

## **Supplementary materials**

As the FALS-causative genes, *SOD1*, *FUS*, *TARDBP*, *ALS2*, *VAPB*, *SETX*, *SPG11*, *OPTN*, *VCP*, *UBQLN2*,

*SIGMAR1*, *PFN1*, *ERBB4*, *HNRNPA1*, *MATR3*, *TUBA4A*, *TBK1*, and *KIF5A* were analyzed (6).

To detect repeat expansion mutations in *C9ORF72*, a repeat-primed PCR analysis was carried out (11).