**Supplementary Table 1.** Clinical data of the patients and healthy controls

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| SampleID | PATHID | PMHOURS | PATHDX | SEX | AGE | onsetAge | APOE | BRAAK1 | BRAAK.combo | MFTANGLES | IPTANGLES | STTANGLES | HPTANGLES | MFPLAQUES | IPPLAQUES | STPLAQUES | HPPLAQUES | SUM\_TANGLES | EDUCATION | BLESSED | DURATION | MMSE | DRS | Sample | MappingRate | RIN |
| E\_4920\_OL\_RNA\_S1 | 4920 |   | Alzheimers | M | 67 | 60 | 34 | 6 | 6.3 | 7 | 6 | 12 | 10 | 50 | 50 | 50 | 25 | 35 | 14 | 33 | 8 | 0 | 60 | EOL1 | 0.406 | 2.9 |
| E\_5273\_OL\_RNA\_S75 | 5273 | 10 | Alzheimers | M | 41 | 35 | 33 | 6 | 6.2 | 19 | 19 | 7 | 22 | 43 | 50 | 44 | 46 | 67 | 16 | 6 | 6 |   | 81 | EOL12 | 0.408 | 3.6 |
| L\_5342\_OL\_RNA\_S95 | 5342 | 10 | Alzheimers | F | 83 | 76 | 33 | 6 | 6.2 | 4 | 4 | 6 | 17 | 24 | 21 | 35 | 8 | 31 | 20 | 16 | 5 | 18 | 88 | LOL11 | 0.395 | 2.1 |
| L\_5425\_OL\_RNA\_S39 | 5425 | 6 | Alzheimers | F | 80 | 73 | 34 | 6 | 6.2 | 5 | 8 | 8 | 17 | 50 | 50 | 34 | 16 | 38 | 16 | 30 | 8 | 0 | 58 | LOL15 | 0.325 | 2.5 |
| L\_5492\_OL\_RNA\_S78 | 5492 | 6 | Alzheimers | M | 79 | 72 | 33 | 6 | 6.2 | 5 | 4 | 4 | 18 | 48 | 43 | 35 | 13 | 31 | 12 | 16 | 7 | 21 | 114 | LOL16 | 0.333 | 3.3 |
| L\_5566\_OL\_RNA\_S92 | 5566 | 6 | Alzheimers | M | 84 | 72 | 33 | 6 | 6.2 | 4 | 5 | 26 | 26 | 41 | 43 | -4 | 9 | 61 | 12 | 21 | 12 | 16 | 91 | LOL19 | 0.37 | 3.1 |
| L\_5569\_OL\_RNA\_S9 | 5569 | 2 | Alzheimers | M | 87 | 76 | 34 | 6 | 6.2 | 2 | 3 | 5 | 24 | 50 | 50 | 31 | 10 | 34 | 10 | 21 | 12 | 16 | 109 | LOL20 | 0.403 | 1.4 |
| L\_5017\_OL\_RNA\_S87 | 5017 | 8 | Alzheimers | F | NA | 73 | 34 | 6 | 6.2 | 6 | 6 | 10 | 17 | 50 | 50 | 50 | 45 | 39 | 16 | 4 | 8 | 28 | 121 | LOL3 | 0.373 | 2.7 |
| L\_5197\_OL\_RNA\_S20 | 5197 | NA | Alzheimers | M | 79 | 75 | 34 | 6 | 6.2 | 3 | 6 | 6 | 24 | 50 | 50 | 47 | 17 | 39 | 12 | 17 | 5 | 18 | 111 | LOL6 | 0.406 | 2.7 |
| L\_5252\_OL\_RNA\_S19 | 5252 | 6 | Alzheimers | M | 83 | 72 | 34 | 6 | 6.2 | 6 | 7 | 16 | 29 | 38 | 50 | 33 | 9 | 58 | 16 | 6 | 11 |   | 43 | LOL7 | 0.398 | 2 |
| L\_5275\_OL\_RNA\_S57 | 5275 | 12 | Alzheimers | F | 85 | 78 | 33 | 6 | 6.2 | 4 | 7 | 11 | 6 | 40 | 32 | 50 | 15 | 28 |   | 6 |   |   | 81 | LOL9 | 0.486 | 3.1 |
| E\_5618\_OL\_RNA\_S62 | 5618 | 13 | Alzheimers | F | 68 | 58 | 33 | 6 | 6.2 | 8 | 10 | 10 | 22 | 50 | -4 | 50 | 33 | 50 | 16 | 15 | 10 | 15 | 90 | EOL5 | 0.31 | 3.2 |
| E\_5107\_OL\_RNA\_S98 | 5107 | 6 | Alzheimers | F | 46 | 35 | 33 | 6 | 6.2 | 11 | 11 | 12 | 26 | 50 | 39 | 26 | 47 | 60 | 12 | 6 | 7 |   | 5 | EOL8 | 0.248 | 1.8 |
| E\_5333\_OL\_RNA\_S25 | 5333 | 10 | Alzheimers | M | 72 | 57 | 34 | 6 | 6.3 | 13 | 9 | 17 | 39 | 50 | 50 | 50 | 24 | 78 | 16 | 6 | 14 |   | 9 | EOL13 | 0.385 | 1.9 |
| E\_5337\_OL\_RNA\_S12 | 5337 | 7 | Alzheimers | F | 61 | 49 | 34 | 6 | 6.2 | 6 | 6 | 10 | 5 | 50 | 45 | 27 | 20 | 27 | 19 | 32 | 11 | 2 | 33 | EOL14 | 0.338 | 2 |
| E\_5419\_OL\_RNA\_S14 | 5419 | 6 | Alzheimers | M | 46 | 37 | 33 | 6 | 6.3 | 23 | 12 | 19 | 53 | 50 | 50 | 50 | 50 | 107 | 14 | 6 | 13 |   | 102 | EOL15 | 0.261 | 1.3 |
| E\_5454\_OL\_RNA\_S21 | 5454 | 12 | Alzheimers | F | 71 | 57 | 33 | 6 | 6.2 | 3 | 3 | 2 | 18 | 49 | 37 | 35 | 29 | 26 | 12 | 18 | 14 | 21 | 119 | EOL16 | 0.375 | 1.6 |
| E\_5537\_OL\_RNA\_S76 | 5537 | 4 | Alzheimers | M | 65 | 54 | 33 | 6 | 6.2 | 8 | 10 | 12 | 8 | 50 | 50 | 27 | 10 | 38 | 16 | 33 | 11 | 0 | 23 | EOL17 | 0.342 | 2.1 |
| E\_5585\_OL\_RNA\_S6 | 5585 | 6 | Alzheimers | M | 69 | 58 | 34 | 6 | 6.2 | 24 | 19 | 21 | 20 | 50 | 50 | 50 | 22 | 84 | 18 | 32 | 12 | 1 | 34 | EOL18 | 0.405 | 2.1 |
| E\_5020\_OL\_RNA\_S79 | 5020 | 18 | Alzheimers | M | 68 | 58 | 33 | 6 | 6.2 | 4 | 5 | 5 | 35 | 50 | -4 | 50 | 24 | 49 | 13 | 33 | 11 | 0 | 34 | EOL19 | 0.395 | 1.7 |
| E\_4988\_OL\_RNA\_S16 | 4988 | 8 | Alzheimers | M | 65 | 52 | 34 | 6 | 6.2 | 11 | 8 | 10 | 41 | 50 | 50 | 50 | 24 | 70 | 12 | 33 | 12 | 0 | 25 | EOL3 | 0.353 | 2.4 |
| E\_5113\_OL\_RNA\_S23 | 5113 | NA | Alzheimers | F | 60 | 51 | 34 | 6 | 6.3 | 16 | 15 | 13 | 26 | 50 | 50 | 50 | 17 | 70 | 16 | 32 | 11 | 0 | 34 | EOL9 | 0.39 | 2.9 |
| L\_5594\_OL\_RNA\_S65 | 5594 | 5 | Alzheimers | F | 83 | 78 | 33 | 6 | 6.2 | 2 | 6 | 9 | 8 | 50 | 50 | 43 | 25 | 25 | 12 | 31 | 5 | 6 | 66 | LOL21 | 0.373 | 2.8 |
| L\_5147\_OL\_RNA\_S22 | 5147 | 8 | Alzheimers | F | 78 | 72 | 34 | 6 | 6.3 | 5 | 6 | 5 | 34 | 50 | 50 | 50 | 26 | 50 | 14 | 33 | 7 | 1 | 7 | LOL5 | 0.391 | 2.3 |
| L\_4950\_OL\_RNA\_S64 | 4950 | NA | Alzheimers | F | 82 | 71 | 34 | 6 | 6.2 | 7 | 8 | 66 | 66 | 50 | 50 | 50 | 15 | 147 | 14 | 29 | 11 | 5 | 25 | LOL1 | 0.318 | 2 |
| L\_5303\_OL\_RNA\_S24 | 5303 | 5 | Alzheimers | M | 83 | 72 | 34 | 6 | 6.2 | 3 | 11 | 6 | 26 | 50 | 50 | 50 | 32 | 46 | 14 | 33 | 11 | 4 | 44 | LOL10 | 0.326 | 1.3 |
| L\_5366\_OL\_RNA\_S5 | 5366 | 8 | Alzheimers | M | 85 | 71 | 33 | 6 | 6.2 | 8 | 12 | 20 | 34 | 50 | 50 | 50 | 17 | 74 | 12 | 33 | 12 | 0 | 82 | LOL12 | 0.307 | 1 |
| L\_5376\_OL\_RNA\_S61 | 5376 | 39 | Alzheimers | F | 85 | 74 | 34 | 6 | 6.2 | 6 | 5 | 5 | 6 | 50 | 50 | 48 | 12 | 22 | 14 | 32 |   | 1 | 80 | LOL13 | 0.275 | 1.7 |
| L\_5526\_OL\_RNA\_S100 | 5526 | 4 | Alzheimers | M | 85 | 76 | 33 | 6 | 6.2 | 6 | 3 | 3 | 17 | 46 | 47 | 35 | 21 | 29 | 18 | 23 | 11 | 16 | 90 | LOL17 | 0.34 | 3.5 |
| L\_4964\_OL\_RNA\_S32 | 4964 | 14 | Alzheimers | M | 86 | 75 | 33 | 6 | 6.2 | 5 | 4 | 8 | 26 | 50 | 50 | 43 | 9 | 43 | 12 | 31 | 12 | 3 | 34 | LOL2 | 0.3 | 1.4 |
| L\_5065\_OL\_RNA\_S37 | 5065 | 6 | Alzheimers | M | 80 | 72 | 34 | 6 | 6.2 | 7 | 4 | 4 | 18 | 50 | 50 | 50 | 16 | 33 |   | 6 |   |   | 34 | LOL4 | 0.376 | 2.2 |
| L\_5269\_OL\_RNA\_S30 | 5269 | 12 | Alzheimers | M | 83 | 73 | 34 | 6 | 6.2 | 3 | 9 | 6 | 20 | 35 | 35 | 47 | 17 | 38 | 13 | 6 | 15 |   | 34 | LOL8 | 0.502 | 2.2 |
| E\_4934\_OL\_RNA\_S40 | 4934 | NA | Alzheimers | M | 69 | 58 | 33 | 6 | 6.3 | 8 | 6 | 11 | 24 | 50 | 50 | 50 | 25 | 49 | 12 | 33 | 11 | 0 | 34 | EOL2 | 0.226 | 2.1 |
| E\_5047\_OL\_RNA\_S43 | 5047 | 9 | Alzheimers | F | 69 | 57 | 33 | 6 | 6.2 | 4 | 6 | 6 | 3 | 50 | 50 | 27 | 6 | 19 | 16 | 33 | 13 | 0 | 32 | EOL6 | 0.115 | 1.7 |
| E\_5082\_OL\_RNA\_S80 | 5082 | NA | Alzheimers | M | 46 | 40 | 33 | 6 | 6.2 | 6 | 9 | 3 | 3 | 50 | 50 | 50 | 50 | 21 | 12 | 33 | 6 | 0 | 34 | EOL7 | 0.181 | 1.6 |
| E\_5184\_OL\_RNA\_S46 | 5184 | 8 | Alzheimers | M | 60 | 53 | 34 | 6 | 6.2 | 7 | 11 | 4 | 9 | 50 | 50 | 43 | 15 | 31 | 12 | 32 | 8 | 0 | 26 | EOL10 | 0.39 | 1.9 |
| E\_5240\_OL\_RNA\_S73 | 5240 | 8 | Alzheimers | M | 52 | 44 | 33 | 6 | 6.2 | 12 | 15 | 21 | 42 | 50 | 50 | 27 | 18 | 90 |   | 85 | 8 | 3 | 32 | EOL11 | 0.404 | 1.7 |
| E\_5000\_OL\_RNA\_S58 | 5000 | 13 | Alzheimers | F | 74 | 60 | 33 | 6 | 6.3 | 3 | 11 | 12 | 34 | 50 | 50 | 50 | 33 | 60 | 14 | 7 | 14 | 23 | 34 | EOL4 | 0.378 | 2.7 |
| L\_5394\_OL\_RNA\_S4 | 5394 | 4 | Alzheimers | F | 81 | 73 | 33 | 6 | 6.2 | 4 | 10 | 10 | 8 | 41 | 50 | 46 | 10 | 32 | 20 | 33 | 8 | 0 | 108 | LOL14 | 0.443 | 1.4 |
| C\_5628\_OL\_RNA\_S44 | 5628 | 12 | Healthy | F | 80 |   | 33 | 1 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | COL9 | 0.339 | 2.2 |
| C\_5114\_OL\_RNA\_S69 | 5114 | NA | Healthy | M | 87 |   | 23 | 1 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | COL7 | 0.374 | 2.6 |
| C\_4942\_OL\_RNA\_S90 | 4942 | NA | Healthy | M | 83 |   | 33 | 0 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | COL2 | 0.375 | 2.6 |
| C\_4954\_OL\_RNA\_S28 | 4954 | NA | Healthy | M | 76 |   | 33 | 0 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | COL3 | 0.392 | 2.3 |
| C\_5709\_OL\_RNA\_S18 | 5709 | 12 | Healthy | M | 94 |   | NA | 2 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | COL10 | 0.393 | 2.5 |
| C\_5070\_OL\_RNA\_S60 | 5070 | 12 | Healthy | F | 97 |   | 33 | 1 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | COL6 | 0.416 | 2.4 |
| C\_4870\_OL\_RNA\_S68 | 4870 | 8 | Healthy | F | 63 |   | NA | 1 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | COL1 | 0.425 | 2.5 |
| C\_5248\_OL\_RNA\_S82 | 5248 | 18 | Healthy | F | 93 |   | 33 | 1 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | COL8 | 0.494 | 2.3 |