### Apolipoprotein E (APOE) Genotyping, Cardiovascular Risk

**ARUP test code 2013337**

<table>
<thead>
<tr>
<th>APOE Specimen</th>
<th>Whole Blood</th>
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<tbody>
<tr>
<td>APOE Cardiovascular Risk, Genotype</td>
<td>e3/e3</td>
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**Indication for testing:** Assess genetic risk for type III hyperlipoproteinemia. HOMOZYGOUS APO e3 (e3/e3): This is the most common genotype in the normal population. It is not associated with an increased risk for type III hyperlipoproteinemia.

This result has been reviewed and approved by

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**H=High, L=Low, *=Abnormal, C=Critical**
BACKGROUND INFORMATION: Apolipoprotein E (APOE) Genotyping, Cardiovascular Risk

Characteristics: Hyperlipoproteinemia III (HPL III) is characterized by increased cholesterol and triglyceride levels, presence of B-VLDL, xanthomas, and premature vascular disease including coronary heart disease (CHD) and peripheral artery disease.

Incidence of HPL III: Approximately 1 in 5,000.

Inheritance of HPL III: Multifactorial; greater than 90 percent of affected individuals are homozygous for the e2 allele but other factors such as diabetes and hypothyroidism also play a large role in development of disease.

Penetrance: 1 to 5 percent of individuals homozygous for the e2 will develop HPL III.

Cause: 2 copies of the e2 allele provides supporting evidence for a diagnosis of HPL III in a symptomatic individual but e2 homozygosity is neither necessary nor sufficient for HPL III.


Clinical Sensitivity: 90 percent of individuals with HPL III are homozygous for the e2 variant.

Methodology: Polymerase chain reaction (PCR) and fluorescence monitoring using hybridization probes.

Analytical Sensitivity and Specificity: 99 percent.

Limitations: Only the e2, e3 and e4 variants will be detected. Rare isoforms of APOE will not be detected. If rare alleles are suspected, phenotyping by isoelectric focusing may be indicated. Diagnostic errors can occur due to rare sequence variations.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Counseling and informed consent are recommended for genetic testing. Consent forms are available online.

VERIFIED/REPORTED DATES

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<tr>
<th>Procedure</th>
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