

Additional File 23. 61 gene signature for prediction of ALS patient survival. The table lists the 61 genes incorporated into the final Cox PH regression model developed to predict ALS patient survival. Columns 2 and 3 provide hazard ratio (HR) estimates from unigenic Cox PH models, which were fit with five predictor variables, including expression of the gene listed in column 1 with four covariates (age, sex, site of onset, cohort). The second column gives the HR estimate with 95% confidence limits (HR > 1: increased expression = worse survival; HR < 1: increased expression = improved survival). Columns 4 and 5 provide results from likelihood ratio tests (LRT) comparing goodness of fit between full models (61 predictor genes + 4 covariates) and reduced models (60 predictor genes + 4 covariates, with removal of the gene listed in column 1). The χ^2 statistic obtained from each LRT is given (column 4) with p-value obtained from the χ^2 null distribution with 1 degree of freedom (column 5). Genes for which expression contributes most to goodness of fit have larger χ^2 statistics (and lower p-values).

Symbol	Unigenic Cox PH Model		Multigenic Cox PH Model	
	HR	P-Value	χ^2 Statistic	P-value
<i>SLC39A14</i>	1.25 (1.11, 1.4)	0.000269	13.72	0.00021
<i>CDC14B</i>	1.24 (1.1, 1.39)	0.000255	8.96	0.0028
<i>OSBPL9</i>	1.24 (1.09, 1.4)	0.000972	10.35	0.0013
<i>IFNGR2</i>	1.23 (1.09, 1.39)	0.000898	7.5	0.0062
<i>ATXNIL</i>	1.21 (1.08, 1.36)	0.00124	2.24	0.13
<i>UBR5</i>	1.21 (1.07, 1.36)	0.00166	11.81	0.00059
<i>USP3</i>	1.2 (1.07, 1.34)	0.00122	4.4	0.036
<i>RAB1A</i>	1.2 (1.06, 1.36)	0.00396	6.9	0.0086
<i>RNF38</i>	1.19 (1.06, 1.34)	0.0045	10.98	0.00092
<i>ELAC1</i>	1.19 (1.06, 1.34)	0.00334	26.6	2.5E-07
<i>RNFT1</i>	1.18 (1.07, 1.32)	0.00159	9.53	0.002
<i>JPH3</i>	1.18 (1.04, 1.33)	0.00825	10.06	0.0015
<i>TM6SF1</i>	1.18 (1.05, 1.32)	0.00464	7.77	0.0053
<i>ITPR2</i>	1.18 (1.05, 1.32)	0.00552	5.75	0.016
<i>ME2</i>	1.18 (1.04, 1.33)	0.00959	5.7	0.017
<i>SLC40A1</i>	1.17 (1.03, 1.32)	0.0124	9.75	0.0018
<i>YWHAH</i>	1.17 (1.05, 1.3)	0.00505	8.46	0.0036
<i>C16orf86</i>	1.16 (1.04, 1.3)	0.00824	8.72	0.0031
<i>KIDINS220</i>	1.16 (1.04, 1.29)	0.00777	10.68	0.0011

<i>CLEC7A</i>	1.15 (1.04, 1.27)	0.00498	3.54	0.06
<i>MTFMT</i>	1.15 (1.02, 1.3)	0.0277	3.78	0.052
<i>RAB21</i>	1.15 (1.03, 1.28)	0.0121	20.42	6.2E-06
<i>FZD3</i>	1.14 (1.02, 1.29)	0.0237	7.19	0.0074
<i>MAN2A2</i>	1.14 (1.03, 1.27)	0.0158	3.41	0.065
<i>CLEC4D</i>	1.14 (1.02, 1.26)	0.0172	5.95	0.015
<i>PRKCB</i>	1.13 (1.02, 1.26)	0.0168	8.05	0.0046
<i>NUP58</i>	1.13 (1.01, 1.26)	0.0349	18.85	0.000014
<i>FBXO4</i>	1.13 (1.01, 1.25)	0.0259	14.32	0.00015
<i>SEC62</i>	1.13 (1.01, 1.25)	0.0293	5.84	0.016
<i>TRIM22</i>	1.11 (1.003, 1.24)	0.043	6.51	0.011
<i>IGSF11</i>	0.9 (0.8, 0.997)	0.043	22.94	1.7E-06
<i>RGS17</i>	0.89 (0.8, 0.996)	0.0423	2.15	0.14
<i>SERPINH1</i>	0.89 (0.8, 0.99)	0.0269	7.29	0.0069
<i>C9orf78</i>	0.89 (0.8, 0.99)	0.027	6.16	0.013
<i>TRPM7</i>	0.88 (0.8, 0.98)	0.0156	15.75	0.000072
<i>SLC38A10</i>	0.88 (0.79, 0.98)	0.0216	14.82	0.00012
<i>ZNF598</i>	0.88 (0.79, 0.98)	0.0202	4.91	0.027
<i>DCAF4L1</i>	0.88 (0.78, 0.99)	0.0303	12.6	0.00039
<i>ZNF429</i>	0.88 (0.78, 0.98)	0.0265	35.59	2.4E-09
<i>PHLDA2</i>	0.88 (0.79, 0.97)	0.0135	9.29	0.0023
<i>C12orf10</i>	0.87 (0.79, 0.96)	0.00583	24.89	6.1E-07
<i>MIS18A</i>	0.87 (0.78, 0.97)	0.0124	25.47	4.5E-07
<i>TASP1</i>	0.87 (0.78, 0.98)	0.0198	14.11	0.00017
<i>CCDC51</i>	0.87 (0.77, 0.97)	0.0123	4.44	0.035
<i>LMNA</i>	0.86 (0.78, 0.95)	0.00336	21.68	3.2E-06
<i>MTMR11</i>	0.86 (0.78, 0.96)	0.00543	7.3	0.0069
<i>NME4</i>	0.86 (0.77, 0.95)	0.00374	3.46	0.063
<i>RNASE2</i>	0.86 (0.77, 0.95)	0.00307	7.44	0.0064

<i>VRK3</i>	0.85 (0.76, 0.96)	0.00691	5.11	0.024
<i>CDIP1</i>	0.85 (0.76, 0.96)	0.00674	4.46	0.035
<i>PCDHB14</i>	0.85 (0.77, 0.94)	0.00229	13.15	0.00029
<i>APCDD1</i>	0.85 (0.77, 0.94)	0.00127	13.04	0.0003
<i>WDR6</i>	0.85 (0.76, 0.95)	0.00466	14.8	0.00012
<i>ACADS</i>	0.85 (0.76, 0.94)	0.00234	15.72	0.000073
<i>ITLN1</i>	0.85 (0.76, 0.94)	0.00165	12.72	0.00036
<i>LAMTOR2</i>	0.84 (0.76, 0.94)	0.00176	4.77	0.029
<i>TMEM147</i>	0.84 (0.76, 0.94)	0.00152	4.47	0.034
<i>C19orf44</i>	0.84 (0.76, 0.93)	0.00126	5.96	0.015
<i>GGT7</i>	0.84 (0.75, 0.93)	0.000788	7.28	0.007
<i>CEBPE</i>	0.79 (0.71, 0.89)	6.14E-05	6.7	0.0096
<i>CCS</i>	0.77 (0.68, 0.87)	1.84E-05	12.85	0.00034