Mitochondrial and Metabolic Test Requisition Form

GeneDx an OPKO Health Company

Patient Information

First name Last name
Gender ❒ Male ❒ Female Date of birth (mm/dd/yy)_____
Ancestry ❒ Caucasian ❒ Eastern European ❒ Northern European
❒ Western European ❒ Native American ❒ Middle Eastern
❒ African American ❒ Asian ❒ Pacific Islander
❒ Caribbean ❒ Central/South American
❒ Ashkenazi Jewish ❒ Hispanic ❒ Other: _____

Mailing address

City State Zip code

Home phone Work phone

Email Patient's primary language if not English

Sample Information

Medical record # Specimen ID Date sample obtained (mm/dd/yy)
❒ Blood in EDTA (5-6 mL in lavender top tube)
❒ Muscle (~50mg flash frozen; shipped on dry ice)
❒ DNA (>20 ug): Tissue source _____ concentration ___ (ug/ml) Vol ___(ul)
❒ Oral Rinse (At least 30 mL of Scope oral rinse in a 50 mL centrifuge tube)
❒ Dried Blood Spots (2 cards) - Not accepted for any testing with a del/dup component
❒ Buccal Swab
❒ Other _____(Call lab)
Patient has had a blood transfusion ❒ Yes ❒ No Date of last transfusion __/__/__
(2-4 weeks of wait time is required for mtDNA testing only) Fibroblasts are recommended for patients who had an allogenic bone marrow transplant.
See www.genedx.com/specimen-requirements for details.

Clinical Diagnosis: _____ **ICD-10 Codes:** _____
Age at Initial Presentation: ____ **Add. ICD-10 Codes:** _____

Ordering Account Information

Acct # Account Name
Reporting Preference*. ❒ Care Evolve ❒ Fax ❒ Email
**If unmarked, we will use the account's default preferences or fax to new clients.*

Physician NPI #

Genetic Counselor

Street address 1

Street address 2

City State Zip code

Phone Fax (important)

Email Beeper

Send Additional Report Copies To:

Physician or GC/Acct # Fax#/Email/CE #

Physician or GC/Acct # Fax#/Email/CE #

Statement of Medical Necessity

This test is medically necessary for the diagnosis or detection of a disease, illness, impairment, symptom, syndrome or disorder. The results will determine my patient's medical management and treatment decisions. The person listed as the Ordering Provider is authorized by law to order the tests(s) requested herein. I confirm that I have provided genetic testing information to the patient and the patient has consented to genetic testing.

Signature of Physician or Other Authorized NPI Provider (required) Date

Patient Consent (sign here)

I have read the attached Informed Consent document and I give permission to GeneDx to perform genetic testing as described. I also give permission for my specimen and clinical information to be used in de-identified studies at GeneDx to improve genetic testing and for publication, if appropriate. My name or other personal identifying information will not be used in or linked to the results of any studies and publications. I also give GeneDx permission to inform me or my health care provider in the future about research opportunities, including treatments for the condition in my family. **More information is available on our website: www.genedx.com**

❒ Check this box if you are a New York state resident, and give permission for GeneDx to retain any remaining sample longer than 60 days after the completion of testing.

Patient/Guardian Signature Date

PATIENT STATUS – ONE MUST BE CHECKED: ❒ Hospital Inpatient ❒ Hospital Outpatient ❒ Not a Hospital Patient Hospital Patient Date of Discharge:_____

Payment Options

❒ Insurance Bill

Referral/Prior Authorization # _____
Please attach copy of Referral/authorization
GeneDx Benefit Investigation #_____

Insurance Carrier Policy Name ❒ Hold sample for Estimated Benefit Investigation (only if OOP cost is >$100)

Insurance ID # Group # Name of Insured Date of Birth Insurance Address City State Zip

Secondary Insurance Carrier Name Insurance ID# Group # Name of Insured Date of Birth
Relationship to Insured ❒ Child ❒ Spouse ❒ Self ❒ Other _____
Relationship to Insured ❒ Child ❒ Spouse ❒ Self ❒ Other _____

Please include a copy of the front and back of the patient's insurance card (include secondary when applicable)

I represent that I am covered by insurance and authorize GeneDx, Inc. to give my designated insurance carrier, health plan, or third party administrator (collectively "Plan") the information on this form and other information provided by my health care provider necessary for reimbursement. I authorize Plan benefits to be payable to GeneDx. I understand that GeneDx will attempt to contact me if my estimated out-of-pocket responsibility will be greater than $100 per test (for any reason, including co-insurance and deductible, or non-covered services). If GeneDx is unsuccessful in its attempts to contact me, I understand that it will be my responsibility to contact GeneDx to determine my out-of-pocket cost and to pay my out-of-pocket responsibility. I will cooperate fully with GeneDx by providing all necessary documents needed for Plan billing and appeals. I understand that I am responsible for sending GeneDx any and all of the money that I receive directly from my Plan in payment for this test. Reasonable collection and/or attorney's fees, including filing and service fees, shall be assessed if the account is sent to collection but said fees shall not exceed those permitted by state law. I permit a copy of this authorization to be used in place of the original.

Patient Signature (required)_____ Date _____

❒ Institutional Bill

GeneDx Account #

Hospital/Lab Name

Contact Name

Address

City State Zip Code

Phone Fax

❒ Patient Bill

Amount _____

If I have insurance coverage for this testing, I am electing to be treated as a self-pay patient for this testing. As such, I agree that neither GeneDx nor I will submit a claim to my insurance for this testing.

Please bill my credit card (all major cards accepted)

❒ MasterCard ❒ Visa ❒ Discover ❒ American Express

Name as it appears on card

Account Number Expiration date CVC

Signature Date

For GeneDx Use Only

Mitochondrial and Metabolic Test Requisition Form

Account # Account Name

First Name Last Name Date of Birth (mm/dd/yy)

Family History of Disorder/Symptoms

❒ No Known Family History
❒ Pedigree Attached
❒ Adopted

Relationship	Maternal	Paternal	Disorder/Symptoms	Age at Dx
	❒	❒		
	❒	❒		
	❒	❒		
	❒	❒		

Other clinical history or testing (summarize or attach reports)
❒ Array CGH: _____
❒ Chromosomes/FISH: _____
❒ Other relevant results (clinical or research): _____

Draw/attach pedigree and/or include additional information

Family Member/Carrier Testing

Testing for known familial variant in a nuclear gene

❒ 9011 Testing for ONE known familial variant in a nuclear gene
❒ 9012 Testing for TWO known familial variants in a nuclear gene
❒ 905 Testing for ONE known familial exon-level del/dup or chromosomal microarray del/dup

Testing for known mtDNA variant(s)

❒ 453 Testing for ONE to THREE mtDNA variant(s) (heteroplasmy detection range: 1.5%-100%)
❒ 9017 Testing for ONE mtDNA variant (heteroplasmy detection range: 25%-100%)
❒ 9020 Testing for TWO mtDNA variants (heteroplasmy detection range: 25%-100%)

Gene(s): _____ Variant(s): _____
Proband Name: _____
Proband GeneDx Acc#: _____
Relationship to proband: _____
❒ Parent/Carrier testing: Unaffected or asymptomatic (Circle if applies)
❒ Positive control included - **Positive control is required if previous test was performed at another lab.**
❒ Positive control not available. Please initial to acknowledge acceptance of caveat language on a negative report _____
❒ Family Member Test Report included - A clear copy of the test report on the variant positive family member is recommended if previous test was performed at another lab.

Xpanded Family Member Testing (no separate report)

❒ J820 MitoXpanded, Family Member Testing

Mother: ❒ Not Available ❒ To be sent later**
First Name: _____ Last Name: _____ DOB: _____
❒ Asymptomatic ❒ Symptomatic

Father: ❒ Not Available ❒ To be sent later**
First Name: _____ Last Name: _____ DOB: _____
❒ Asymptomatic ❒ Symptomatic

Other: ❒ To be sent later** Relationship to Proband: _____
First Name: _____ Last Name: _____ DOB: _____
❒ Asymptomatic ❒ Symptomatic

Other: ❒ To be sent later** Relationship to Proband: _____
First Name: _____ Last Name: _____ DOB: _____
❒ Asymptomatic ❒ Symptomatic

** Additional samples must be received within 3 weeks
See Page 3 for proband test selection

Single Gene Analysis/Write-in Test Selection

❒ 906 Deletion/Duplication Analysis of ONE nuclear gene

Write in desired gene: _____

Test Code _____ Test Name _____
Test Code _____ Test Name _____

Please see our website (www.genedx.com/forms) or other requisitions for tests not included on this requisition.

Mitochondrial and Metabolic Disorders Testing

GeneDx an OPKO Health Company

Account # Account Name

First Name Last Name Date of Birth (mm/dd/yy)

GeneDx Mitochondrial Genetic Testing

Mitochondrial Disorders

- ❒ J809 MitoXpanded Panel (~1800 genes)*
  - ❒ 554 Concurrent full sequence analysis & deletion testing of the mito genome (not a trio based test)

*"Xpanded Family Member Testing" portion must be completed from Page 2

- ❒ 615 Combined Mito Genome Plus Mito Focused Nuclear Gene Panel (seq & del/dup of mito genome and of 202 nuclear genes)
- ❒ 554 Full sequence analysis and deletion testing of the mitochondrial genome
- ❒ 573 Mitochondrial Focused Nuclear Gene Panel (seq & del/dup 202 genes)
- ❒ 575 Mitochondrial Encephalopathy/Leigh Syndrome Nuclear Gene Panel (seq & del/dup of 134 genes)
- ❒ 576 Lactic Acidosis/Pyruvate Metabolism Nuclear Gene Panel (seq & del/dup of 130 genes)
- ❒ 577 Progressive External Ophthalmoplegia (PEO)/ Optic Atrophy Nuclear Gene Panel (seq & del/dup of 44 genes)
- ❒ 578 Methylglutaconic Aciduria Nuclear Gene Panel (seq & del/dup of 14 genes)
- ❒ 938 Congenital Sideroblastic Anemia Panel (*ABCB7, ALAS2, GLRX5, PUS1, SLC19A2, SLC25A38, TRNT1, YARS2*, Mitochondrial genome large deletion testing)
- ❒ 704 65 mtDNA Point Variants Plus Large Deletions Panel
- ❒ 444 Deletion/duplication analysis of mito genome
- ❒ 394 POLG gene sequencing
- ❒ 557 PUS1 Gene sequencing
- ❒ 582 SDHA Gene sequencing

GeneDx Metabolic Genetic Testing

Inborn Errors of Metabolism Next-Generation Panels

- ❒ J979 Combined Lysosomal and Peroxisomal Disorders Panel (seq & del/dup of 83 genes)
  - ❒ T013 Lysosomal Disorders Panel (seq & del/dup of 58 genes)
  - ❒ J978 Peroxisomal Disorders Panel (seq & del/dup of 25 genes)
- ❒ J976 Creatine Deficiency Syndromes Panel (seq & del/dup of 3 genes)
- ❒ J977 Congenital Disorders of Glycosylation Panel (seq & del/dup of 108 genes)
- ❒ J980 Disorders Associated with C4 Elevation (seq & del/dup of 6 genes)
- ❒ J995 Disorders of Hyperphenylalaninemia and Biopterin Metabolism Panel (seq & del/dup of 7 genes)
- ❒ T382 Fatty Acid Oxidation Disorders Panel (seq & del/dup of 15 genes)
- ❒ T010 Hyperammonemia, Urea Cycle and Transporter Defects Panel (seq & del/dup of 48 genes)
- ❒ T012 Metabolic Myopathy Panel (seq & del/dup of 30 genes)
- ❒ T011 Methylmalonic Acidemia, Disorders of Cobalamin Metabolism and Related Disorders Panel (seq & del/dup of 19 genes)
- ❒ J981 Riboflavin Transporter Deficiency and Related Disorders (seq & del/dup of 9 genes)

Inborn Errors of Metabolism Single Gene Tests

- ❒ 508 3-Hydroxyacyl-CoA dehydrogenase deficiency (HADH)
- ❒ 380 6-pyruvoyl--tetrahydropterin synthase deficiency (PTS)
- ❒ 354 ß-ketothiolase deficiency (ACAT1)
- ❒ 2631 Acid sphingomyelinase deficiency (SMPD1)
- ❒ J975 Adrenoleukodystrophy, X-linked (ABCD1 sequencing and deletion/duplication testing)
- ❒ 465 Arginase deficiency (ARG1)
- ❒ 426 Argininosuccinic Aciduria (ASL)
- ❒ 658 Aspartylglucosaminuria (AGA)
- ❒ 294 Biotinidase deficiency (BTD)
- ❒ 564 Canavan disease (ASPA) sequencing and deletion/duplication testing
- ❒ 429 Carnitine-Acylcarnitine Translocase Deficiency (SLC25A20)
- ❒ 425 Carnitine palmitoyltransferase IA deficiency (CPT1A)
- ❒ 334 Carnitine palmitoyltransferase deficiency type II (CPT2)
- ❒ 500 Citrin Deficiency (SLC25A13)
- ❒ 382 Classic Citrullinemia (ASS1)
- ❒ 274 Cobalamin C deficiency (MMACHC)
- ❒ 659 Combined malonic and methylmalonic aciduria (ACSF3)
- ❒ 490 Dihydrolipoamide Dehydrogenase Deficiency (DLD)
- ❒ 381 Dihydropteridine reductase (DHPR) deficiency (QDPR)
- ❒ 558 Ethylmalonic Encephalopathy (ETHE1) sequencing and deletion/duplication testing

Fabry disease (GLA)

- ❒ 2321 GLA sequencing
- ❒ 906 GLA deletion/duplication testing, females

- ❒ 605 Free sialic storage disorders (SLC17A5) sequencing and deletion/duplication testing
- ❒ 661 Fucosidosis (FUCA1)
- ❒ 2843 Fumarate hydratase deficiency (FH)
- ❒ 499 Galactokinase Deficiency (GALK1)
- ❒ 349E Galactosemia / Galactosyltransferase deficiency (GALT) sequencing and del/dup testing
- ❒ 399 Glutaric aciduria type I (GCDH)

Glutaric aciduria II / Multiple acyl-CoA dehydrogenase deficiency (MADD)

❒ 280 ETFDH ❒ 279 ETFB ❒ 278 ETFA

Glycerol kinase Deficiency (GK)

❒ 438 GK sequencing ❒ 906 GK Exon-level deletion testing

- ❒ 287 Glycogen storage disease II (Pompe disease) (GAA)
- ❒ 649 Glycogen storage disease type V (GSD V) (PYGM)
- ❒ 657 GM1-gangliosidosis (GLB1)
- ❒ 230 GTP cyclohydrolase I deficiency (GCH1)
- ❒ 3211 HMG CoA lyase deficiency (HMGCL)
- ❒ 320 Holocarboxylase synthetase deficiency (HLCS)
- ❒ 331 Homocystinuria (CBS)
- ❒ T386 Hurler syndrome/ mucopolysaccharidosis type I (IDUA)
- ❒ 351 Isobutyryl CoA dehydrogenase deficiency (ACAD8)

Isovaleric acidemia (IVD)

- ❒ 3191 Full sequencing
- ❒ 3192 Sequence exon 9 only (includes common A282V mutation)
- ❒ 3193 Rest of IVD (if 3192 negative)

- ❒ 507 Krabbe disease (GALC)

LCHAD/trifunctional protein deficiency (HADHA/HADHA and HADHB)

- ❒ 2711 HADHA Tier 1 (common mutation; c.1528G>C)
- ❒ Reflex testing: HADHA (full), HADHB if necessary: 2712, 272
- ❒ 2712 HADHA Full sequencing ❒ 272 HADHB Full sequencing

Lowe syndrome (OCRL)

- ❒ 335 Lowe syndrome, OCRL full sequencing
- ❒ 906 OCRL deletion/duplication testing, females

- ❒ 655 Lysosomal acid lipase deficiency (LIPA)
- ❒ 404 Malonyl-CoA decarboxylase deficiency (MLYCD)

Maple Syrup Urine Disease (MSUD)

❒ 4881 BCKDHA ❒ 4882 BCKDHB ❒ 4883 DBT

❒ 488 BCKDHA/ BCKDHB/ DBT All NOW

First Name Last Name Date of Birth (mm/dd/yy)

GeneDx Metabolic Genetic Testing

Inborn Errors of Metabolism Single Gene Tests (cont.)

❑ 565 Maroteaux-Lamy syndrome/mucopolysaccharidosis VI (ARSB)

MCAD deficiency (ACADM)
- ❑ 2682 Full gene sequencing NOW
- ❑ 2681 Sequence exon 11 only (includes common K329E mutation)
- ❑ 2683 Rest of ACADM

❑ 649 McArdle disease (PYGM)

❑ 563 Metachromatic leukodystrophy (ARSA)

❑ 473 Methionine adenosyltransferase I/III deficiency (MAT1A)

2-Methyl-3-hydroxybutyryl-CoA dehydrogenase deficiency (HSD17B10)
- ❑ 463 HSD17B10 sequencing
- ❑ 906 HSD17B10 deletion/duplication testing, females

3-Methylcrotonyl CoA carboxylase deficiency
- ❑ 2881 Tier 1: MCCC2 ❑ 2882 Tier 2: MCCC1, if necessary

❑ 501 3-Methylglutaconic aciduria type I (AUH)

Methylmalonic acidemia (MUT, MMAA, MMAB)
- ❑ 2752 MUT full sequencing ❑ 276 MMAA ❑ 277 MMAB
- ❑ MUT, MMAA, MMAB all NOW: 2752, 276, 277

❑ 657 Morquio B disease (GLB1)

❑ 608 Morquio syndrome A/ Mucopolysaccharidosis IVA (GALNS)

❑ 648 Mucolipidosis I (NEU1)

❑ 2432 Mucolipidosis type IV (MCOLN1) sequence analysis

❑ 906 MCOLN1 deletion/duplication testing, including common 6.45kb deletion

❑ T386 Mucopolysaccharidosis type I (Hurler syndrome) (IDUA)

Mucopolysaccharidosis III (MPSIII)/Sanfilippo syndrome (Types A, B, C and D)
- ❑ 591 MPSIII A (SGSH sequencing)
- ❑ 592 MPSIII B (NAGLU sequencing)
- ❑ 593 MPSIII C (HGSNAT sequencing)
- ❑ 609 MPSIII D (GNS sequencing and deletion/duplication testing)
- ❑ 610 SGSH/NAGLU/HGSNAT/GNS All now

❑ 608 Mucopolysaccharidosis IVA/Morquio syndrome A (GALNS)

❑ 565 Mucopolysaccharidosis VI (Maroteaux-Lamy syndrome) (ARSB)

❑ 657 Mucopolysaccharidosis type IVB (GLB1)

❑ 611 Multiple sulfatase deficiency (SUMF1)

❑ 478 N-acetylglutamate synthase deficiency (NAGS)

❑ 607 Neuronal ceroid-lipofuscinosis 2 (TPP1)

Niemann-Pick disease (NPD), type C
- ❑ 246 NPD type C1 (NPC1) ❑ 247 NPD type C2 (NPC2/HE1)
- ❑ 581 NPC1 and NPC2 both NOW

Ornithine transcarbamylase deficiency (OTC)
- ❑ 313 OTC sequencing (males)
- ❑ 313E OTC sequencing and deletion/duplication testing (females)

❑ 273 Phenylalanine hydroxylase (PAH)

❑ 287 Pompe disease/glycogen storage disease type II (GAA)

Propionic acidemia
- ❑ 2901 Tier 1: PCCB ❑ 2902 Tier 2: PCCA, if necessary

❑ 365 Primary/systemic carnitine deficiency (SLC22A5)

❑ 528 PSAP-related disorders (PSAP)

❑ 540 Pyruvate carboxylase deficiency (PC)

Pyruvate Dehydrogenase E1-Alpha Deficiency (PDHA1)
- ❑ 461 PDHA1 sequencing
- ❑ 906 PDHA1 deletion/duplication testing, females

❑ 462 Pyruvate Dehydrogenase E1-Beta Deficiency (PDHB)

❑ 605 Salla disease (SLC17A5) sequencing and deletion/duplication testing

❑ 515 Sandhoff disease (HEXB) sequencing and deletion/duplication testing

Sanfilippo syndrome/ Mucopolysaccharidosis III (MPS IIIA, IIIB, IIIC, and IIID)
- ❑ 591 Sanfilippo A (SGSH sequencing)
- ❑ 592 Sanfilippo B (NAGLU sequencing)
- ❑ 593 Sanfilippo C (HGSNAT sequencing)
- ❑ 609 Sanfilippo D (GNS sequencing and deletion/duplication testing)
- ❑ 610 SGSH/ NAGLU/ HGSNAT/ GNS All NOW

❑ 528 Saposin deficiency (combined, SapA, SapB, and SapC) (PSAP)

Short/branched chain acyl-CoA dehydrogenase deficiency (ACADSB)
- ❑ 383 Full Sequencing
- ❑ 529 M389V (common Hmong mutation)

❑ 269 Short-chain acyl-CoA dehydrogenase (SCAD) deficiency (ACADS)

❑ 648 Sialidosis (NEU1)

Smith-Lemli-Opitz syndrome (DHCR7)
- ❑ 2502 DHCR7 sequencing

❑ 519 Tay-Sachs disease (HEXA)

Tyrosinemia
- ❑ 3661 Type I (FAH)
- ❑ 494 Type II (TAT)
- ❑ 495 Type III (HPD)

❑ 270 Very long chain acyl-CoA dehydrogenase (VLCAD) deficiency (ACADVL)

❑ J975 X-linked adrenoleukodystrophy (ABCD1 sequencing and deletion/duplication testing)

Mitochondrial and Metabolic Clinical Information

GeneDx an OPKO Health Company

Account # Account Name

First Name Last Name Date of Birth (mm/dd/yy)

DETAILED MEDICAL RECORDS MUST BE ATTACHED

Clinical Diagnosis:_____ **ICD-10 Codes:**_____ **Age at Initial Presentation:**_____ ❒ **Parent/Carrier testing-unaffected/no symptoms**

Perinatal History:
- ❒ Fetal hydrops
- ❒ IUGR
- ❒ Oligohydramnios/polyhydramnios (circle if applies)
- ❒ Prematurity

Growth:
- ❒ Failure to thrive
- ❒ Microcephaly
- ❒ Macrocephaly
- ❒ Short stature

Physical/Cognitive Development:
- ❒ Developmental regression
- ❒ Global developmental delay
- ❒ Intellectual disability/MR
- ❒ Learning disability
- ❒ Motor delay
- ❒ Speech delay

Behavioral:
- ❒ Autism spectrum disorder
- ❒ Autistic features
- ❒ Behavioral/psychiatric abnormalities (circle if applies)
- ❒ Early onset dementia

Craniofacial/Dysmorphic Features:
- ❒ Abnormal fat distribution
- ❒ Coarse facies
- ❒ Facial dysmorphism – please describe
  _____
  _____
- ❒ Inverted nipples

Ophthalmalogic/Auditory:
- ❒ Cataracts
- ❒ Cherry red spot on macula
- ❒ Corneal opacities
- ❒ CPEO (Ophthalmoplegia)
- ❒ Eye movement disorder
- ❒ Iris coloboma
- ❒ Optic atrophy
- ❒ Ototoxicity (aminoglycoside-induced)
- ❒ Ptosis
- ❒ Retinitis pigmentosa
- ❒ Sensorineural hearing loss
- ❒ Vertical gaze palsy
- ❒ Nystagmus
- ❒ Strabismus
- ❒ Retinal degeneration
- ❒ Pigmentary retinopathy
- ❒ Blindness/vision loss
- ❒ Recurrent ear infections
- ❒ Other visual abnormality:_____

Cardiacvascular:
- ❒ Arrhythmia
- ❒ ASD/VSD (circle if applies)
- ❒ Cardiomegaly
- ❒ Cardiomyopathy
- ❒ Valvular heart disease
- ❒ Deep vein thrombosis

Gastrointestinal:
- ❒ Chronic diarrhea
- ❒ Constipation
- ❒ Delayed gastric emptying
- ❒ Gastrointestinal reflux
- ❒ Nausea
- ❒ Recurrent vomiting
- ❒ Hepatic dysfunction
- ❒ Hepatomegaly/splenomegaly (circle if applies)
- ❒ Cachexia
- ❒ Cholestasis
- ❒ Cyclic vomiting

Seizures/Epilepsy:
- ❒ Seizure disorder
- ❒ Abnormal EEG
- ❒ Epileptic encephalopathy
- ❒ Focal seizures
- ❒ Generalized seizures – checkboxes below:
  - ❒ Absence ❒ Clonic
  - ❒ Myoclonic ❒ Tonic-clonic

Brain Malformations/Abnormal Imaging:
- ❒ Abnormal brain imaging (type:_____)
- ❒ White matter abnormalities
- ❒ Abnormalities of the basal ganglia
- ❒ Agenesis of the corpus callosum
- ❒ Brain atrophy
- ❒ Hydrocephalus
- ❒ Lissencephaly
- ❒ Pontocerebellar hypoplasia

Muscular:
- ❒ Myopathy
- ❒ Rhabdomyolysis/myoglobinuria
- ❒ Abnormal electromyography (EMG)
- ❒ Easy fatigue
- ❒ Exercise intolerance
- ❒ Hypertonia
- ❒ Hypotonia
- ❒ Joint hypermobility
- ❒ Muscle fasciculations
- ❒ Muscle stiffness
- ❒ Muscle wasting
- ❒ Muscle weakness: proximal/distal/upper limb/lower limb (circle if applies)
- ❒ Myotonia
- ❒ Respiratory insufficiency

Neurological:
- ❒ Dysphagia
- ❒ Dysarthria
- ❒ Myoclonus
- ❒ Nerve conduction studies:_____
- ❒ Ataxia
- ❒ Bulbar signs
- ❒ Chorea
- ❒ Congenital neuropathy
- ❒ Distal motor neuropathy
- ❒ Dystonia
- ❒ Episodic apnea (sudden)
- ❒ Hypomyelination
- ❒ Lower extremity weakness
- ❒ Motor neuron dysfunction - check boxes:
  - ❒ Upper ❒ Lower
- ❒ Pes cavus
- ❒ Recurrent headache/migraine
- ❒ Reduced/absent deep tendon reflexes
- ❒ Sensory neuropathy – check boxes:
  - ❒ Hyperesthesia ❒ Paresthesia
- ❒ Sleep apnea
- ❒ Spasticity
- ❒ Stroke/stroke-like episodes
- ❒ Tremor/Parkinsonism (circle if applies)

Autonomic:
- ❒ Abnormal sweating
- ❒ Abnormal temperature regulation

Endocrine:
- ❒ Pancreatic failure
- ❒ Adrenal insufficiency
- ❒ Diabetes mellitus – check boxes:
  - ❒ Type I ❒ Type II
- ❒ Hypoparathyroidism
- ❒ Hypothyroidism

Skeletal/Limb Abnormalities:
- ❒ Contractures
- ❒ Scoliosis/kyphosis
- ❒ Dysostosis multiplex
- ❒ Chondrodysplasia punctata
- ❒ Gibbus deformity
- ❒ Osteopenia
- ❒ Other skeletal anomalies (type:_____)
- ❒ Vertebral anomalies

Genitourinary Abnormalities:
- ❒ Steroid-resistant nephrotic syndrome
- ❒ Abnormal renal function (type:_____)
- ❒ Renal tubulopathy

Laboratory Abnormalities:
- ❒ Abnormal NBS_____
- ❒ Abnormal enzymes_____
- ❒ Neopterin/biopterin - check boxes
  - ❒ CSF ❒ Other
- ❒ Aminoaciduria
- ❒ Urine glycosaminoglycans
- ❒ Acylcarnitines
- ❒ Transferrin
- ❒ Creatine/guanidinoacetate
- ❒ Very long chain fatty acids
- ❒ Pipecolic acid
- ❒ Phytanic acid
- ❒ Other:_____
- ❒ CPK abnormalities: (value:_____)
- ❒ Elevated alanine
- ❒ Elevated pyruvate
- ❒ Hyperammonemia
- ❒ Hypoglycemia
- ❒ Ketosis
- ❒ Lactic acidemia/high CSF lactate (circle if applies)
- ❒ Low plasma carnitine
- ❒ Organic aciduria

Skin Abnormalities:
- ❒ Scaly skin
- ❒ Angiokeratoma
- ❒ Skin abnormality (type:_____)

Biopsy Abnormalities:
- ❒ Muscle biopsy
  - ❒ COX deficiency
  - ❒ Histology
  - ❒ Large mitochondria (mt)/mt proliferation
  - ❒ Ragged red fibers
  - ❒ Respiratory enzymes:_____
  - ❒ Ultrastructure (EM): _____
- ❒ mtDNA depletion/multiple mtDNA deletions
- ❒ Abnormal nerve biopsy
- ❒ Histochemical study
- ❒ Glycogen storage
- ❒ Other storage (type:_____)

Other clinical history or testing:
- ❒ Sideroblastic anemia
- ❒ Pancytopenia
- ❒ Array CGH:
- ❒ Chromosomes/FISH:
- ❒ Other relevant results (clinical or research):

Draw/attach pedigree and/or include additional clinical information:

Informed Consent

Account # Account Name

First Name Last Name Date of Birth (mm/dd/yy)

I understand that my health care provider has ordered the following genetic testing for {me/my child}:_____.

General Information About Genetic Testing

What is genetic testing?

DNA provides instructions for our body's growth and development. Genes are distinct sequences of DNA, and are arranged on chromosomes. The DNA in a gene contains instructions for making proteins, which determine things like growth and metabolism as well as traits like eye color and blood type. Genetic disorders are caused by certain changes in DNA affecting the structure or number of chromosomes. Genetic testing is a laboratory test that tries to identify these changes in chromosomes or the DNA. Genetic testing can be a diagnostic test, which is used to identify or rule out a specific genetic condition. Genetic screening tests are used to assess the chance for a person to develop or have a child with a genetic condition. Genetic screening tests are not typically diagnostic and results may require additional testing.

The purpose of this test is to see if I, or my child, may have a genetic variant or chromosome rearrangement causing a genetic disorder or to determine the chance that I, or my child, will develop or pass on a genetic disorder in the future. 'My child' can also mean my unborn child, for the purposes of this consent.

If I/my child already know the specific gene variant(s) or chromosome rearrangement that causes the genetic disorder in my family, I will inform the laboratory of this information.

What could I learn from this genetic test?

The following describes the possible results from the test:

1) Positive: A positive result indicates that a genetic variant has been identified that explains the cause of my/my child's genetic disorder or indicates that I/my child am at increased risk to develop the disorder in the future. It is possible to test positive for more than one genetic variant.

2) Negative: A negative result indicates that no disease-causing genetic variant was identified by the test performed. It does not guarantee that I/my child will be healthy or free from genetic disorders or medical conditions. If I/my child test negative for a variant known to cause the genetic disorder in other members of my/my child's family, this result rules out a diagnosis of the same genetic disorder in me/my child due to this specific change.

3) Inconclusive/Variant of Uncertain Significance (VUS): A finding of a variant of uncertain significance indicates that a genetic change was detected, but it is currently unknown whether that change is associated with a genetic disorder either now or in the future. A variant of uncertain significance is not the same as a positive result and does not clarify whether I/my child is at increased risk to develop a genetic disorder. The change could be a normal genetic variant or it could be disease-causing. Further analysis may be recommended, including testing parents and other family members. Detailed medical records or information from other family members also may be needed to help clarify results.

4) Unexpected results: In rare instances, this test may reveal an important genetic change that is not directly related to the reason for ordering this test. For example, this test may tell me about the risk for another genetic condition I/my child is not aware of or it may indicate differences in the number or rearrangement of sex chromosomes. This information may be disclosed to the ordering health care provider if it likely impacts medical care.

Result interpretation is based on currently available information in the medical literature, research and scientific databases. Because the literature, medical and scientific knowledge are constantly changing, new information that becomes available in the future may replace or add to the information GeneDx used to interpret my/my child's results. Providers can contact GeneDx at any time to discuss the classification of an identified variant. In addition, I or my/my child's health care providers may monitor publicly available resources used by the medical community, such as ClinVar (www.clinvar.com), to find current information about the clinical interpretation of my/my child's variant(s).

For tests that evaluate data from multiple family members, my spouse, or partner concurrently, results may be included in a single comprehensive report.

What are the risks and limitations of this genetic test?

- Genetic testing is an important part of the diagnostic process. However, genetic tests may not always give a definitive answer. In some cases, testing may not identify a genetic variant even though one exists. This may be due to limitations in current medical knowledge or testing technology.
- Accurate interpretation of test results may require knowing the true biological relationships in a family. Failing to accurately state the biological relationships in my/my child's family may result in incorrect interpretation of results, incorrect diagnoses, and/or inconclusive test results. In some cases, genetic testing can reveal that the true biological relationships in a family are not as they were reported. This includes non-paternity (the stated father of an individual is not the biological father) and consanguinity (the parents of an individual are related by blood). It may be necessary to report these findings to the health care provider who ordered the test.
- Genetic testing is highly accurate. Rarely, inaccurate results may occur for various reasons. These reasons include, but are not limited to: mislabeled samples, inaccurate reporting of clinical/medical information, rare technical errors, or unusual circumstances such as bone marrow transplantation, or the presence of change(s) in such a small percentage of cells that the change(s) may not be detectable by the test (mosaicism).
- This test does not have the ability to detect all of the long-term medical risks that I/my child might experience. The result of this test does not guarantee my health or the health of my child/fetus. Other diagnostic tests may still need to be done, especially when only a genetic screening test has been performed previously.
- Occasionally, an additional sample may be needed if the initial specimen is not adequate.

Patient Confidentiality and Genetic Counseling

It is recommended that I receive genetic counseling before and after having this genetic test. I can find a genetic counselor in my area here: www.nsgc.org. Further testing or additional consultations with a health care provider may be necessary.

To maintain confidentiality, the test results will only be released to the referring health care provider, to the ordering laboratory, to me, to other health care providers involved in my/my child's diagnosis and treatment, or to others as entitled by law. The United States Federal Government has enacted several laws that prohibit discrimination based on genetic test results by health insurance companies and employers. In addition, these laws prohibit unauthorized disclosure of this information. For more information, I understand that I can visit www.genome.gov/10002077.

International Specimens

If I/my child reside outside the United States, I attest that by providing a sample for testing, I am not knowingly violating any export ban or other legal restriction in the country of my/my child's residence.

Additional information about the specific test being ordered is available from my health care provider or I can go to the GeneDx website, www.genedx.com. This information includes the specific types of genetic disorders that can be identified by the genetic test, the likelihood of a positive result, the limitations of genetic testing, as well as information about how specimens and information are stored and used.

A. Notifier:

B. Patient Name: **C. Identification Number:**

Advance Beneficiary Notice of Noncoverage (ABN)

NOTE: If Medicare doesn't pay for **D.**_____ below, you may have to pay. Medicare does not pay for everything, even some care that you or your health care provider have good reason to think you need. We expect Medicare may not pay for the **D.**_____ below.

D.	E. Reason Medicare May Not Pay:	F. Estimated Cost

WHAT YOU NEED TO DO NOW:

- Read this notice, so you can make an informed decision about your care.
- Ask us any questions that you may have after you finish reading.
- Choose an option below about whether to receive the **D.**_____ listed above.
  Note: If you choose Option 1 or 2, we may help you to use any other insurance that you might have, but Medicare cannot require us to do this.

G. OPTIONS: Check only one box. We cannot choose a box for you.

☐ **OPTION 1.** I want the **D.**_____ listed above. You may ask to be paid now, but I also want Medicare billed for an official decision on payment, which is sent to me on a Medicare Summary Notice (MSN). I understand that if Medicare doesn't pay, I am responsible for payment, but **I can appeal to Medicare** by following the directions on the MSN. If Medicare does pay, you will refund any payments I made to you, less co-pays or deductibles.

☐ **OPTION 2.** I want the **D.**_____ listed above, but do not bill Medicare. You may ask to be paid now as I am responsible for payment. **I cannot appeal if Medicare is not billed.**

☐ **OPTION 3.** I don't want the **D.**_____ listed above. I understand with this choice I am **not** responsible for payment, and **I cannot appeal to see if Medicare would pay.**

H. Additional Information:

This notice gives our opinion, not an official Medicare decision. If you have other questions on this notice or Medicare billing, call **1-800-MEDICARE** (1-800-633-4227/**TTY:** 1-877-486-2048). Signing below means that you have received and understand this notice. You also receive a copy.

I. Signature:	J. Date:

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