

AMYOTROPHIC LATERAL SCLEROSIS

1 Impaired DNA Repair
 TDP-43 FUS
 CFAP410 NEK1

2 Nucleo-Cytoplasmic Transport defect
 C9ORF72 GLE1

3 RNA dysregulation
 SOD1 TDP-43
 FUS C9ORF72
 ANG ATXN2
 ELP3 HNRNPA1
 HNRNPA2B1 MATR3
 OPTN SETX
 TAF15 UBQLN2

4 ER Stress and Impaired Protein Homeostasis
 SOD1 TDP-43
 FUS ATXN2
 UBQLN2 SQSTM1
 OPTN VAPB
 VCP

5 Mitochondrial Dysfunction and Oxidative Stress
 SOD1 TDP-43
 C9ORF72 OPTN

6 Stress Granules
 SOD1 C9ORF72
 TDP-43 FUS
 ANG G3BP1
 SETX TIA1

7 Pump and Ion Channel Dysfunction
 KCNB2 KCNS3

8 Impaired Glutamate Uptake and Excitotoxicity
 EAAT2

9 Cytoskeletal Defects and Axonal Transport Dysfunction
 DCTN1 NEFH
 PFN1 TUBA4A

11 Microglia Activation & Release of Inflammatory Cytokines
 SOD1 C9ORF72
 TREM2

12 Oligodendrocyte (CNS) and Schwann Cell (PNS) Defects
 MCT1

10 Vesicle Transport Dysregulation
 SOD1 ALS2
 FIG4 VAPB
 OPTN UNC13A
 CHMP2B

