Supplemental Table 1. **Details of variants identified in *NDST1* and *METTL23*.**

Gene	DNA Variation	Protein Variation	Variant Type	Reported phenotype	Reference[1]
NDST1	c.985C>T	p.Arg329Cys	Missense	Hypotonia & seizures	(Monies et al., 2017)
	deletion 70 kb	-	Deletion	Autism spectrum disorder	(Bitar et al., 2019)
	c.1114G>T	p.Ala372Ser	Missense	Developmental delay, ataxia, cranial nerve palsies & severe respiratory problems	(Armstrong et al., 2017)
	c.1360C>T	p.Arg454Cys	Missense	Developmental delay, coarse facies	(Gupta et al. 2019)
	1766A>G	p.Lys589Arg	Missense	Epilepsy, early-onset	(Demos et al., 2019)
	c.1831G>A	p.Gly611Ser	Missense	Intellectual disability	(Reuter et al., 2014)
	c.1918T>C	p.Phe640Leu	Missense	Intellectual disability	(Reuter et al., 2014)
	c.1926G>T	p.Glu642Asp	Missense	Intellectual disability	(Reuter et al., 2014)
	c.2126G>A	p.Arg709Gln	Missense	Intellectual disability	(Reuter et al., 2014)
	c.2207C>T	p.Ala736Val	Missense	Developmental delay, ataxia, cranial nerve palsies & severe respiratory problems	(Armstrong et al., 2017)
	c.2218G>A	p.Ala740Thr	Missense	Epilepsy, early-onset	(Demos et al., 2019)
	c.1966G>A	p.Asp656Asn	Missense	Intellectual disability	This study
METTL23	c.169_172delCACT	p.(His57Valfs*11)	Frameshift Deletion	Intellectual disability	(Reiff et al., 2014)
	c.176_177insG	p.Glu60Glyfs*11	Frameshift Insertion	Intellectual disability	(Smaili et al., 2020)
	c.204_206delGAA	p.Met68del	Inframe Deletion	Autism spectrum disorder	(Iossifov et al., 2014)
	c.237_241delAACAT	p.(Thr80Glyfs*20)	Frameshift Deletion	Intellectual disability	(Harripaul et al., 2018)
	c.282_286delAGATA	p.(Gln94Hisfs*6)	Frameshift Deletion	Intellectual disability	(Bernkopf et al., 2014)
	c.322+2T>C	-	Canonical-splice	Intellectual disability	(Almannai et al., 2020)
	c.397C>T	p.Gln133*	Nonsense	Intellectual disability	(Bernkopf et al., 2014)
	c.407+1G>C	-	Canonical-splice	Intellectual disability	(Almannai et al., 2020)
	c.449T>C	Met150Thr	Missense	Intellectual disability	(Almannai et al., 2020)
	c.470_471delTT	p.(Leu157Argfs*4)	Frameshift Deletion	Intellectual disability	(Almannai et al., 2020)
	c.310T>C	p.Phe104Leu	Missense	Intellectual disability	This Study

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