198.1** | **1** | **0.16** | **0.685** |  | **0.41 ( 0.24-0.57 )** |  | **0.59 ( 0.43-0.76 )** |
|  | | | | | | | | | | | | | |
|  |  | E |  | 1963.53 | 2071 | -2178.5 | 2 | 21.84 | 0.000 |  |  |  | 1.00 ( 1.00-1.00 ) |
|  | | | | | | | | | | | | | |
|  | depressive episodes | ADE |  | 1986.50 | 2069 | -2151.5 |  |  |  |  | 0.23 ( 0.00-0.55 ) | 0.20 ( 0.00-0.59 ) | 0.57 ( 0.41-0.75 ) |
|  | | | | | | | | | | | | | |
|  |  | **AE** |  | **1986.72** | **2070** | **-2153.3** | **1** | **0.23** | **0.635** |  | **0.41 ( 0.24-0.56 )** |  | **0.59 ( 0.44-0.76 )** |
|  | | | | | | | | | | | | | |
|  |  | E |  | 2008.43 | 2071 | -2133.6 | 2 | 21.93 | 0.000 |  |  |  | 1.00 ( 1.00-1.00 ) |
|  | | | | | | | | | | | | | |
|  | panic attack | ADE |  | 1608.70 | 2069 | -2529.3 |  |  |  |  | 0.00 ( 0.00-0.00 ) | 0.42 ( 0.00-0.60 ) | 0.58 ( 0.40-0.79 ) |
|  | | | | | | | | | | | | | |
|  |  | **AE** |  | **1610.19** | **2070** | **-2529.8** | **1** | **1.50** | **0.221** |  | **0.37 ( 0.17-0.55 )** |  | **0.63 ( 0.45-0.83 )** |
|  | | | | | | | | | | | | | |
|  |  | E |  | 1623.07 | 2071 | -2518.9 | 2 | 14.38 | 0.001 |  |  |  | 1.00 ( 1.00-1.00 ) |
|  | | | | | | | | | | | | | |
|  | panic disorder | ADE |  | 471.43 | 2069 | -3666.6 |  |  |  |  | 0.00 ( 0.00-0.00 ) | 0.32 ( 0.00-0.76 ) | 0.68 ( 0.24-1.00 ) |
|  | | | | | | | | | | | | | |
|  |  | **AE** |  | **471.93** | **2070** | **-3668.1** | **1** | **0.49** | **0.483** |  | **0.23 ( 0.00-0.68 )** |  | **0.77 ( 0.32-1.00 )** |
|  | | | | | | | | | | | | | |
|  |  | E |  | 472.61 | 2071 | -3669.4 | 2 | 1.17 | 0.556 |  |  |  | 1.00 ( 1.00-1.00 ) |
|  | | | | | | | | | | | | | |
|  | social anxiety | ADE |  | 1817.56 | 2069 | -2320.4 |  |  |  |  | 0.16 ( 0.00-0.57 ) | 0.28 ( 0.00-0.62 ) | 0.56 ( 0.38-0.76 ) |
|  | | | | | | | | | | | | | |
|  |  | **AE** |  | **1817.96** | **2070** | **-2322.0** | **1** | **0.40** | **0.528** |  | **0.42 ( 0.23-0.58 )** |  | **0.58 ( 0.42-0.77 )** |
|  | | | | | | | | | | | | | |
|  |  | E |  | 1836.87 | 2071 | -2305.1 | 2 | 19.31 | 0.000 |  |  |  | 1.00 ( 1.00-1.00 ) |
|  | | | | | | | | | | | | | |
| SU | alcohol use | ACE |  | 1655.59 | 2069 | -2482.4 |  |  |  |  | 0.31 ( 0.00-0.69 ) | 0.41 ( 0.07-0.69 ) | 0.29 ( 0.19-0.42 ) |
|  | | | | | | | | | | | | | |
|  |  | AE |  | 1660.98 | 2070 | -2479.0 | 1 | 5.39 | 0.020 |  | 0.75 ( 0.64-0.84 ) |  | 0.25 ( 0.16-0.36 ) |
|  | | | | | | | | | | | | | |
|  |  | CE |  | 1658.13 | 2070 | -2481.9 | 1 | 2.54 | 0.111 |  |  | 0.64 ( 0.54-0.73 ) | 0.36 ( 0.27-0.46 ) |
|  | | | | | | | | | | | | | |
|  |  | E |  | 1763.27 | 2071 | -2378.7 | 2 | 107.68 | 0.000 |  |  |  | 1.00 ( 1.00-1.00 ) |
|  | | | | | | | | | | | | | |
|  | SU-IRT | ACE |  | 8660.64 | 2068 | 4524.64 |  |  |  |  | 0.46 ( 0.24-0.56 ) | 0.03 ( 0.00-0.20 ) | 0.51 ( 0.44-0.59 ) |
|  | | | | | | | | | | | | | |
|  |  | **AE** |  | **8660.75** | **2069** | **4522.75** | **1** | **0.12** | **0.731** |  | **0.49 ( 0.42-0.56 )** |  | **0.51 ( 0.44-0.58 )** |
|  | | | | | | | | | | | | | |
|  |  | CE |  | 8676.96 | 2069 | 4538.96 | 1 | 16.32 | 0.000 |  |  | 0.36 ( 0.30-0.41 ) | 0.64 ( 0.59-0.70 ) |
|  | | | | | | | | | | | | | |
|  |  | E |  | 8788.91 | 2070 | 4648.91 | 2 | 128.28 | 0.000 |  |  |  | 1.00 ( 1.00-1.00 ) |
|  | | | | | | | | | | | | | |
|  | drug use ever | ACE |  | 2640.27 | 2069 | -1497.7 |  |  |  |  | 0.69 ( 0.40-0.85 ) | 0.09 ( 0.00-0.34 ) | 0.22 ( 0.15-0.31 ) |
|  | | | | | | | | | | | | | |
|  |  | **AE** |  | **2640.73** | **2070** | **-1499.3** | **1** | **0.46** | **0.500** |  | **0.79 ( 0.71-0.86 )** |  | **0.21 ( 0.14-0.29 )** |
|  | | | | | | | | | | | | | |
|  |  | CE |  | 2660.50 | 2070 | -1479.5 | 1 | 20.22 | 0.000 |  |  | 0.60 ( 0.52-0.67 ) | 0.40 ( 0.33-0.48 ) |
|  | | | | | | | | | | | | | |
|  |  | E |  | 2804.15 | 2071 | -1337.9 | 2 | 163.87 | 0.000 |  |  |  | 1.00 ( 1.00-1.00 ) |
|  | | | | | | | | | | | | | |
|  | tobacco use ever | ACE |  | 2618.87 | 2069 | -1519.1 |  |  |  |  | 0.31 ( 0.00-0.63 ) | 0.34 ( 0.07-0.59 ) | 0.35 ( 0.25-0.47 ) |
|  | | | | | | | | | | | | | |
|  |  | AE |  | 2625.05 | 2070 | -1514.9 | 1 | 6.18 | 0.013 |  | 0.70 ( 0.60-0.78 ) |  | 0.30 ( 0.22-0.40 ) |
|  | | | | | | | | | | | | | |
|  |  | CE |  | 2622.34 | 2070 | -1517.7 | 1 | 3.47 | 0.062 |  |  | 0.57 ( 0.48-0.65 ) | 0.43 ( 0.35-0.52 ) |
|  | | | | | | | | | | | | | |
|  |  | E |  | 2744.20 | 2071 | -1397.8 | 2 | 125.34 | 0.000 |  |  |  | 1.00 ( 1.00-1.00 ) |
|  | | | | | | | | | | | | | |
|  | alcohol use disorder | ACE |  | 4769.05 | 2067 | 635.05 |  |  |  |  | 0.36 ( 0.05-0.58 ) | 0.12 ( 0.00-0.36 ) | 0.52 ( 0.49-0.63 ) |
|  | | | | | | | | | | | | | |
|  |  | **AE** |  | **4769.96** | **2068** | **633.96** | **1** | **0.91** | **0.341** |  | **0.50 ( 0.40-0.59 )** |  | **0.50 ( 0.41-0.60 )** |
|  | | | | | | | | | | | | | |
|  |  | CE |  | 4774.13 | 2068 | 638.13 | 1 | 5.08 | 0.024 |  |  | 0.38 ( 0.30-0.46 ) | 0.62 ( 0.54-0.70 ) |
|  | | | | | | | | | | | | | |
|  |  | E |  | 4846.92 | 2069 | 708.92 | 2 | 77.87 | 0.000 |  |  |  | 1.00 ( 1.00-1.00 ) |
|  | | | | | | | | | | | | | |
|  | cannabis use disorder | ACE |  | 1985.18 | 2067 | -2148.8 |  |  |  |  | 0.60 ( 0.16-0.83 ) | 0.13 ( 0.00-0.49 ) | 0.27 ( 0.17-0.41 ) |
|  | | | | | | | | | | | | | |
|  |  | **AE** |  | **1985.54** | **2068** | **-2150.5** | **1** | **0.36** | **0.548** |  | **0.74 ( 0.61-0.83 )** |  | **0.26 ( 0.17-0.39 )** |
|  | | | | | | | | | | | | | |
|  |  | CE |  | 1992.43 | 2068 | -2143.6 | 1 | 7.26 | 0.007 |  |  | 0.59 ( 0.46-0.69 ) | 0.41 ( 0.31-0.54 ) |
|  | | | | | | | | | | | | | |
|  |  | E |  | 2057.34 | 2069 | -2080.7 | 2 | 72.16 | 0.000 |  |  |  | 1.00 ( 1.00-1.00 ) |
|  | | | | | | | | | | | | | |
|  | cannabis use ever | ADE |  | 2076.43 | 1611 | -1145.6 |  |  |  |  | 0.74 ( 0.09-0.86 ) | 0.04 ( 0.00-0.71 ) | 0.22 ( 0.13-0.34 ) |
|  | | | | | | | | | | | | | |
|  |  | **AE** |  | **2076.44** | **1612** | **-1147.6** | **1** | **0.02** | **0.902** |  | **0.78 ( 0.66-0.86 )** |  | **0.22 ( 0.14-0.34 )** |
|  | | | | | | | | | | | | | |
|  |  | E |  | 2175.12 | 1613 | -1050.9 | 2 | 98.69 | 0.000 |  |  |  | 1.00 ( 1.00-1.00 ) |
|  | | | | | | | | | | | | | |
| PSYCH6 | IRT score | ADE |  | 6500.77 | 1499 | 3502.77 |  |  |  |  | 0.00 ( 0.00-0.31 ) | 0.27 ( 0.00-0.37 ) | 0.73 ( 0.63-0.85 ) |
|  | | | | | | | | | | | | | |
|  |  | **AE** |  | **6502.19** | **1500** | **3502.19** | **1** | **1.42** | **0.233** |  | **0.23 ( 0.13-0.33 )** |  | **0.77 ( 0.67-0.87 )** |
|  | | | | | | | | | | | | | |
|  |  | E |  | 6520.93 | 1501 | 3518.93 | 2 | 20.16 | 0.000 |  |  |  | 1.00 ( 1.00-1.00 ) |
|  | | | | | | | | | | | | | |
| SOMA6 | IRT score | ADE |  | 6116.77 | 1499 | 3118.77 |  |  |  |  | 0.00 ( 0.00-0.30 ) | 0.29 ( 0.00-0.38 ) | 0.71 ( 0.62-0.82 ) |
|  | | | | | | | | | | | | | |
|  |  | **AE** |  | **6119.51** | **1500** | **3119.51** | **1** | **2.74** | **0.098** |  | **0.25 ( 0.15-0.35 )** |  | **0.75 ( 0.65-0.85 )** |
|  | | | | | | | | | | | | | |
|  |  | E |  | 6141.97 | 1501 | 3139.97 | 2 | 25.20 | 0.000 |  |  |  | 1.00 ( 1.00-1.00 ) |
|  | | | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Supplementary Table S5. Model-fitting results for multivariate models of (1) psychological (PSYCH6r) and (2) somatic (SOMA6-r) distress subscales of the SPHERE12 and (3) affective disorders (ADr) and (4) substance use (SUr) scales. The models included the Cholesky decomposition (Cholesky ACE) and its submodels (Cholesky AE, Cholesky CE and Cholesky E), Independent pathway (IP), IP with 2 common A factors (IP2A), IP with 3 common A factors (IP3A), common pathway (CP), and eight submodels of the IP. Model-fitting statistics are (1) -2LL: twice negative log-likelihood, (2) DF: degrees of freedom, (3) diff DF: difference in degrees of freedom to previous submodel. Best-fitting models (in boldface type) are selected based on AIC.** | | | | | | | | | |
| **Model** | **Base model** | **Compare** | **DF** | **diff DF** | **-2LL** | **diff LL** | **AIC** | **p** |
| 1 | Cholesky ACE |  | 6,354 |  | 26388 |  | 13680 |  |
|  | | | | | | | | |
| 2 | Cholesky ACE | Cholesky AE | 6,364 | 10 | 26389 | 0.94 | 13661 | 0.9999 |
|  | | | | | | | | |
| 3 | Cholesky ACE | Cholesky CE | 6,364 | 10 | 26418 | 30.04 | 13690 | 0.0008 |
|  | | | | | | | | |
| 4 | Cholesky ACE | Cholesky E | 6,374 | 20 | 26536 | 148.11 | 13788 | <.0001 |
|  | | | | | | | | |
| 5 | Cholesky ACE | IP | 6,360 | 6 | 26391 | 3.51 | 13671 | 0.7422 |
|  | | | | | | | | |
| 6 | Cholesky ACE | IP2A | 6,358 | 4 | 26390 | 1.75 | 13674 | 0.7818 |
|  | | | | | | | | |
| 7 | Cholesky ACE | IP3A | 6,356 | 2 | 26391 | 3.44 | 13679 | 0.1795 |
|  | | | | | | | | |
| 8 | Cholesky ACE | CP | 6,366 | 12 | 26397 | 9.34 | 13665 | 0.6737 |
|  | | | | | | | | |
| 9 | IP |  | 6,360 |  | 26391 |  | 13671 |  |
|  | | | | | | | | |
| 10 | IP | IP\_CE\_ACE | 6,364 | 4 | 26402 | 10.93 | 13674 | 0.0274 |
|  | | | | | | | | |
| 11 | IP | IP\_AE\_ACE | 6,364 | 4 | 26393 | 1.56 | 13665 | 0.8151 |
|  | | | | | | | | |
| 12 | IP | IP\_AC\_ACE | 6,364 | 4 | 26514 | 122.94 | 13786 | <.0001 |
|  | | | | | | | | |
| 13 | IP | IP\_E\_ACE | 6,368 | 8 | 26423 | 31.32 | 13687 | 0.0001 |
|  | | | | | | | | |
| 14 | IP | IP\_ACE\_CE | 6,364 | 4 | 26408 | 16.31 | 13680 | 0.0026 |
|  | | | | | | | | |
| 15 | IP | IP\_ACE\_AE | 6,364 | 4 | 26391 | -0.00 | 13663 | 1.0000 |
|  | | | | | | | | |
| 16 | IP | IP\_ACE\_E | 6,368 | 8 | 26420 | 29.08 | 13684 | 0.0003 |
|  | | | | | | | | |
| 17 | IP | IP\_AE\_AE | 6,368 | 8 | 26393 | 1.56 | 13657 | 0.9916 |
|  | | | | | | | | |
| 18 | IP\_ACE\_AE |  | 6,364 |  | 26391 |  | 13663 |  |
|  | | | | | | | | |
| **19** | **IP\_ACE\_AE** | **IP\_AE\_AE** | **6,368** | **4** | **26393** | **1.56** | **13657** | **0.8151** |
|  | | | | | | | | |
| 20 | IP2A |  | 6,358 |  | 26390 |  | 13674 |  |
|  | | | | | | | | |
| 21 | IP2A | IP2A\_CE\_ACE | 6,364 | 6 | 26402 | 12.69 | 13674 | 0.0482 |
|  | | | | | | | | |
| 22 | IP2A | IP2A\_AE\_ACE | 6,362 | 4 | 26391 | 1.10 | 13667 | 0.8946 |
|  | | | | | | | | |
| 23 | IP2A | IP2A\_AC\_ACE | 6,362 | 4 | 26520 | 130.67 | 13796 | <.0001 |
|  | | | | | | | | |
| 24 | IP2A | IP2A\_E\_ACE | 6,368 | 10 | 26423 | 33.08 | 13687 | 0.0003 |
|  | | | | | | | | |
| 25 | IP2A | IP2A\_ACE\_CE | 6,362 | 4 | 26393 | 3.04 | 13669 | 0.5511 |
|  | | | | | | | | |
| 26 | IP2A | IP2A\_ACE\_AE | 6,362 | 4 | 26390 | -0.00 | 13666 | 1.0000 |
|  | | | | | | | | |
| 27 | IP2A | IP2A\_ACE\_E | 6,366 | 8 | 26393 | 3.58 | 13661 | 0.8931 |
|  | | | | | | | | |
| 28 | IP2A | IP2A\_AE\_AE | 6,366 | 8 | 26391 | 1.10 | 13659 | 0.9976 |
|  | | | | | | | | |
| 29 | IP2A\_ACE\_AE |  | 6,362 |  | 26390 |  | 13666 |  |
|  | | | | | | | | |
| 30 | IP2A\_ACE\_AE | IP2A\_AE\_AE | 6,366 | 4 | 26391 | 1.10 | 13659 | 0.8946 |
|  | | | | | | | | |
| 31 | Cholesky AE |  | 6,364 |  | 26389 |  | 13661 |  |
|  | | | | | | | | |
| 32 | Cholesky AE | CP | 6,366 | 2 | 26397 | 8.40 | 13665 | 0.0150 |
|  | | | | | | | | |
| 33 | Cholesky AE | IP\_AE\_AE | 6,368 | 4 | 26393 | 4.14 | 13657 | 0.3872 |
|  | | | | | | | | |
| 34 | Cholesky AE | IP2A\_AE\_AE | 6,366 | 2 | 26391 | 1.91 | 13659 | 0.3848 |
|  | | | | | | | | |