

# HEREDITARY OPTIC NEUROPATHIES PANEL DG-5.0.0 (30 GENES)

<i>Gene</i>	<i>Twist X2 covered 10x</i>	<i>Twist X2 covered 20x</i>	<i>srWGS covered 10x</i>	<i>srWGS covered 15x</i>	<i>srWGS covered 20x</i>	<i>Associated Phenotype description and OMIM disease ID</i>
ACO2	92.3%	88.1%	100%	100%	99.4%	Optic atrophy 9, 616289; Infantile cerebellar-retinal degeneration, 614559
AFG3L2	95.7%	93.1%	100%	100%	99.7%	Spastic ataxia 5, autosomal recessive, 614487; Optic atrophy 12, 618977; Spinocerebellar ataxia 28, 610246
CISD2	100%	100%	100%	100%	99.6%	Wolfram syndrome 2, 604928
DNAJC30	100%	100%	100%	100%	99.4%	Leber-like hereditary optic neuropathy, autosomal recessive 1, 619382
DNM1L	100%	100%	100%	100%	99.8%	Optic atrophy 5, 610708; Encephalopathy, lethal, due to defective mitochondrial peroxisomal fission 1, 614388
DNMT1	100%	99.8%	100%	100%	99.4%	Neuropathy, hereditary sensory, type IE, 614116; Cerebellar ataxia, deafness, and narcolepsy, autosomal dominant, 604121
FDXR	100%	100%	100%	100%	99.8%	Multiple mitochondrial dysfunctions syndrome 9B, 620887; Auditory neuropathy and optic atrophy, 617717

IBA57	100%	100%	100%	99.8%	98.7%	Multiple mitochondrial dysfunctions syndrome 3, 615330;?Spastic paraplegia 74, autosomal recessive, 616451
MCAT	95.9%	95.9%	100%	100%	99.8%	Optic atrophy 15, 620583
MECR	93.5%	93.5%	100%	100%	99.4%	Dystonia, childhood-onset, with optic atrophy and basal ganglia abnormalities, 617282;Optic atrophy 16, 620629
MIEF1	100%	100%	100%	100%	99.8%	Optic atrophy 14, 620550
NBAS	100%	100%	100%	100%	99.8%	Short stature, optic nerve atrophy, and Pelger-Huet anomaly, 614800;Infantile liver failure syndrome 2, 616483
NDUFAF2	67.4%	67.4%	100%	99.9%	99.6%	Mitochondrial complex I deficiency, nuclear type 10, 618233
NDUFAF4	100%	100%	100%	100%	100%	Mitochondrial complex I deficiency, nuclear type 15, 618237
NDUFAF5	90.9%	90.9%	100%	100%	99.6%	Mitochondrial complex I deficiency, nuclear type 16, 618238
NDUFAF8	100%	100%	100%	100%	99.8%	Mitochondrial complex I deficiency, nuclear type 34, 618776
NDUFS1	100%	100%	100%	100%	99.7%	Mitochondrial complex I deficiency, nuclear type 5, 618226
NDUFS2	100%	99.1%	100%	99.9%	99.6%	?Leber-like hereditary optic neuropathy, autosomal recessive 2, 620569;Mitochondrial complex I deficiency, nuclear type 6, 618228

NDUFS7	89.5%	86.2%	100%	100%	99.2%	Mitochondrial complex I deficiency, nuclear type 3, 618224
NDUFV1	100%	100%	100%	99.6%	97.1%	Mitochondrial complex I deficiency, nuclear type 4, 618225
OPA1	94.7%	94.7%	100%	100%	99.9%	Optic atrophy plus syndrome, 125250;{Glaucoma, normal tension, susceptibility to}, 606657;Optic atrophy 1, 165500;Behr syndrome, 210000;?Mitochondrial DNA depletion syndrome 14 (encephalomyopathy type), 616896
OPA3	100%	100%	100%	100%	99.7%	3-methylglutaconic aciduria, type III, 258501;Optic atrophy 3 with cataract, 165300
PPIB	100%	100%	100%	100%	99.5%	Osteogenesis imperfecta, type IX, 259440
RTN4IP1	100%	100%	100%	100%	99.9%	Optic atrophy 10 with or without ataxia, impaired intellectual development and seizures, 616732
SNX10	89.3%	89.3%	100%	100%	99.7%	Osteopetrosis, autosomal recessive 8, 615085
SPG7	100%	100%	100%	99.9%	99.2%	Spastic paraplegia 7, autosomal recessive, 607259
SSBP1	100%	100%	100%	100%	99.4%	Optic atrophy 13 with retinal and foveal abnormalities, 165510
TMEM126A	100%	100%	100%	100%	99.9%	Optic atrophy 7, 612989

WFS1	91.5%	91.2%	100%	100%	99.5%	Deafness, autosomal dominant 6/14/38, 600965;?Cataract 41, 116400;Wolfram-like syndrome, autosomal dominant, 614296;{Diabetes mellitus, noninsulin-dependent, association with}, 125853;Wolfram syndrome 1, 222300
YME1L1	96.7%	96.7%	100%	100%	99.8%	?Optic atrophy 11, 617302

Gene symbols used follow HGCN guidelines: Gray KA, Yates B, Seal RL, Wright MW, Bruford EA. Nucleic Acids Res. 2015 Jan 43(Database issue):D1079-85.

*TWIST X2 covered 10x describes the percentage of a gene's coding sequence that is covered at least 10x when analyzed by WES using TWIST X2 chemistry mapped against GRCh38.*

*TWIST X2 covered 20x describes the percentage of a gene's coding sequence that is covered at least 20x when analyzed by WES using TWIST X2 chemistry mapped against GRCh38.*

*srWGS covered 10x describes the percentage of a gene's coding sequence that is covered at least 10x when analyzed by WGS mapped against GRCh38.*

*srWGS covered 15x describes the percentage of a gene's coding sequence that is covered at least 15x when analyzed by WGS mapped against GRCh38.*

*srWGS covered 20x describes the percentage of a gene's coding sequence that is covered at least 20x when analyzed by WGS mapped against GRCh38.*

*non-protein coding genes are covered, but as coverage statistics are based on protein coding regions, statistics could not be generated.*

*OMIM release used for OMIM disease identifiers and descriptions : November 25th, 2024.*

*This list is accurate for panel version DG 5.0.0*

*Ad 1. Blank field signifies a gene without a current OMIM association Ad 2. OMIM phenotype descriptions between {} signify risk factors*