

Supplementary Table 1. Overview of clinical cases integrated in the study. This table includes healthy family members, the type of genetic data we used, and the results highlighted.

case_id	institution	affected	status	sex	age	disease_category	RIN	read_length	avg_library_size	variant_data	candidates before RNA-seq	candidates after RNA-seq	type of expression event highlighted
s1	CHEO	Case	F		21	Neurology		8.4	151	333 exome			-
1 s2	CHEO	Case	F		24	Neurology		9.1	151	333 exome	solved	no	-
2 s3	CHEO	Case	M		50	Other		9.2	151	326 exome	no strong candidates	no	-
3 s4	CHEO	Case	F		12	Neurology		9.3	151	333 exome	no strong candidates	no	-
4 s5	CHEO	Case	M		16	Neurology		9.3	151	328 exome	no strong candidates	no	-
5 s6	CHEO	Case	F		15	Neurology		9.1	151	338 exome	no strong candidates	no	-
6 s7	CHEO	Case	M		5	Neurology		8.7	151	340 exome	no strong candidates	no	-
s8	CHEO	Case	M		55	Neurology		9.4	151	335 exome			-
7 s9	CHEO	Case	NA		55	Neurology		9.4	151	342 exome	no strong candidates	no	-
s10	CGS	Control	F		48	NA		8.2	75	351 exome			-
s11	CGS	Control	M		49	NA		8.7	75	347 exome			-
s12	CGS	Case	M		16	Hematology		8.5	75	355 exome			-
8 s13	CGS	Case	F		14	Hematology		8.4	75	355 exome	candidates	no	-
9 s14	CGS	Case	M		61	Hematology	NA		75	352 genome	candidates	no	-
s15	CGS	Control	M		30	NA		8.3	75	354 genome			-
s16	CGS	Control	F		26	NA		7.7	75	357 genome			-
s17	CGS	Case	F		7	Hematology	NA		75	350 genome			-
s18	CGS	Case	F		5	Hematology		8.2	75	350 genome			-
10 s19	CGS	Case	F		3	Hematology		8	75	349 genome	candidates	no	-
11 s20	CHEO	Case	F		15	Musculoskeletal and orthopedics		8.8	75	354 none	candidates	no	-
s21	CHEO	Case	M	NA		Gynecology		9.2	75	348 exome			-
s22	CHEO	Case	M	NA		Gynecology		8.6	75	349 none			-
12 s23	CHEO	Case	M	NA		Gynecology		9	75	348 none	no strong candidates	candidate not directly linked to phenotype	splicing outlier
13 s24	CHEO	Case	F		6	Neurology		7.8	75	352 none	* this case was solved with the help of RNA-seq in Kerrohan et. Al 2017	solved	splicing outlier
s25	CHEO	Case	F		28	Neurology		8.3	75	351 none			-
14 s26	CHEO	Control	F	NA		NA		7.3	75	365 none	no strong candidates	candidate linked to phenotype	splicing outlier
15 s27	CHEO	Case	M		9	Musculoskeletal and orthopedics		8	75	359 none	no strong candidates	no	-
16 s28	CHEO	Case	M		13	Neurology		8.8	75	358 none	candidates	no	-
17 s29	CHEO	Case	F		9	Neurology		8.4	75	359 none	solved	no	-
18 s30	CGS	Case	M		54	Ophthalmology	NA		75	340 genome	no strong candidates	no	-
19 s31	CGS	Case	M		44	Ophthalmology		9	75	335 genome	no strong candidates	candidate not directly linked to phenotype	splicing outlier
20 s32	CGS	Case	F		45	Ophthalmology		8.9	75	321 genome	candidates	no	-
21 s33	CGS	Case	F		43	Ophthalmology		8.7	75	351 genome	candidates	candidate not directly linked to phenotype	splicing outlier
22 s34	CGS	Case	F		40	Ophthalmology	NA		75	329 genome	candidates	no	-
23 s35	CGS	Case	F		19	Ophthalmology		9.1	75	348 genome	no strong candidates	no	-
24 s36	UDN	Case	M		22	Musculoskeletal and orthopedics		9.1	75	338 genome	candidates	candidate not directly linked to phenotype	splicing outlier
s37	UDN	Case	M		14	Neurology		9.3	75	339 exome			-
s38	UDN	Control	M		35	NA		8.9	75	326 exome			-
25 s39	UDN	Control	F		33	NA		8.8	75	323 exome	no strong candidates	no	-
26 s40	UDN	Case	F		21	Neurology		8.8	75	341 exome	solved	no	causal variant not impacting expression
27 s41	UDN	Case	M		55	Cardiology		8.4	75	341 exome	no strong candidates	candidate linked to phenotype	ASE loss of function variant
28 s42	UDN	Case	F		12	Neurology		8.2	75	354 exome	strong candidate gene	solved	splicing outlier
29 s43	UDN	Case	F		57	Infectious diseases		8.3	75	324 exome	no strong candidates	no	-
s44	UDN	Control	F		35	NA		7.8	151	571 genome			-
s45	UDN	Control	M		35	NA		8.3	151	530 exome			-
30 s46	UDN	Case	F		5	Neurology		7.8	151	662 genome	candidates	candidate linked to phenotype	splicing outlier
s47	UDN	Case	F		13	Neurology		8	151	521 genome			-
s48	UDN	Control	F		50	NA		8.5	151	538 exome			-
s49	UDN	Control	M		48	NA		8.3	151	541 exome			-
31 s50	UDN	Case	F		11	Neurology		8.4	151	578 exome	solved	solved	under-expression outlier
32 s51	UDN	Case	M		5	Neurology		8.8	151	482 exome	solved	no	causal gene not expressed
s52	UDN	Case	M		5	Other		8.3	151	614 exome			-
s53	UDN	Control	M		38	NA		8.1	151	561 exome			-
33 s54	UDN	Control	F		30	NA		8.5	151	540 exome	strong candidate gene	solved	under-expression outlier
s55	CGS	Case	F		5	Neurology		8.7	151	373 exome			-
34 s56	CGS	Control	F		40	NA		8.8	151	373 exome	no strong candidates	candidate linked to phenotype	splicing outlier
s57	CGS	Case	F		54	Other		8.4	151	335 exome			-
35 s58	CGS	Case	F		47	Other		8.6	151	340 exome	no strong candidates	no	-
36 s59	CGS	Case	F		10	Neurology		8.6	151	349 exome	no strong candidates	candidate linked to phenotype	splicing outlier
s60	CGS	Control	F		80	NA		8.7	151	334 exome			-
s61	CGS	Case	M		63	Hematology		8.7	151	345 exome			-
37 s62	CGS	Control	F		59	NA		8.8	151	340 exome	no strong candidates	candidate linked to phenotype	splicing outlier
s63	CGS	Case	M		4	Multiple Congenital Anomalies		8.5	151	358 exome			-
38 s64	CGS	Control	F		32	NA		8.3	151	343 none	no strong candidates	candidate not directly linked to phenotype	splicing outlier
s65	CGS	Case	M		13	Neurology		8.3	151	370 exome			-
s66	CGS	Control	F		28	NA		7.8	151	352 none			-
39 s67	CGS	Control	M		38	NA		8.6	151	353 none	no strong candidates	candidate not directly linked to phenotype	splicing outlier
s68	UDN	Case	M		2	Neurology		9.3	151	384 genome			-
40 s69	UDN	Control	F		34	NA		9.2	151	389 genome	candidates	candidate not directly linked to phenotype	splicing outlier
41 s70	UDN	Case	F		32	Rheumatology	NA		151	349 exome	candidates	candidate not directly linked to phenotype	splicing outlier
s71	UDN	Case	F		8	Neurology		9.3	151	385 exome			-
s72	UDN	Control	F		36	NA		9.2	151	375 exome			-
42 s73	UDN	Control	M		41	NA		9.2	151	374 exome	candidates	candidate linked to phenotype	splicing outlier
43 s74	UDN	Case	F		23	Musculoskeletal and orthopedics		9.1	151	385 genome	candidates	no	-
s75	UDN	Case	M		20	Neurology		9.1	151	369 genome			-
s76	UDN	Control	F		43	NA		9.2	151	398 genome			-
s77	UDN	Control	M		52	NA		9.4	151	381 genome			-
44 s78	UDN	Control	F		21	NA		9.1	151	373 genome	candidates	candidate linked to phenotype	splicing outlier
45 s79	UDN	Case	F		51	Rheumatology		8.9	151	372 exome	candidates	no	-
s80	UDN	Case	M		1	Nephrology		9.4	151	385 exome			-
s81	UDN	Control	F		33	NA		8.9	151	359 exome			-
46 s82	UDN	Control	M		35	NA		8.9	151	376 exome	candidates	candidate linked to phenotype	splicing outlier
s83	UDN	Control	M		39	NA		9	151	373 exome			-
s84	UDN	Case	F		7	Neurology		9.4	151	372 exome			-
47 s85	UDN	Control	F		37	NA		9.4	151	375 exome	candidates	no	-
s86	UDN	Control	F		47	NA		8.4	151	361 exome			-
other controls s87	UDN	Control	M		49	NA		8.9	151	377 exome			-