Figure S1

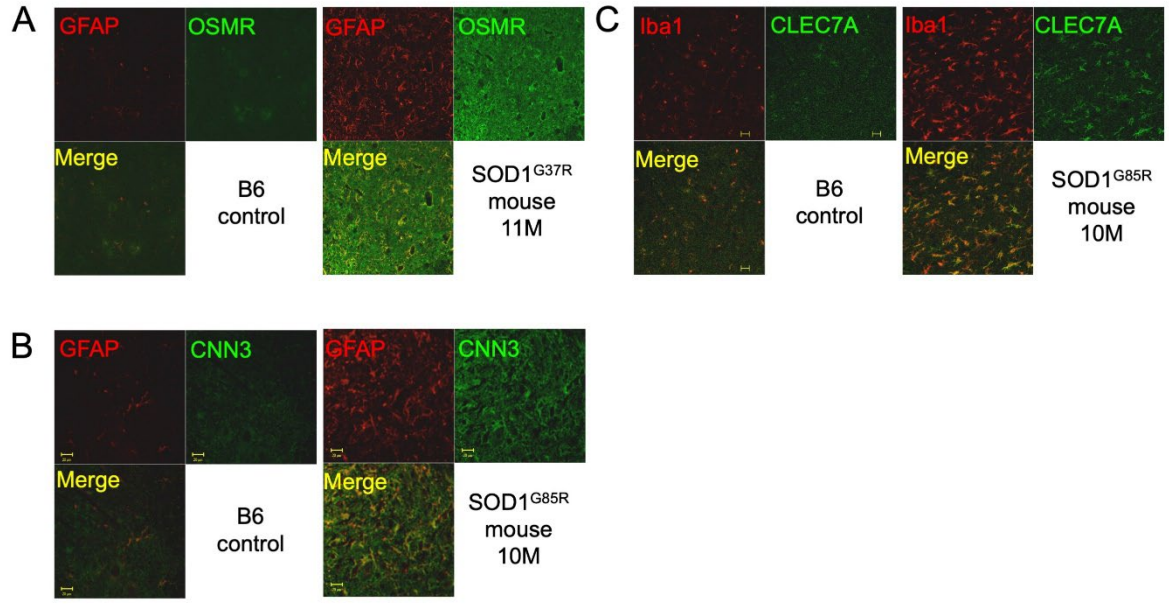

Figure S2

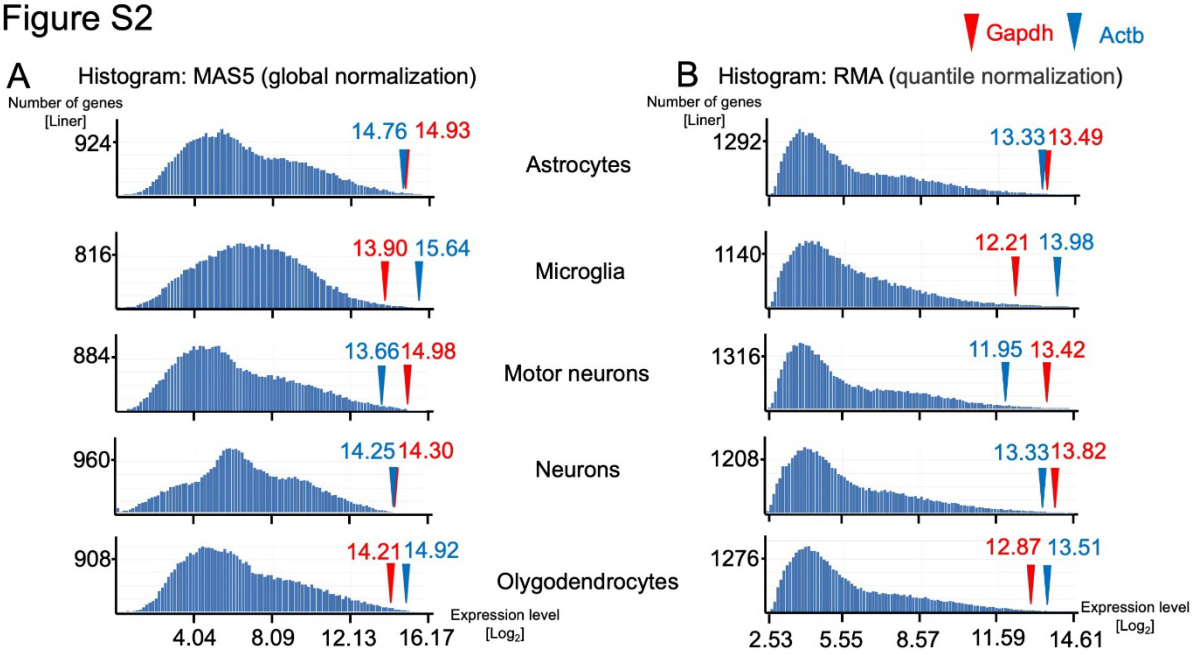

Table S1

	ALS mouse model (SOD1 activity), Age, Replicates	Control (SOD1 activity), Age, Replicates	Data source
Comparison 1	G37R SOD1 Tg (increased), 11 months, N=3	WT SOD1 Tg (increased), 11 months, N=3	our experiment
Comparison 2	G85R SOD1 Tg (unchanged), 11 months, N=3	Non-Tg littermate (unchanged), 11 months, N=3	our experiment
Comparison 3	G93A SOD1 Tg (increased), 4 months, N=3	Non-Tg littermate (unchanged), 4 months, N=3	public deposit
	GEO accession number		
	GSM462482, 462483, 462484	GSM462461, 462462, 462463	

Table S2

A

Cell type	Sample source	Isolation methods	GEO accession number
Motor neurons	P60 ventral SC	LCM	GSM113702, 113703, 113704
Neurons	P16 brain	Negative selection	GSM241897
Astrocytes	P17 brain	S100β-FACS	GSM241912, 241914, 241926
Microglia	P90 lumbar SC	CD11b-FACS	GSM2527942, 2527943, 2527944
Oligodendrocytes	P16 brain	MOG-immunopanned	GSM241890, 241893, 241894

B

Disease stages	Cell type	Sample source	Isolation methods	GEO accession number
Control	P90-Microglia (littermate)	P90 lumbar SC	CD11b-FACS	GSM2527942, 2527943, 2527944
Early-symptomatic	P90-Microglia (G93A)	P90 lumbar SC	CD11b-FACS	GSM2527939, 2527940, 2527941

C

Disease stages	Cell type	Sample source	Isolation methods	GEO accession number
Control	P90-Astrocytes (littermate)	P90 lumbar SC	LCM	GSM1694233, 1694234, 1694235
Early-symptomatic	P90-Astrocytes (G93A)	P90 lumbar SC	LCM	GSM1694230, 1694231, 1694232
Control	P120-Astrocytes (littermate)	P120 lumbar SC	LCM	GSM1694239, 1694240, 1694241
Late-symptomatic	P120-Astrocytes (G93A)	P120 lumbar SC	LCM	GSM1694236, 1694237, 1694238

D

Disease stages	Cell type	Sample source	Isolation methods	GEO accession number
Control	P56-Motor neurons (littermate)	P56 lumbar SC	LCM	GSM1128299, 1128300, 1128301, 1128302
Pre-symptomatic	P56-Motor neurons (G93A)	P56 lumbar SC	LCM	GSM1128295, 1128296, 1128297, 1128298
Control	P101-Motor neurons (littermate)	P101 lumbar SC	LCM	GSM1128315, 1128316, 1128317, 1128318
Early-symptomatic	P101-Motor neurons (G93A)	P101 lumbar SC	LCM	GSM1128311, 1128312, 1128313, 1128314
Control	P111-Motor neurons (littermate)	P111 lumbar SC	LCM	GSM1128331, 1128332, 1128333, 1128334
Symptomatic	P111-Motor neurons (G93A)	P111 lumbar SC	LCM	GSM1128327, 1128328, 1128329, 1128330
Control	P121-Motor neurons (littermate)	P121 lumbar SC	LCM	GSM1128347, 1128348, 1128349, 1128350
Late-symptomatic	P121-Motor neurons (G93A)	P121 lumbar SC	LCM	GSM1128343, 1128344, 1128345, 1128346

Table S3

Gene Symbol	Integrated transcriptome (A.U.)					Microglia fold-enrichment vs. CNS cell-types (Microarray) Our data	Microglia fold-enrichment vs. CNS cell-types (RNAseq) From Chiu et al.	Gene Title
	Motor Neurons	Neurons	Astrocytes	Microglia	Oligoden-drocytes			
Olfml3	**25**	**36**	**59**	**12371**	**190**	**65**	**7**	**olfactomedin-like 3**
Tmem119	**89**	**133**	**40**	**16388**	**226**	**72**	**10**	**transmembrane protein 119**
Siglec H	**28**	**59**	**15**	**5212**	**88**	**59**	**9**	**sialic acid binding Ig-like lectin H**
Slc2a5	66	88	65	589	84	7	21	solute carrier family 2 (facilitated glucose transporter), member 5
Gal3st4	72	10	1172	6242	105	5	6	galactose-3-O-sulfotransferase 4
Csmd3	49	64	18	134	31	2	8	CUB and Sushi multiple domains 3
Slco2b1	83	58	80	20236	102	198	15	solute carrier organic anion transporter family, member 2b1
Gpr84	22	130	10	3107	86	24	15	G protein-coupled receptor 84
Lag3	9	18	26	901	31	29	15	lymphocyte-activation gene 3
Adora3	5	52	50	520	15	10	9	adenosine A3 receptor///transmembrane and immunoglobulin domain containing 3
Ccl4	64	235	127	3394	275	12	7	chemokine (C-C motif) ligand 4
Golm1	265	343	1180	9027	263	8	7	golgi membrane protein 1
P2ry13	67	49	55	12702	151	84	34	purinergic receptor P2Y, G-protein coupled 13

Table S4

Cell type	Gene symbol	Integrated transcriptome (A.U.)					SOD1^{G93A} cell-type transcriptome (A.U.)																		
							Microglia (FACS)			Astrocytes (LCM)						Motor neurons (LCM)									
		Motor Neuron	Neuron	Astrocyte	Microglia	Oligoden drocyte	G93A-P90-MG	NTg-P90-MG	G93A-P90-MG (F.C.)	G93A-P90-AS	NTg-P90-AS	G93A-P90-AS (F.C.)	G93A-P120-AS	NTg-P120-AS	G93A-P120-AS (F.C.)	G93A-P56-MN	NTg-P56-MN	G93A-P56-MN (F.C.)	G93A-P101-MN	NTg-P101-MN	G93A-P101-MN (F.C.)	G93A-P111-MN	NTg-P111-MN	G93A-P111-MN (F.C.)	G93A-P121-MN	NTg-P121-MN	G93A-P121-MN (F.C.)
General	**Actb**	12978	19436	27715	51118	31061	52574	51118	1.0	41280	43363	1.0	39159	23950	1.6	23114	33182	0.7	26827	23536	1.1	22377	21593	1.0	44037	23428	1.9
General	**Gapdh**	32304	20116	31176	15320	18997	22191	15320	1.4	25016	25224	1.0	18770	20772	0.9	32096	49938	0.6	20432	23614	0.9	22629	21209	1.1	27912	22530	1.2
Motor neuron	**Mnx1**	891	25	45	14	6	4	14	0.3	**148**	**200**	0.7	**86**	**122**	0.7	392	317	1.2	243	488	0.5	147	367	0.4	116	279	0.4
Neuron	**Snap25**	21555	21916	344	124	149	38	124	0.3	**13539**	**17024**	0.8	**7441**	**18893**	0.4	42185	42198	1.0	33624	37514	0.9	34875	34188	1.0	16637	51644	0.3
Astrocytes	**Gfap**	136	69	3710	83	111	132	83	1.6	5269	1930	2.7	2542	273	9.3	423	825	0.5	**2928**	**778**	3.8	**3730**	479	**7.8**	**6578**	904	**7.3**
Microglia	**Itgam**	25	5	34	1159	30	1394	1159	1.2	33	15	2.2	26	47	0.6	7	25	0.3	32	15	2.1	22	18	1.2	42	28	1.5
Oligodendrocyte	**Mog**	598	6	14	152	25990	118	152	0.8	**2621**	**2543**	1.0	**1740**	**1466**	1.2	**1874**	**2513**	0.7	**3192**	**3497**	0.9	**2761**	**2581**	1.1	**3411**	**2054**	1.7
Endocelial cells	**Ocln**	29	86	78	78	14	86	78	1.1	74	63	1.2	94	113	0.8	217	225	1.0	142	208	0.7	162	192	0.8	180	178	1.0

Table S6

Cell type	Gene symbol	Excitatory neurons	Inhibitory neurons	Astrocytes	Microglia	Oligodendro-cytes
		Single cell RNAseq (nTPM)				
General	**ACTB**	129.3	101.3	142.4	259.5	302.2
General	**GAPDH**	112.1	145.8	228.2	86.2	196.2

Table S7

Caspase Classes	Gene Symbol	Spinal cord (F.C.)			Integrated transcriptome (A.U.)					MG (F.C.)	Astrocytes (F.C.)		Motor neurons (F.C.)				Gene Title
		G93A	G85R	G37R	Motor Neurons	Neurons	Astrocytes	Microglia	Oligodendrocytes	G93A-P90-MG	G93A-P90	G93A-P120	G93A-P56-	G93A-P101	G93A-P111	G93A-P121	
Inflammation	Casp1	2.0	1.6	2.0	48	54	26	1785	25	0.9	1.5	2.7	6.5	3.0	1.1	2.4	caspase 1
	Casp4 (Casp11)	6.9	12.6	7.6	7	6	6	1328	6	1.5	4.3	16.9	2.0	1.6	15.2	14.8	caspase4, apoptosis-related cysteine peptidase
	Casp12	2.9	3.3	3.4	110	78	22	57	46	1.1	2.2	3.1	1.6	2.3	2.5	3.6	caspase 12
	Il1b	0.9	1.6	2.2	50	71	66	6254	56	1.2	0.9	2.3	1.1	1.5	1.4	1.0	interleukin 1 beta
Executioner of Apoptosis	Casp3	1.6	1.3	1.2	261	1002	952	3157	1505	0.8	1.3	1.6	0.8	1.8	1.9	2.3	caspase 3
	Casp6	2.2	1.1	1.3	63	121	811	420	275	1.3	1.1	1.5	3.4	1.4	1.6	5.8	caspase 6
	Casp7	1.8	1.3	1.7	63	253	402	673	108	1.2	1.4	1.4	0.8	0.9	1.6	3.3	caspase 7
Initiator of Apoptosis	Casp2	1.2	1.1	1.1	119	605	843	992	959	1.2	1.2	1.3	0.9	1.4	1.6	0.8	caspase 2
	Casp8	1.4	2.2	1.8	62	76	115	1764	107	1.3	1.8	2.3	1.7	1.5	1.7	2.9	caspase 8
	Casp9	1.0	1.1	1.1	533	282	664	588	342	1.0	1.2	0.7	0.7	1.0	1.0	0.8	caspase 9
	Casp14	0.9	0.9	0.9	203	265	212	543	167	0.9	1.3	1.6	0.8	1.6	1.4	1.8	caspase 14

Table S8

Family	Gene Symbol	Synonyms (or protein names)	Spinal cord (F.C.)			Integrated transcriptome (A.U.)					MG (F.C.)	Astrocytes (F.C.)		Motor neurons (F.C.)				Gene Title
			G93A	G85R	G37R	Motor Neurons	Neurons	Astrocytes	Microglia	Oligodendrocytes	G93A-P90-MG	G93A-P90	G93A-P120	G93A-P56-	G93A-P101	G93A-P111	G93A-P121	
HspA	Hspa1a	Hsp70-3	1.5	1.2	1.3	580	1169	2070	27954	2084	0.6	0.6	1.5	2.7	1.5	1.2	1.1	heat shock protein 1A
	Hspa1b	Hsp70-1	1.7	2.0	2.5	119	660	3268	16398	3277	0.8	3.0	2.6	1.6	1.9	0.5	1.1	heat shock protein 1B
	Hspa2	Hsp70-2	2.3	1.4	1.7	147	1001	1728	444	2155	0.9	1.2	1.8	1.1	1.3	1.5	2.0	heat shock protein 2
	Hspa5	Grp78/BiP	1.2	1.1	1.3	16006	11443	28164	30777	15067	1.4	1.0	0.8	1.1	1.1	1.2	1.2	heat shock protein 5
	Hspa8	Hsc70/73	1.1	1.0	1.0	8363	18279	3798	9785	8769	0.8	0.7	0.8	1.1	1.0	0.9	0.7	heat shock protein 8
	Hspa9	Hsp74/Grp75	1.1	0.9	1.1	7522	5050	5432	2382	3811	1.3	0.9	0.8	1.1	0.9	0.9	1.1	heat shock protein 9
	Hspa12a	-	1.0	0.8	0.9	135	112	17	66	20	0.8	1.2	0.5	0.9	0.7	1.1	0.3	heat shock protein 12A
	Hspa12b	-	0.6	1.1	0.4	18	9	5	26	5	0.7	1.2	0.4	1.0	1.7	0.4	1.7	heat shock protein 12B
	Hspa13	-	1.2	1.0	1.0	1775	2434	1611	1377	1889	1.0	0.8	0.7	1.6	1.0	1.1	0.9	heat shock protein 70 family, member 13
	Hspa14	Hsp70-4	1.1	1.1	1.0	1036	1032	1063	1230	1165	1.0	0.9	0.7	1.0	0.8	0.7	0.7	heat shock protein 14
HspB	Hspb1	Hsp25/27	3.5	4.9	4.7	**11847**	**314**	**828**	**836**	**198**	**1.5**	**1.3**	**4.8**	**1.6**	**1.0**	**1.2**	**4.4**	**heat shock protein 1**
	Hspb2	HspB2	1.6	1.4	1.0	28	172	84	40	135	2.0	1.1	1.8	1.3	1.3	0.6	2.0	heat shock protein 2
	Hspb3	HspB3	0.7	2.4	2.5	6	134	34	314	65	0.9	1.6	4.6	2.0	2.7	1.2	1.2	heat shock protein 3
	Hspb6	HspB6	2.5	2.6	2.5	**388**	**229**	**1459**	**155**	**354**	**1.2**	**1.6**	**2.9**	**1.1**	**1.1**	**1.6**	**3.5**	**heat shock protein, alpha-crystallin-related, B6**
	Hspb7	Hsp25-2	0.8	0.6	0.7	11	163	56	38	39	1.4	2.1	2.2	1.0	0.9	0.9	0.9	heat shock protein family, member 7 (cardiovascular)
	Hspb8	Hsp22	1.4	1.4	1.4	11728	139	1116	95	18	1.0	0.8	1.7	1.6	0.8	0.9	1.2	heat shock protein 8
	Hspb9	HspB9	0.4	1.2	0.7	16	2	9	8	3	0.9	0.3	0.3	0.5	1.0	1.3	2.5	heat shock protein, alpha-crystallin-related, B9
	Hspb11	-	1.1	1.1	1.2	1535	857	866	670	2582	0.9	0.8	1.7	1.1	1.0	1.0	1.4	heat shock protein family B (small), member 11
HspC	Hsp90aa1	Hsp90α	1.2	0.9	1.0	24590	10514	5699	14260	12523	0.8	0.6	0.6	1.2	0.7	0.6	0.4	heat shock protein 90, alpha (cytosolic), class A member 1
	Hsp90ab1	Hsp90β	1.0	1.1	1.0	12484	12353	5353	3516	9650	1.3	0.9	0.9	1.1	0.9	0.8	0.9	heat shock protein 90 alpha (cytosolic), class B member 1
	Hsp90b1	Grp94	1.2	1.1	1.2	1352	8078	5374	15644	6596	1.0	0.8	0.9	1.2	1.1	1.0	0.9	heat shock protein 90, beta (Grp94), member 1
Hsp60	Hspd1	Hsp60	1.0	1.0	1.1	18430	6555	4095	3197	4248	1.6	1.1	0.7	1.3	0.9	0.8	0.5	heat shock protein 1 (chaperonin)
Hsp10	Hspe1	Hsp10	1.0	1.1	1.0	695	466	343	546	384	1.2	1.3	1.1	0.7	0.8	0.7	0.7	heat shock protein 1 (chaperonin 10)
Hsp110	Hspa4	Apg2/Hsp110	1.2	0.9	1.1	4395	1467	1980	1772	3646	1.5	1.0	0.9	1.4	0.9	0.9	1.0	heat shock 70 kDa protein 4 (heat shock protein 4)
	Hspa4l	Apg1/Osp94	0.8	0.8	0.9	4861	2235	1689	242	1151	0.9	0.9	0.3	1.4	0.8	0.8	0.3	heat shock 70 kDa protein 4L (heat shock protein 4 like)
	Hsph1	Hsp105/Hsp110	0.9	0.9	1.1	**16847**	9861	2861	6426	6777	0.8	0.9	0.7	1.3	0.9	0.9	0.6	heat shock 105kDa/110kDa protein 1