**Supplement 1: Descriptive protein data**

|  |  |  |  |
| --- | --- | --- | --- |
| **Protein** |  **Mean** |  **SD**  | **Completeness** |
| BDNF | 1986.868 | 1552.494 | Complete |
| bFGF | 28.514 | 30.280 | Complete |
| CRP | 3.463 | 4.047 | Complete |
| Eotaxin a | 120.599 | 45.800 | Complete |
| Eotaxin3 | 20.466 | 8.687 | Complete |
| Flt1 | 76.704 | 13.932 | Complete |
| ICAM1 a | 0.596 | 0.210 | Complete |
| IFNy | 5.595 | 6.916 | 1 missing. Imputed LLOD/2 (0.025) |
| IL10 | 0.312 | 0.284 | 1 missing. Imputed LLOD/2 (0.005) |
| IL12 | 176.910 | 108.679 | Complete |
| IL15 | 3.028 | 0.450 | Complete |
| IL16 | 140.836 | 48.305 | Complete |
| IL17 | 2.658 | 1.450 | Complete |
| IL1a | 10.009 | 7.270 | Complete |
| IL6 | 1.019 | 1.565 | Complete |
| IL7 | 3.217 | 2.405 | Complete |
| IL8 | 3.781 | 3.653 | Complete |
| IP10 | 309.590 | 201.340 | Complete |
| MCP1 | 83.744 | 30.190 | Complete |
| MCP4 | 85.490 | 21.639 | Complete |
| Mip1a | 22.570 | 12.725 | Complete |
| Mip1b | 53.320 | 26.102 | Complete |
| Plgf | 5.551 | 1.769 | Complete |
| SAA a | 6.272 | 7.704 | Complete |
| TARC | 60.826 | 66.340 | 5 missing. Imputed LLOD/2 (0.085) |
| Tie2 | 7262.932 | 2061.002 | Complete |
| TNFa | 2.368 | 1.175 | Complete |
| TNFb | 0.355 | 0.347 | 2 missing. Imputed LLOD/2 (0.02) |
| VCAM1 a | 0.601 | 0.239 | Complete |
| VEGFC | 69.480 | 43.133 | Complete |
| VEGFD | 308.629 | 82.420 | Complete |
| VEGF | 93.967 | 69.276 | Complete |

Proteins with >20% undetected: GMCSF, IL-12p70, IL-13, IL-1b, IL-2, IL-4, IL-5, IFNa.

SD = standard deviation, LLOD = lower limit of detection.

a pg/ml converted to mg/L. All other protein levels expressed as pg/ml

**Supplement 2: Protein comparisons with non-biological factors**

1. *Continuous comparisons (Spearman’s correlations)*

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Biomarker** | **Age** | **Meds.** | **BMI** | **HR-QOL** | **Episodes**  | **HAMD** | **YMRS** | **FAST** | **HAMA** | **CTQ** |
| BDNF | rp | -0.0870.576 | -0.3500.020 \*\* | 0.2100.181 | -0.0780.615 | -0.1420.358 | -0.2390.119 | 0.0210.894 | -0.1970.199 | 0.0030.986 | -0.1580.307 |
| bFGF | rp | 0.0090.952 | -0.0640.678 | 0.2120.178 | 0.1100.475 | -0.0590.704 | -0.1860.226 | -0.1660.282 | -0.1040.503 | 0.1740.259 | -0.0580.709 |
| IL-16 | rp | 0.0680.660 | 0.1100.478 | -0.0170.914 | 0.4030.007 \*\*\* | -0.1210.436 | 0.0620.692 | 0.0850.582 | 0.0610.692 | 0.1540.318 | 0.2620.086\* |
| IL-6 | rp | 0.02170.158 | 0.1060.491 | 0.1780.259 | 0.4450.002 \*\*\* | 0.0530.734 | 0.2280.137 | 0.2290.135 | 0.4940.001\*\*\*\* | 0.1790.244 | 0.2180.154 |
| IL-7 | rp | -0.0190.905 | -0.2590.090 \* | 0.1640.300 | -0.0220.887 | -0.1630.290 | -0.2090.174 | -0.0790.612 | -0.1350.383 | 0.0600.697 | -0.2150.162 |
| Mip1b | rp | 0.1600.298 | 0.0750.627 | 0.2410.124 | 0.1250.418 | 0.0350.823 | -0.0590.703 | -0.0110.946 | 0.1830.235 | -0.1780.249 | 0.0910.559 |
| PlGF | rp | 0.604<.001\*\*\*\* | 0.3320.028\*\* | -0.0420.793 | 0.2610.087\* | 0.1550.316 | 0.1520.325 | 0.0090.956 | 0.1530.321 | 0.1150.457 | -0.0730.637 |
| TNFb | rp | -0.1710.267 | 0.0570.712 | -0.2520.108 | -0.0680.661 | -0.3240.032\*\* | 0.0600.700 | -0.1320.392 | 0.1520.325 | 0.0950.538 | -0.0340.828 |
| VEGFC | rp | 0.0930.548 | 0.1090.482 | 0.050.755 | 0.0650.676 | -0.0580.708 | 0.0620.688 | -0.1100.476 | 0.2010.192 | 0.2170.158 | -0.1120.469 |

1. *Dichotomous comparisons (independent samples t test)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Biomarker** | **Gender***(female / male)* | **Bipolar type***(type II / type I)* | **Physical illness***(yes / no)* | **Smoking***(no / yes)* | **Alcohol***(higher / lower)* |
| *BDNF* | tap [95%CI] | 0.0350.973 [-0.243, 0.252] | -1.6770.101 [-0.298, 0.028] | -1.3830.174 [-0.277, 0.052] | 0.454 0.652 [-0.143, 0.227] | -1.0250.311 [-0.250, 0.082] |
| *bFGF* | tp [95%CI] | -0.7640.449 [-0.395, 0.178] | -1.0350.307 [-0.375, 0.121] | -0.4870.629 [-0.332, 0.202] | 0.1480.883 [-0.274, 0.317] | 0.6090.546 [-0.186, 0.347] |
| *IL-16* | tp [95%CI] | -0.5250.603 [-0.117, 0.069] | -2.158 \*\*0.037 [-0.169, -0.006] | 0.6630.511 [-0.058, 0.114] | -0.0040.997 [-0.095, 0.095] | -0.3900.699 [-0.103, 0.069] |
| *IL-6* | tap [95%CI] | 0.7150.479 [-0.160, 0.335] | -1.5680.124 [-0.369, 0.046] | 1.716 \*0.094 [-0.031, 0.375] | -2.509 \*\*0.016 [-0.534, -0.058] | -0.1070.915 [-0.243, 0.219] |
| *IL-7* | tap [95%CI] | 0.1860.853 [-0.189, 0.228] | -1.4160.164 [-0.322, 0.056] | -1.4440.156 [-0.324, 0.054] | 1.0690.291 [-0.099, 0.322] | -0.6120.545 [-0.027, 0.146] |
| *Mip1b* | tap [95%CI] | -3.205 \*\*\*0.003 [-0.274, -0.062] | -0.6410.525 [-0.144, 0.074] | -1.1170.270 [-0.168, 0.048] | 1.285 0.206 [-0.043, 0.194] | 1.6250.112 [-0.021, 0.192] |
| *PlGF* | tap [95%CI] | -2.556 \*\*0.014 [-0.178, -0.021] | -1.0030.322 [-0.116, 0.039] | -0.7830.438 [-0.108, 0.047] | 2.942 \*\*\*0.006 [0.028, 0.153] | 1.3520.189 [-0.029, 0.141] |
| *TNFb* | tap [95%CI] | 0.1760.861 [-0.237, 0.282] | -0.5990.552 [-0.311, 0.169] | -0.7910.433 [-0.333, 0.145] | 0.0010.999 [-0.266, 0.266] | 0.2060.837 [-0.216, 0.265] |
| *VEGFC* | tap [95%CI] | -0.3060.761 [-0.172, 0.127] | -0.6290.533 [-0.167, 0.088] | -0.1650.870 [-0.150, 0.128] | -0.4760.637 [-0.189, 0.117] | -0.2860.776 [-0.159, 0.119] |

\* = p<0.1, \*\* = p<0.05, \*\*\* = p<0.01, \*\*\*\* = p<0.001

BDNF = brain derived neurotrophic factor, bFGF = basic fibroblast growth factor, IL = interleukin, Mip1b = macrophage inflammatory protein 1b, PlGF = placental growth factor, TNFb = tumour necrosis factor beta, VEGFC = vascular endothelial growth factor C. Meds = number of medications currently taken, BMI = body mass index, HR-QOL = health-related quality of life (EQ5D score), episodes = number of lifetime affective episodes, HAMD = subsyndromal depressive symptom severity, YMRS = subsyndromal manic symptom severity, FAST = functional impairment, HAMA = anxiety severity, CTQ = childhood trauma severity.

A: directionality of association is denoted by positive/negative correlation and direction of abbreviations explained above.

B: directionality of association is denoted via the header (positive/negative) whereby a positive t value indicates higher in women, bipolar type II, physically ill participants, non-smokers, higher alcohol intake and a negative t value denotes the reverse direction of association.

**Supplement 3: Inter-correlations between proteins**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Biomarker** |  | BDNF | bFGF | IL-16 | IL-6 | IL-7 | Mip1b | PlGF | TNFb | VEGFC |
| BDNF | *r* |   |   |   |   |   |   |   |   |   |
| *p* |   |   |   |   |   |   |   |   |   |
| bFGF | *r* | 0.548 |   |   |   |   |   |   |   |   |
| *p* | <0.001 \*\*\* |   |   |   |   |   |   |   |   |
| IL-16 | *r* | 0.212 | 0.362 |   |   |   |   |   |   |   |
| *p* | 0.168 | 0.016\* |   |   |   |   |   |   |   |
| IL-6 | *r* | 0.008 | 0.131 | 0.223 |   |   |   |   |   |   |
| *p* | 0.96 | 0.395 | 0.146 |   |   |   |   |   |   |
| IL-7 | *r* | 0.789 | 0.660 | 0.288 | -0.110 |   |   |   |   |   |
| *p* | <0.001 \*\*\* | <0.001 \*\*\* | 0.058 | 0.479 |   |   |   |   |   |
| Mip1b | *r* | 0.137 | 0.062 | 0.054 | 0.096 | 0.155 |   |   |   |   |
| *p* | 0.374 | 0.690 | 0.729 | 0.536 | 0.314 |   |   |   |   |
| PlGF | *r* | -0.034 | 0.300 | 0.490 | 0.108 | 0.225 | 0.320 |   |   |   |
| *p* | 0.827 | 0.048 \* | 0.001 \*\*\* | 0.484 | 0.141 | 0.034 \* |   |   |   |
| TNFb | *r* | -0.004 | 0.097 | 0.371 | 0.001 | 0.248 | 0.058 | 0.170 |   |   |
| *p* | 0.981 | 0.532 | 0.013 \* | 0.996 | 0.105 | 0.709 | 0.269 |   |   |
| VEGFC | *r* | 0.481 | 0.589 | 0.395 | 0.092 | 0.687 | 0.142 | 0.378 | 0.349 |   |
| *p* | 0.001\*\*\* | <0.001 \*\*\* | 0.008 \*\* | 0.554 | <0.001 \*\*\* | 0.357 | 0.011 \* | 0.02 \* |   |

\* = p<0.05, \*\* = 0<0.01, \*\*\* = p<0.001

BDNF = brain derived neurotrophic factor, bFGF = basic fibroblast growth factor, IL = interleukin, Mip1b = macrophage inflammatory protein 1b, PlGF = placental growth factor, TNFb = tumour necrosis factor beta, VEGFC = vascular endothelial growth factor C.

**Supplement 4: Post-hoc sensitivity analysis after removal of two participants with inflammatory conditions / medications**

The results that were affected after removing these two participants comprised:

1. IL-6 was no longer potentially associated with impairment group (p = 0.133)
2. TNFb was no longer potentially associated with impairment group (p = 0.141)
3. bFGF was no longer potentially associated with impairment group (p = 0.156) although remained associated with continuous cognitive performance.
4. IL-16 was no longer potentially associated with impairment group (p = 0.175) although remained associated with continuous cognitive performance.
5. Two additional cytokines were now associated with bipolar subtype at p < 0.1, higher in those with BD type I: BDNF t(40) = 1.938, p = 0.055; IL-7 t(40) = 1.755, p = 0.084
6. IL-6 was no longer associated with physical illness (p = 0.181).
7. PlGF was no longer associated with health-related quality of life (p = 0.187).

**Table A: Multivariable logistic regressions predicting cognitive impairment group (akin to table 3)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Biomarker** | **Model r2**  | **Model X2** | **Model p**  | **IVs** | **IV OR**  | **95% CI** | **p** | **Notes** |
| BDNF | 0.305 | 10.865 | **0.012** | BDNFN medications**Smoking**  | 0.2241.2877.939 | 0.013, 3.7390.908, 1.8231.459, 43.20 | 0.2460.122**0.002** | Almost identical results to n=44; table 3 and results unaffected by adding bipolar subtype (the latter non-significant). |
| bFGF | 0.232 | 8.002 | 0.018 | bFGF **Smoking** | 0.3286.063 | 0.062, 1.7291.302, 28.23 | 0.202**0.013** | Almost identical results to n=44; table 3 |
| IL-16a | 0.276 | 9.712 | 0.084 | IL-16HRQOLCTQBipolar type**Smoking** | 0.0960.7011.0111.0638.719 | 0.000, 46.040.385, 1.2770.965, 1.0600.226, 4.9941.493, 50.92 | 0.5750.3570.6730.948**0.011** | Almost identical results to n=44; table 3 |
| IL-6 | 0.400 | 14.904 | **0.011** | IL-6**HRQOL****Smoking** Physical illness**FAST** | 2.5870.4278.7510.3001.096 | 0.199, 33.580.217, 0.8391.128, 67.880.054, 1.6770.979, 1.226 | 0.412**0.002****0.033**0.160**0.078** | NB IL-6 no longer associated with cognition in univariate tests. Model almost identical results to n=44 (table 3) though smoking was not previously significant; FAST was previously significant). Removing physical illness as a covariate did not much affect findings although FAST was no longer associated. |
| IL-7 | 0.446 | 17.029 | **<0.001** | **IL-7**N medications**Smoking** | 0.0251.2567.856 | 0.001, 0.5180.869, 1.8161.214, 50.83 | **0.009**0.286**0.004** | Almost identical results to n=44; table 3 and results unaffected by adding bipolar subtype (the latter non-significant). |
| Mip1b | 0.268 | 9.391 | 0.025 | Mip1bGender**Smoking** | 0.0211.0665.297 | 0.000, 2.3960.203, 5.5981.095, 25.63 | 0.1010.919**0.016** | Overall model slightly more explanatory than n=44 (table 3); individual IVs almost identical. |
| PlGF a | 0.544 | 21.940 | **0.001** | **PlGF****N medications**HRQOL Gender**Smoking** Age | 0.0001.8010.5811.51321.041.073 | 0.000, 0.3131.089, 2.9800.309, 1.0900.177, 12.951.815, 243.80.972, 1.185 | **0.018** **0.010**0.0700.626**0.005**0.202 | Overall model slightly more explanatory than n=44 (table 3); individual IVs similar without change in significance thresholds. Removing HRQOL as a covariate reduced the overall model strength (r2 = 0.479) with PlGF, number of medications and smoking remaining independently associated.  |
| TNFb | 0.262 | 9.156 | **0.027** | **TNFb**N episodes**Smoking** | 0.2200.9896.869 | 0.033, 1.4490.951, 1.0291.391, 33.93 | **0.057**0.558**0.011** | NB TNFb no longer associated with cognition in univariate tests. Model almost identical results to n=44 (table 3) although TNFb no longer statistically significant (was p = 0.03).  |
| VEGFC | 0.320 | 11.474 | **0.003** | **VEGFC****Smoking** | 0.0268.967 | 0.001, 0.7171.535, 52.40 | **0.008****0.004** | Almost identical results to n=44; table 3 |

Multivariable logistic regressions did not indicate a significant concern of collinearity within any of the models (Hosmer-Lemeshow test). NB the p values provided are following bootstrapping. Bold text indicates significance at p < 0.05.

IV = independent variables, OR = odds ratio, CI = confidence interval, BDNF = brain derived neurotrophic factor, bFGF = basic fibroblast growth factor, IL = interleukin, Mip1b = macrophage inflammatory protein 1b, PlGF = placental growth factor, TNFb = tumour necrosis factor beta, VEGFC = vascular endothelial growth factor C, n = number, HR-QOL = health-related quality of life (EQ5D score), FAST = functional impairment, CTQ = childhood trauma severity.

a For underpowered models (those containing > 1 IV per 10 participants i.e. >4 IV’s in total), regressions were re-run only containing covariates that were significant at p < 0.05 (between inflammatory and non-biological, or cognitive and non-biological) i.e. IL-16 (removing CTQ) and PlGF (removing number of medications), although the latter overall model was weakened by this removal.

**Table B: Multivariable linear regressions predicting global cognitive performance (akin to table 4)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Biomarker** | **Model adjusted r2** | **Model F** | **Model p**  | **IVs** | **IV s*Beta*** | **95% CI** | **p** | **Notes** |
| BDNF | 0.015 | 1.207 | 0.320 | BDNFN medicationsFAST | 0.089-0.122-0.189 | -0.529, 0.788-0.113, 0.048-0.035, 0.007 | 0.5130.4310.210 | Almost identical results to n=44; table 4 and results unaffected by adding bipolar subtype (the latter non-significant). |
| bFGF | 0.124 | 3.913 | **0.028** | **bFGF** **FAST** | 0.325-0.246 | 0.091, 0.834-0.034, 0.001 | **0.017****0.072** | Similar results to n=44 (table 4) but FAST no longer significant at p < 0.05 (p = 0.037). |
| IL-16a | 0.080 | 1.712 | 0.157 | IL-16HRQOLCTQBipolar type**FAST** | 0.2490.234-0.118-0.031-0.373 | -0.573, 2.902-0.111, 0.318-0.017, 0.014-0.462, 0.388-0.044, -0.004 | 0.2480.4470.5930.861**0.030** | Almost identical results to n=44; table 4 |
| IL-6 | 0.062 | 1.538 | 0.203 | IL-6HRQOLSmoking Physical illness**FAST** | -0.0560.4180.105-0.177-0.383 | -0.616, 0.669-0.043, 0.335-0.358, 0.703-0.530, 0.181-0.049, -0.003 | 0.7490.0990.6050.256**0.028** | NB IL-6 no longer associated with cognition in univariate tests. Model almost identical results to n=44 (table 4). Removing physical illness as a covariate did alter findings.  |
| IL-7 | 0.154 | 3.482 | **0.025** | **IL-7**N medicationsFAST | 0.377-0.064-0.202 | 0.290, 1.297-0.098, 0.070-0.033, 0.006 | **0.007**0.6640.146 | Almost identical results to n=44 (table 4). Results largely unaffected by adding bipolar subtype (although model strength reduced to p=0.055; BD subtype non-significant). |
| Mip1b | 0.006 | 1.085 | 0.367 | Mip1bGenderFAST | 0.115-0.035-0.269 | -0.884, 1.522-0.515, 0.333-0.038, 0.006 | 0.4930.8140.086 | Model similar to n=44 (table 4) although FAST no longer significant at p < 0.05 (was p = 0.028). |
| PlGF | 0.186 | 2.335 | **0.046** | **PlGF**N medicationsHRQOL GenderSmoking AgeFAST | 0.438-0.1990.3290.0210.141-0.318-0.321 | 0.724, 4.696-0.151, 0.041-0.018, 0.252-0.396, 0.484-0.313, 0.642-0.036, 0.006-0.043, 0.002 | **0.036**0.2500.0850.8950.4490.1820.064 | Model similar to n=44 (table 4) although FAST no longer significant at p < 0.05 (was p = 0.039). Removing HRQOL as a covariate reduced the overall model strength (adj r2 = 0.121, p = 0.101) with PlGF reduced to a trend (p = 0.051).  |
| TNFb | 0.031 | 1.433 | 0.248 | TNFbN episodesFAST | 0.2070.018-0.292 | -0.381, 0.775-0.011, 0.017-0.044, 0.000 | 0.2330.9100.068 | NB TNFb no longer associated with cognition in univariate tests. Model almost identical results to n=44 (table 4) but FAST no longer significant at p < 0.05 (was p = 0.031). |
| VEGFC | 0.168 | 5.145 | **0.010** | **VEGFC****FAST** | 0.392-0.329 | 0.388, 1.899-0.042, -0.004 | **0.009****0.021** | Almost identical results to n=44 (table 4). |

Multivariable linear regressions did not indicate a significant concern of collinearity within any of the models (Durbin-Watson value between 1 and 3.) Bold text indicates significance at p < 0.05.

IV = independent variables, sBeta = standardized beta value, CI = confidence interval, BDNF = brain derived neurotrophic factor, bFGF = basic fibroblast growth factor, IL = interleukin, Mip1b = macrophage inflammatory protein 1b, PlGF = placental growth factor, TNFb = tumour necrosis factor beta, VEGFC = vascular endothelial growth factor C, n = number, HR-QOL = health-related quality of life (EQ5D score), FAST = functional impairment, CTQ = childhood trauma severity.

a For underpowered models (those containing > 1 IV per 10 participants i.e. >4 IV’s in total), regressions were re-run only containing covariates that were significant at p < 0.05 (between inflammatory and non-biological, or cognitive and non-biological) i.e. IL-16 (removing CTQ) and PlGF (removing number of medications), with these not significantly affecting results.

**Supplement 5: Inflammatory associations with individual cognitive tests**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Processing speed**  | **Working memory** | **Verbal learning** | **Verbal memory** | **Executive functioning** | **Verbal fluency** |
| *Digit symbol substitution test1* | *Symbol search1* | *Digit span1* | *Verbal paired associates I2* | *Verbal paired associates II2* | *The hotel test3* | *Matrix Reasoning4* | *FAS test5* |
| BDNF | r | 0.077 | 0.289 | -0.033 | 0.207 | 0.297 | 0.195 | 0.134 | -0.213 |
|  | p | 0.617 | 0.057 | 0.832 | 0.177 | 0.050\* | 0.205 | 0.387 | 0.165 |
| bFGF | r | 0.219 | 0.317 | 0.270 | 0.300 | 0.340 | 0.131 | 0.266 | -0.020 |
|  | p | 0.153 | 0.036\* | 0.076 | 0.048\* | 0.024\* | 0.396 | 0.081 | 0.897 |
| IL-16 | r | 0.221 | 0.301 | -0.130 | 0.302 | 0.326 | 0.229 | 0.192 | -0.016 |
|  | p | 0.150 | 0.047\* | 0.401 | 0.046\* | 0.031\* | 0.135 | 0.213 | 0.917 |
| IL-6 | r | -0.185 | -0.095 | -0.164 | 0.059 | 0.004 | -0.274 | -0.215 | -0.144 |
|  | p | 0.230 | 0.540 | 0.288 | 0.704 | 0.980 | 0.072 | 0.161 | 0.352 |
| IL-7 | r | 0.321 | 0.405 | 0.257 | 0.339 | 0.429 | 0.238 | 0.286 | 0.015 |
|  | p | 0.033\* | 0.006\*\* | 0.093 | 0.025\* | 0.004\*\* | 0.120 | 0.060 | 0.922 |
| Mip1b | r | 0.049 | 0.043 | 0.172 | 0.030 | -0.037 | 0.067 | -0.026 | -0.005 |
|  | p | 0.753 | 0.779 | 0.263 | 0.845 | 0.810 | 0.667 | 0.865 | 0.977 |
| PlGF | r | 0.198 | 0.171 | 0.096 | 0.055 | 0.037 | 0.178 | 0.088 | 0.193 |
|  | p | 0.198 | 0.268 | 0.537 | 0.722 | 0.814 | 0.247 | 0.571 | 0.210 |
| TNFb | r | 0.223 | 0.223 | 0.006 | 0.051 | -0.007 | 0.106 | 0.012 | 0.023 |
|  | p | 0.146 | 0.145 | 0.970 | 0.744 | 0.967 | 0.492 | 0.936 | 0.883 |
| VEGFC | r | 0.256 | 0.416 | 0.310 | 0.230 | 0.258 | 0.070 | 0.232 | 0.100 |
|  | p | 0.094 | 0.005\*\* | 0.041\* | 0.133 | 0.091 | 0.653 | 0.130 | 0.517 |

\* = p<0.05, \*\* = 0<0.01

*1* Wechsler Adult Intelligence Scale (WAIS), *2* Wechsler Memory Scale (WMS), *3* Hotel Test of multitasking and planning, *4* Wechsler Abbreviated Scale of Intelligence (WASI), *4* Delis-Kaplan executive function system.

BDNF = brain derived neurotrophic factor, bFGF = basic fibroblast growth factor, IL = interleukin, Mip1b = macrophage inflammatory protein 1b, PlGF = placental growth factor, TNFb = tumour necrosis factor beta, VEGFC = vascular endothelial growth factor C.