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Client: Example Client ABC123
123 Test Drive
Salt Lake City, UT 84108
UNITED STATES

Physician: Doctor, Example

Patient: Patient, Example

DOB	6/17/2004
Gender:	Male
Patient Identifiers:	01234567890ABCD, 012345
Visit Number (FIN):	01234567890ABCD
Collection Date:	

Hearing Loss, Nonsyndromic Panel (GJB2) Sequencing, (GJB6) 2 Deletions and Mitochondrial DNA 2 Mutations

ARUP test code 2001992

HL Panel Specimen	Whole Blood
GJB2 Sequencing	0 mutations
Mitochondrial DNA, 2 Mutations	0 mutations
Connexin 30 GJB6 Deletions	0 mutations
Hearing Loss Panel Interpretation	Negative

H=High, L=Low, *=Abnormal, C=Critical

TEST PERFORMED - 2001992
TEST DESCRIPTION - Hearing Loss, Nonsyndromic Panel (GJB2) Sequencing, (GJB6) 2 Deletions and Mitochondrial DNA 2 Mutations
INDICATION FOR TEST - Carrier Status

RESULT
No pathogenic variants were detected in the GJB2 gene. The targeted pathogenic variants in the GJB6, MT-RNR1 and MT-TS1 genes were not detected.

INTERPRETATION
No pathogenic variants were identified by sequencing of GJB2 (Connexin 26), or by targeted testing for two GJB6 deletions (Connexin 30 309kb and 232kb) and two pathogenic mitochondrial DNA variants (m.1555A>G in the MT-RNR1 gene and m.7445A>G in the MT-TS1 gene). This individual could still be a carrier of, or affected with, hearing loss due to other genetic or environmental causes.

RECOMMENDATIONS
Medical management of this individual should rely on clinical findings and family history. If suspicion for an inherited form of hearing loss remains, consider analysis of other associated genes (Expanded Hearing Loss Panel, ARUP test code 2008803).

COMMENTS
Reference Sequences: GenBank # NM_004004.5 (GJB2), NC_012920 (MT-RNR1 and MT-TS1)
Nucleotide numbering begins at the "A" of the ATG initiation codon.
Benign variants are not included in this report but are available upon request.

This result has been reviewed and approved by Elaine Lyon, Ph.D.

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BACKGROUND INFORMATION: Hearing Loss, Nonsyndromic Panel (GJB2) Sequencing, (GJB6) 2 Deletions and Mitochondrial DNA 2 Mutations

CHARACTERISTICS: Nonsyndromic hearing loss (NSHL).
INCIDENCE: Approximately 1 in 2600 for NSHL; 50 percent due to GJB2 mutations, 2-4 percent associated with GJB6 deletions, and 1-2 percent related to mitochondrial mutations.
INHERITANCE: Dependent on gene. GJB2: Autosomal recessive; rarely dominant. GJB6: Autosomal recessive; resulting from either two GJB6 deletions or one GJB6 deletion and one GJB2 mutation on the opposite chromosome. Mitochondrial DNA: Dominant maternal inheritance.
PENETRANCE: Complete for GJB6; variable for GJB2 and mitochondrial DNA.
CAUSE: Deleterious GJB2, GJB6, and mitochondrial DNA mutations.
MUTATIONS TESTED: GJB2: Coding region, intron-exon boundary and 5'-UTR mutations. GJB6: 309kb del(GJB6-D13S1830), previously reported as 342kb, and 232kb del(GJB6-D13S1854). Mitochondrial: m.1555A>G and m.7445A>G.
CLINICAL SENSITIVITY: 50-55 percent for Caucasians with NSHL; unknown in other ethnicities.
METHODOLOGY FOR GJB2 SEQUENCING: Bidirectional sequencing of the entire coding region, intron-exon boundaries, and 5'-UTR of the GJB2 gene.
METHODOLOGY FOR GJB6 2 DELETIONS: Multiplex PCR using deletion-specific primers followed by capillary gel electrophoresis.
METHODOLOGY FOR MITOCHONDRIAL DNA 2 MUTATIONS: Targeted bidirectional sequencing of mitochondrial mt-RNR1 m.1555A>G and mt-TS1 m.7445A>G.
ANALYTICAL SENSITIVITY AND SPECIFICITY: Greater than 99 percent.
LIMITATIONS: Diagnostic errors can occur due to rare sequence variations. GJB2 regulatory region mutations, deep intronic mutations and large deletions or duplications will not be detected. GJB6 and mitochondrial DNA mutations, aside from those targeted will not be detected. The etiology of hearing loss due to other genetic or environmental causes will not be determined.

Test developed and characteristics determined by ARUP Laboratories. See Compliance Statement C: aruplab.com/CS

VERIFIED/REPORTED DATES

Procedure	Accession	Collected	Received	Verified/Reported
HL Panel Specimen	18-199-112356	7/18/2018 1:40:00 PM	7/18/2018 1:40:54 PM	7/18/2018 3:03:00 PM
GJB2 Sequencing	18-199-112356	7/18/2018 1:40:00 PM	7/18/2018 1:40:54 PM	7/18/2018 3:03:00 PM
Mitochondrial DNA, 2 Mutations	18-199-112356	7/18/2018 1:40:00 PM	7/18/2018 1:40:54 PM	7/18/2018 3:03:00 PM
Connexin 30 GJB6 Deletions	18-199-112356	7/18/2018 1:40:00 PM	7/18/2018 1:40:54 PM	7/18/2018 3:03:00 PM
Hearing Loss Panel Interpretation	18-199-112356	7/18/2018 1:40:00 PM	7/18/2018 1:40:54 PM	7/18/2018 3:03:00 PM

END OF CHART

H=High, L=Low, *=Abnormal, C=Critical