On-line Table 1: Clinical features of the 20 patients with ALS

Patients	Sex	Age (yr)	Time from Onset to MRI (mo)	ALSFRS-R	MRC Upper Limbs	MRC Lower Limbs	Clinical Form
1	F	61	16	41/48	76/80	67/70	Bulbar
2	F	57	12	33/48	55/80	46/70	Spinal
3	F	53	4	42/48	76/80	64/70	Spinal
4	M	74	14	46/48	71/80	70/70	Flail arm
5	F	56	15	43/48	80/80	50/70	Spinal
6	M	71	30	35/48	46/80	63/70	Flail arm
7	M	66	14	38/48	74/80	70/70	Bulbar
8	M	59	38	35/48	69/80	42/70	Flail leg
9	M	66	14	37/48	64/80	70/70	Bulbar
10	M	55	5	46/48	80/80	57/70	Spinal
11	F	49	12	39/48	72/80	60/70	Spinal
12	M	66	16	42/48	66/80	55/70	Spinal
13	M	38	26	34/48	45/80	59/70	Flail arm
14	M	53	17	41/48	75/80	59/70	Spinal
15	M	63	67	28/48	42/80	28/70	Spinal
16	M	49	62	30/48	52/80	56/70	Spinal
17	F	46	6	43/48	68/80	63/70	Spinal
18	M	52	4	41/48	75/80	62/70	Spinal
19	M	63	8	46/48	68/80	70/70	Spinal
20	M	62	22	24/48	45/80	28/70	Spinal

[a] Familial form of ALS.
[b] D90A *SOD1* mutation.

On-line Table 2: Significant changes of MTR in 48 × 2 regions of interest[a]

	Left				Right			
	Controls		Patients		Controls		Patients	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Angular gyrus	17.96	1.24	18.12	2.38	18.36	1.53	18.02	1.66
Central opercular cortex	19.02	2.33	21.78	2.96	19.63	2.01	21.57	2.81
Cingulate gyrus AD	21.37	3.36	20.50	2.67	19.87	2.33	19.58	1.89
Cingulate gyrus PD	21.29	2.12	20.62	1.73	20.96	1.90	21.00	1.05
Cuneal cortex	17.88	2.62	17.07	2.22	18.79	2.19	18.41	1.60
Frontal medial cortex	24.32	2.62	24.80	3.04	22.28	1.81	23.04	1.81
Frontal operculum cortex	18.87	2.48	21.05	3.77	20.02	2.62	20.99	2.11
Frontal orbital cortex	22.53	1.53	22.76	1.82	24.18	1.74	24.46	1.88
Frontal pole	19.49[b]	1.78[b]	18.54[b]	1.26[b]	19.06	1.98	18.34	1.40
Heschl gyrus	20.81	3.21	20.12	2.55	20.36	3.55	18.63	3.15
Inferior frontal	20.70	2.82	19.55	2.43	20.50	2.75	19.45	2.60
Inferior frontal gyrus pars triangularis	20.03	2.63	19.46	2.01	20.63	2.49	20.90	3.47
Inferior temporal gyrus AD	22.04	2.23	23.87	6.69	22.18	1.55	23.00	3.45
Inferior temporal gyrus PD	22.32	2.74	25.05	4.34	22.66	2.43	25.65	4.59
Inferior temporal gyrus Tmp Occ Part	20.25	1.71	21.87	2.04	21.91	2.01	22.95	1.60
Middle frontal gyrus	20.01[b]	2.70[b]	18.53[b]	1.52[b]	20.13	3.05	18.77	1.87
Paracingulate gyrus	20.27	2.14	20.57	3.25	18.72	2.40	18.87	1.87
Parietal operculum cortex	18.41	1.83	19.94	3.61	19.13	1.63	19.89	2.87
Planum polare	24.21[b]	6.49[b]	21.40[b]	3.76[b]	21.79[b]	5.29[b]	18.63[b]	4.76[b]
Postcentral gyrus	19.63	2.21	18.76	2.42	19.57	2.41	18.49	1.62
Precentral gyrus	19.98[b]	1.89[b]	19.09[b]	1.45[b]	19.87[b]	1.20[b]	19.66[b]	1.50
Precuneus cortex	20.29	1.72	19.50	1.85	19.95[b]	2.37[b]	18.82[b]	1.53[b]
Superior frontal gyrus	20.84[b]	3.35[b]	19.16[b]	1.20[b]	20.37[b]	3.31[b]	18.77[b]	1.42[b]
Superior parietal lobule	19.15[b]	2.15[b]	18.21[b]	2.04[b]	19.15	2.21	18.33	2.13
Supplementary motor cortex	21.44	3.34	21.02	2.75	19.75	2.69	20.09	2.30
Supramarginal gyrus AD	19.10	2.44	18.23	1.73	19.36	2.48	18.16	1.63
Supramarginal gyrus PD	18.31	1.55	18.49	3.05	18.78	1.84	18.46	1.62
Insular cortex	22.16	2.04	21.93	1.99	23.02	1.95	23.05	2.82
Intracalcarine cortex	19.19	1.55	18.70	1.61	20.14	1.74	20.05	1.47
Lateral occipital cortex ID	17.97	1.58	19.31	4.08	18.25	1.11	19.19	3.59
Lateral occipital cortex SD	18.11	1.57	18.14	4.11	18.47	1.80	18.38	3.23
Lingual gyrus	21.62	1.86	21.90	2.29	22.39	2.10	23.04	2.09
Middle temporal gyrus AD	20.10	1.93	20.53	2.16	19.06	1.81	19.65	3.56
Middle temporal gyrus PD	19.45	2.01	20.37	2.30	19.23	1.63	19.97	2.08
Middle temporal gyrus Tmp Occ Part	18.60	1.22	19.07	2.79	18.86	1.50	19.65	2.37
Occipital fusiform gyrus	19.86	1.63	20.39	1.49	20.42	2.04	21.26	1.69
Occipital pole	15.50	1.81	17.56	7.11	15.36	1.73	17.00	6.56
Parahippocampal gyrus AD	25.95	2.75	26.67	2.54	26.30	2.31	26.39	2.85
Parahippocampal gyrus PD	22.74	1.76	23.57	2.53	23.78	1.90	23.51	3.12
Planum temporale	20.84[b]	4.86[b]	18.80[b]	3.40[b]	19.72[b]	4.39[b]	17.5 [b]	3.29[b]
Subcallosal cortex	26.00	2.37	27.23	2.80	25.49	2.79	26.90	2.08
Superior tempora gyrus AD	19.38	2.71	19.99	2.80	19.11	1.79	20.28	3.24
Superior temporal gyrus PD	18.14	1.62	19.58	1.76	18.27	1.30	19.17	2.71
Supracalcarine cortex	20.19[b]	2.79[b]	17.89[b]	3.72[b]	20.25	1.91	20.03	1.95
Temporal fusiform cortex AD	25.24	2.15	25.98	5.96	25.99	2.70	25.57	2.40
Temporal fusiform cortex PD	23.27	2.29	24.51	1.84	24.55	2.46	25.29	2.63
Temporal occipital fusiform cortex	21.85	2.04	22.57	1.63	22.52	1.83	23.07	2.09
Temporal pole	22.92	1.98	22.42	1.71	22.35	1.64	21.75	1.88

[a] MTR in 48 × 2 regions of interest derived from the Harvard-Oxford atlas in controls and patients.
[b] Regions of interest with significantly reduced MTR values in patients with ALS with respect to age-matched healthy controls ($P < .05$).