Brugada Syndrome: Sequencing Panel

Test Code: MM095
Turnaround time: 6 weeks
CPT Codes: 81404 x2, 81406 x1

Condition Description

Brugada syndrome is characterized by cardiac conduction abnormalities. These cardiac abnormalities can result in sudden death. Often features such as syncope and/or arrhythmias present in adulthood; however, the age of diagnosis ranges from two days to 85 years. Pathogenic variants in eight genes are known to cause Brugada syndrome. Only 25% of individuals with Brugada syndrome have an identifiable pathogenic variant in one of the eight genes known to cause it. Most individuals with Brugada syndrome have an affected parent but approximately 1% of cases are the result of a de novo pathogenic variant.

Reference:
- GeneReviews

Genes

CACNA1C, CACNB2, GPD1L, HCN4, KCNE3, SCN1B, SCN3B, SCN5A

Indications

This test is indicated for:
- Confirmation of a clinical diagnosis of Brugada syndrome.
- Carrier testing in adults with a family history of Brugada syndrome.

Methodology

Next Generation Sequencing: In-solution hybridization of all coding exons is performed on the patient's genomic DNA. Although some deep intronic regions may also be analyzed, this assay is not meant to interrogate most promoter regions, deep intronic regions, or other regulatory elements, and does not detect single or multi-exon deletions or duplications. Direct sequencing of the captured regions is performed using next generation sequencing. The patient's gene sequences are then compared to a standard reference sequence. Potentially causative variants and areas of low coverage are Sanger-sequenced. Sequence variations are classified as pathogenic, likely pathogenic, benign, likely benign, or variants of unknown significance. Variants of unknown significance may require further studies of the patient and/or family members.

Detection

Next Generation Sequencing: Clinical Sensitivity: 25% of individuals with Brugada syndrome have an identifiable pathogenic variant. Pathogenic variants in the promoter region, some pathogenic variants in the introns and other regulatory element pathogenic variants cannot be detected by this analysis. Large deletions will not be detected by this analysis. Results of molecular analysis should be interpreted in the context of the patient's clinical and/or biochemical phenotype.

Analytical Sensitivity: ~99%.

Specimen Requirements

Submit only 1 of the following specimen types

Type: Whole Blood

Specimen Requirements:
- In EDTA (purple top) tube:
  - Infants (2 years): 3-5 ml
  - Older Children & Adults: 5-10 ml.
- Specimen Collection and Shipping: Ship sample at room temperature with overnight delivery.

Type: Isolated DNA

Specimen Requirements:
- In microtainer: 60 ug
- Isolation using the Qiagen™ Puregene kit for DNA extraction is recommended.
- Specimen Collection and Shipping: Refrigerate until time of shipment in 100 ng/ul of TE buffer. Ship sample at room temperature with overnight

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Related Tests

- Comprehensive cardiomyopathy panel
- Brugada Syndrome: Deletion/Duplication Panel