**SUPPLEMENTARY TABLES**

Supplementary Table 1. Characteristics of human brain frontal cortex samples. Post mortem interval (PMI).

| Case No. | Age, yr | Gender | PMI, hr | Clinical diagnosis | Braak α-synuclein stage | Brain region              |
|----------|---------|--------|---------|-------------------|--------------------------|---------------------------|
| 1-014    | 72      | female | 4       | PD                | 6                        | medial frontal gyrus      |
| 2-078    | 88      | female | 4       | PD                | 6                        | medial frontal gyrus      |
| 3-126    | 83      | female | 4       | PD                | 6                        | medial frontal gyrus      |
| 4-010    | 82      | male   | 6       | PD                | 6                        | medial frontal gyrus      |
| 5-029    | 67      | male   | 5       | PD                | 6                        | medial frontal gyrus      |
| 6-106    | 81      | male   | 5       | PD                | 6                        | medial frontal gyrus      |
| C1       | 85      | male   | 6       | -                 | -                        | medial frontal gyrus      |
| C2       | 70      | male   | 8       | -                 | -                        | medial frontal gyrus      |
| C3       | 70      | male   | 6       | -                 | -                        | medial frontal gyrus      |
| C4       | 82      | female | 6       | -                 | -                        | medial frontal gyrus      |
| C5       | 78      | female | 6       | -                 | -                        | medial frontal gyrus      |
| C6       | 63      | female | 7       | -                 | -                        | medial frontal gyrus      |
| gene | sample | sequence 5' - 3' |
|------|--------|-----------------|
| Mag  | rat    | AACTGCACCTGCTTCTCACG |
|      | rat    | ACGATGTGGGGGTGTTGAT |
| Fa2h | rat    | TTCTCAGAACTGTCTGGTAGT |
|      | rat    | CTGGGTGAGGTCGCTGAGT |
| Mog  | rat    | CTAAGGAAACCTGGCAGCAT |
|      | rat    | TCTGCACGGATTCTTCGCTC |
| Plp1 | rat    | CCAATGGGCAGATGCTGTG |
|      | rat    | AGGTCATTGGAACTCGGCT |
| Ugt8 | rat    | GCCAAAGGGATGGGATCTT |
|      | rat    | GCCCTCGGCGATAACTGG |
| Gpr37| rat    | GTGCTCATATCGAGGTAGCTT |
|      | rat    | TACATCTGAGTGGTGTCGC |
| MAG  | human  | GGCTCAATGTCATGTAGTC |
|      | human  | GAATTAGGGTCCGGGCTTC |
| FA2H | human  | GTGTCCCCATCATCGGGTG |
|      | human  | GCCACCGTGTACTCTGGTA |
| MOG  | human  | AGGGAAAAGGTGACTTCAGGA |
|      | human  | GCCTACCCAGTAGAAAGGTTCCTTC |
| PLP1 | human  | CTACACTGTTTCCCTGCTCAC |
|      | human  | AAGGGGATTTCTACGCGG |
| UGT8 | human  | TGTCTGTTGGAAGCAAGG |
|      | human  | TGTATGGGCTGCTCTGGTA |
| GPR37| human  | GTGCCCTATATCGAGGTCG |
|      | human  | ACATCTGTACGGTGGCAGA |
| P1k  | rat    | AGCTCCTGAAAGTAAACTC |
|      | rat    | TGCCCTAGCTGACTAAC |
| P1hb | rat    | GAATAGGAAACGCGCAG |
|      | rat    | CACGAACTGTCACCTGACC |
| PGK1 | human  | GAATGGGAAGCTGGTCCCG |
|      | human  | GCAGTGTCCTCCACCCAT |
| SDHA | human  | CTCCTGAGTACATGGTG |
|      | human  | GGAGGACTTATCTCCAGC |