

**Table S1.** Allele frequencies of G<sub>4</sub>C<sub>2</sub> hexanucleotide repeat lengths in *C9orf72* in Parkinson's disease patients of Ashkenazi Jewish origin and controls.

Number of repeats	PD patients		Control <sup>c</sup>
	Non-carriers <sup>a</sup>	Carriers <sup>b</sup>	
	Frequency percent		
2	63.1	66.2	66.4
3	0.3	0.1	0.6
4	0.4	1.2	0.3
5	9.7	8.9	10.2
6	2.5	1.7	2.0
7	0.8	0.4	0.8
8	12.7	12.1	11.0
9	1.8	1.4	1.5
10	1.6	1.2	1.5
11	2.0	2.4	2.4
12	1.0	1.2	1.0
13	1.5	1.2	0.9
14	0.7	0.9	0.3
15	0.1	0.0	0.1
16	0.1	0.0	0.3
17	0.2	0.5	0.3
18	0.2	0.0	0.1
19	0.0	0.1	0.2
20	0.2	0.0	0.0
21	0.2	0.3	0.0
22	0.1	0.0	0.1
23	0.1	0.0	0.1
24	0.1	0.0	0.0
27	0.0	0.0	0.0
28	0.0	0.1	0.0
29	0.1	0.0	0.0
32	0.1	0.0	0.0
50	0.0	0.0	0.1
58	0.1	0.0	0.0
>145	0.3	0.1	0.1
Total	100.0	100.0	100.0

<sup>a</sup> Patients without the *LRRK2*, *GBA* or *SMPD1* mutations.

<sup>b</sup> Carriers of one or more of the following mutations: *LRRK2* p.G2019S; *GBA* mutations: c.84insG, IVS2+1G>A, p.V394L, p.N370S, p.L444P, p.R496H, p.E326K, p.T369M, p.R44C and Rec370; *SMPD1* p.L302P.

<sup>c</sup> The cohort of controls has been recently published [26].