Genetic testing from Athena Diagnostics can help uncover the etiology of hearing loss

When it comes to genetic hearing loss, over 6,000 causative variants have been identified in more than 100 genes, underscoring the substantial impact an all-encompassing, multi-gene panel may have in aiding timely diagnosis.\textsuperscript{1} Many hearing loss genes have overlapping presentations that are hard to differentiate, making test selection difficult.\textsuperscript{2} Athena's next-generation sequencing (NGS) panel provides clinicians unique insights to help address the problem.

For complex interpretations, Athena Diagnostics MDs, PhDs, scientists, and genetic counselors assess the pathogenicity of variants of uncertain clinical significance, offering you a comprehensive, objective assessment that can help you help your patients.

Athena Diagnostics delivers a comprehensive testing solution that streamlines the path to diagnosis

The Hearing Loss Advanced Sequencing and CNV Evaluation is a comprehensive and up-to-date hearing loss panel. Our panel looks for sequence variations and copy number variants (CNVs) within the respective genes to provide physicians with clear insight to the etiology of the hearing loss.

Built on a foundation of decades of clinical testing, available literature, and the latest ACMG guidelines, the panel tests 183 genes and the DFNB1 locus, that are linked to hearing loss.

When used in conjunction with other clinical testing, the Hearing Loss Advanced Sequencing and CNV Evaluation can have benefits including:

- For newborns who fail hearing screen:
  - to explicitly determine the genetic etiology
  - to initiate an early intervention program and other medical management

- For congenitally deaf patients to understand the cause of their hearing loss and determining appropriate interventions/treatments

- For relatives of individuals with congenital deafness to determine carrier status and risk of recurrence

- For patients considering the use of aminoglycoside antibiotics with reason to suspect they may carry aminoglycoside-sensitive mutations

- For relatives of patients with an aminoglycoside-caused hearing loss condition

The American College of Medical Genetics and Genomics (ACMG) recommends that clinicians consider next-generation sequencing when evaluating the causes of hearing loss.\textsuperscript{3}
A broad genetic testing panel can often shorten the diagnostic course and provide critical information for the physician and the patient. The Hearing Loss Advanced Sequencing and CNV Evaluation harnesses the power of sequencing and CNV analysis to provide a clear picture by testing for 183 genes and the DFNB1 locus:

- ABHD12
- ACTB
- ACTG1
- ADCY1
- ADGRV1 (GPR98)
- AIFM1
- ALMS1
- ANKH
- ATP2B2 (PMCA2)
- ATP6V1B1
- ATP6V1B2
- BCS1L
- BDP1
- BSDN
- C2BP2
- CACNA1D
- CDC50
- CD151
- CD164
- CDC14A
- CDH23
- CEACAM16
- CEMIP
- CHD7
- CHSY1
- CIB2
- Cisd2
- CLDN14
- CLIC5
- CLPP
- CLKRN1
- COCH
- COL11A1
- COL11A2
- COL4A4
- COL4A5
- COL4A6
- COL9A1
- COL9A2
- COL9A3
- CRYM
- DCDC2
- DFNA5
- DFNB1 locus
- DFNB59 (P2V6)
- DIABLO
- DIAP1
- DIAP2
- DLX5
- DNM1
- DSP
- EDN3
- EDNRA
- EDNRB
- ELMOD3
- EPS8
- ERCC1
- ERCC2
- ESPN
- ESRB
- EYA1
- EYA4
- FGF3
- FGF1
- FGF2
- FGF3
- FOX1
- GATA3
- GIPC3
- GJB2
- GJB3
- GJB6
- GPSM2
- GRHL2
- GRXCR1
- GRXCR2
- HARS2
- HGF
- HOMER2
- HoxB1
- HSD17B4
- ILDR1
- KARS
- KCNE1
- KCN10
- KCNQ1
- KCNQ4
- LARS2
- LHFPL5
- LIXH1
- LRTOMT
- MANBA
- MARVELD2
- MCM2
- MT
- MTRR6
- NLRP3
- PTPRQ
- ADX
- RIPOR2
- OPA1
- OSBPL2
- (FAM65B)
- ROR1
- S1PR2
- SALL1
- SEMA3E
- SERPINB6
- SIX1
- SIX5
- SLC12A1
- SLC17A8
- SLC19A2
- SLC22A4
- SLC26A4
- SLC26A5
- SLC4A11
- SLITRK6
- SMPX
- SQN12
- SOX10
- STRC
- SYNE4
- WFS1
- WHRN

**Genes Tested in the Hearing Loss Advanced Sequencing and CNV Evaluation**

A broad genetic testing panel can often shorten the diagnostic course and provide critical information for the physician and the patient. The Hearing Loss Advanced Sequencing and CNV Evaluation harnesses the power of sequencing and CNV analysis to provide a clear picture by testing for 183 genes and the DFNB1 locus.


Athena Diagnostics offers a comprehensive genetic test menu for hearing loss. Customers in the U.S. and Canada please call toll free 1-800-394-4493 or visit us online at AthenaDiagnostics.com/HearingLoss.