

## ADDITIONAL FILE 1

### **Blood-brain barrier and gut barrier dysfunction in chronic kidney disease with a focus on circulating biomarkers and tight junction proteins**

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**Figure S2:** Self-assessed depression and serum concentration of biomarker in haemodialysis patients; (A) brain-derived neurotrophic factor (BDNF), (B) neuron-specific enolase (NSE), (C) trimethylamine N-oxide (TMAO). The number of samples (n) that each analyte was detected in is noted for each group. Data presented at median and interquartile range.

**Figure S3:** Sex difference in serum concentration of biomarkers in deceased haemodialysis patients; (A) brain-derived neurotrophic factor (BDNF), (B) neuron-specific enolase (NSE), (C) trimethylamine N-oxide (TMAO). The number of samples (n) that each analyte was detected in is noted for each group. Data presented at median and interquartile range.

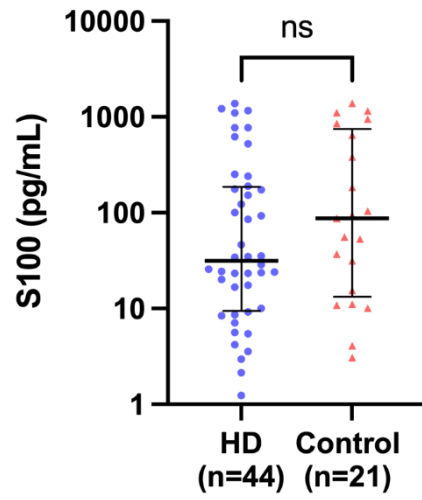
**Table S1:** Sex disaggregated serum concentrations of measured biomarkers in haemodialysis (HD) and non-CKD controls.

|              | Non-CKD control                |                               | <i>p</i> -value | HD                            |                              | <i>p</i> -value |
|--------------|--------------------------------|-------------------------------|-----------------|-------------------------------|------------------------------|-----------------|
|              | Females                        | Males                         |                 | Females                       | Males                        |                 |
| BDNF, ng/mL  | 21.5 (16.4 – 26.8), [n = 23]   | 19.4 ( 16.7 – 24.1), [n = 49] | 0.52            | 13.9 (6.5 – 18.9), [n = 89]   | 14.1 (9.5 – 19.4), [n = 113] | 0.48            |
| NSE, ng/mL   | 3.7 (3.0 – 4.3), [n = 24]      | 3.4 (2.9 – 4.4), [n = 56]     | 0.75            | 5.3 (4.4 – 6.7), [n = 91]     | 5.4 (4.4 – 6.5), [n = 116]   | 0.93            |
| S100B, pg/mL | 616.9 (54.9 – 1028.8), [n = 8] | 53.2 (11.1 – 104.5), [n = 13] | 0.13            | 46.2 (23.4 – 240.8), [n = 17] | 24.0 (7.1 – 174.4), [n = 27] | 0.12            |
| TMAO, ng/μL  | 0.33 (0.26 – 0.51), [n = 24]   | 0.48 (0.35 – 0.64), [n = 56]  | <b>0.036*</b>   | 6.3 (4.1 – 8.6), [n = 66]     | 6.7 (4.0 – 12.7), [n = 88]   | 0.24            |

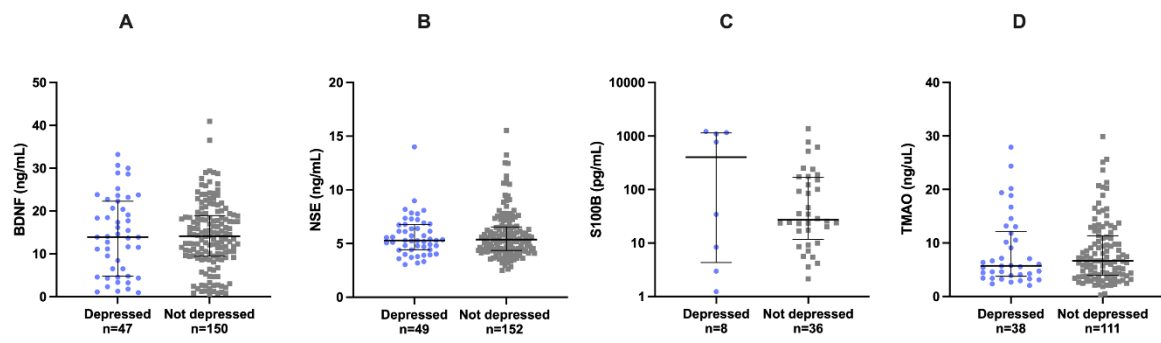
Data are presented as median and quartile range (Q1 – Q3).

Statistical comparisons between sexes in each group were performed by non-parametric Mann-Whitney *U* test, \**p* < 0.05.

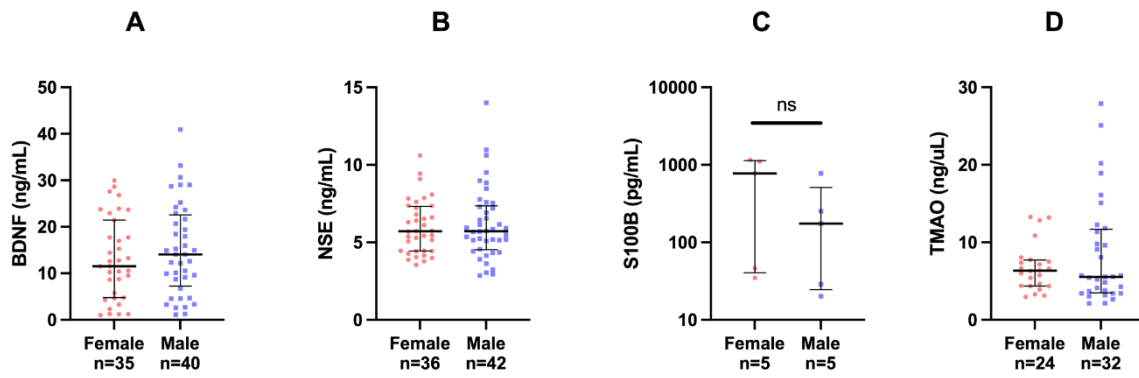
BDNF – brain-derived neurotrophic factor; CKD – chronic kidney disease; HD – haemodialysis; NSE – neuron-specific enolase; TMAO – trimethylamine N-oxide.



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**Figure S2:** Self-assessed depression and serum concentration of biomarker in haemodialysis patients; (A) brain-derived neurotrophic factor (BDNF), (B) neuron-specific enolase (NSE), (D) calcium-binding protein B (S100B) (D) trimethylamine N-oxide (TMAO). The number of samples (n) that each analyte was detected in is noted for each group. Data presented at median and interquartile range.



**Figure S3:** Sex difference in serum concentration of biomarkers in deceased haemodialysis patients; (A) brain-derived neurotrophic factor (BDNF), (B) neuron-specific enolase (NSE), (C) calcium-binding protein B (S100B), (D) trimethylamine N-oxide (TMAO). The number of samples (n) that each analyte was detected in is noted for each group. Data presented at median and interquartile range.