



# Laboratory Service Manual

**Lab Dept:** Anatomic Pathology

**Test Name:** AMINOGLYCOSIDE-INDUCED DEAFNESS  
(MTRNR1) SEQUENCING

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## **General Information**

**Lab Order Codes:** AMND

**Synonyms:** Hearing Loss Genes; MTRNR; C494T Mutation; A1555G Mutation

**CPT Codes:** 83891 – Isolation or extraction of highly purified nucleic acid  
83894 x2 – Separation by gel electrophoresis  
83898 x2 – Amplification of patient nucleic acid, each nucleic acid sequence  
83904 x2– Mutation identification by sequencing, single segment, each segment

**Test Includes:** Samples are amplified with an oligonucleotide primer pair that flanks the A1555G and C1494T mutations within the MTRNR1 gene, followed by sequencing.

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## **Logistics**

**Test Indications:** This test is appropriate if aminoglycoside-induced ototoxicity is suspected.

MTRNR1 encodes the mitochondrial 12S ribosomal RNA protein. Hearing loss as a result of aminoglycoside exposure (OMIM# 58000) has been reported to involve at least two mutations in this gene, C1494T and A1555G. Damage to the inner ear is caused by reactive oxygen species, which provide a common pathway not only for aminoglycoside toxicity, but also for cisplatin toxicity and noise-induced hearing loss. Both mutations are screened.

**Lab Testing Section:** Anatomic Pathology - Sendouts

**Referred to:** University of Iowa, Dr. Richard Smith

### **Phone Numbers:**

Minneapolis: 612-813-6280

Saint Paul: 651-220-6550

**Test Availability:** Monday – Thursday, 24 hours

**Turnaround Time:** 3 months



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**Special Instructions:** Include clinical data, specifically audiograms, CT/MRI reports, and pedigree information. Include name, e-mail, and telephone number of contact person (physician or genetic counselor). **Do NOT send on Friday or Saturday.**

Include a completed [request form](#) with the patient or specimen to the laboratory.

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## ***Specimen***

**Specimen Type:** Whole blood

**Container:** Lavender top (EDTA) tube

**Draw Volume:** 10 mL (Minimum 8 mL) blood

**Processed Volume:** 8 – 10 mL whole blood

**Collection:** Routine venipuncture

**Special Processing:** Send lavender tubes labeled with a minimum of Name, Date of Birth, and Age. Include clinical data, specifically audiograms, CT/MRI reports, and pedigree information. Include name, e-mail, and telephone number of contact person (physician or genetic counselor). Mail overnight delivery at **Room Temperature** Monday - Thursday. **Do Not send on Friday or Saturday.** Samples may be refrigerated if delivery is delayed.

**Patient Preparation:** None

**Sample Rejection:** Specimens older than 48 hours; mislabeled or unlabeled specimens

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## ***Interpretive***

**Reference Range:** No abnormal allele variants detected

**Methodology:** Amplified with an oligonucleotide primer pair; followed by sequencing

**References:** [Clinical Diagnostics Service, Molecular Otolaryngology Research Lab](#) information sheet from the University of Iowa. June 2010  
(319) 335-7997 Fax: (319) 353-5869

**Updates:** 7/29/2010: CPT updates from University of Iowa.