Lab Dept: Anatomic Pathology

Test Name: EXPANDED RASOPATHY PANEL (14 GENES)

General Information

Lab Order Codes: NSPC

Synonyms: Leopard Syndrome; Cardio-facio-cutaneous; Costello Syndrome; Noonan Syndrome, RASopathy Panel, Extended

CPT Codes: 81442 x1 – Noonan spectrum disorders, genomic sequence analysis panel

Test Includes: DNA sequencing covering 14 genes that have been associated with Noonan, CFC, LEOPARD, Costello, NF1, and Legius syndromes including: PTPN11, SOS1, RAF1, KRAS, HRAS, BRAF,MAP2K1, MAP2K2, NRAS, SHOC2, CBL, RIT1, NF1, SPRED1.

Logistics

Test Indications: Molecular diagnostics can help distinguish between the different Noonan spectrum disorders in individuals who have clinical features associated with the syndromes. Common features of these disorders are facial anomalies, heart defects, growth retardation, skeletal anomalies, and variable degrees of mental retardation or developmental delay. This comprehensive approach simultaneously tests all genes associated with the disorders at one time. It provides complete testing while eliminating the need to determine which of these genes to test based on an individual's clinical features, reducing the likelihood of missed molecular diagnosis.

Lab Testing Sections: Anatomic Pathology - Sendouts

Referred to: Harvard Medical School Partners Healthcare

Phone Numbers: MIN Lab: 612-813-6280

STP Lab: 651-220-6550

Test Availability: Daily, 24 hours

Turnaround Time: 4 - 6 weeks

Special Instructions: Please send completed Harvard requisition form to the lab with the patient or specimen.

Specimen

Specimen Type: Whole blood

Container:	Lavender top (EDTA) tube
Draw Volume:	7 mL (Pediatric Minimum: 3-5 mL) blood
Processed Volume:	Same as Draw Volume
Collection:	Routine venipuncture
Special Processing:	Lab Staff: Do Not Centrifuge. Store refrigerated for up to 7 days. Ship at ambient temperature overnight with a cool pack in warm weather. Include a signed consent form and requisition. The Laboratory for Molecular Medicine accepts samples Monday-Friday. Please keep blood samples drawn on Fridays, weekends, and holidays refrigerated and ship the next business day.
Patient Preparation:	None
Sample Rejection:	Frozen specimen; specimen too old; mislabeled or unlabeled specimens

Interpretive

Reference Range:	An interpretive report will be provided
Critical Values:	N/A
Limitations:	A negative test result does not rule out a diagnosis of Noonan, Leopard, Cardio-facio-cutaneous or Costello Syndrome. Additional genes that have not yet been identified may also be associated with these syndromes. This test does not detect mutations in non-coding regions that could affect gene expression or deletions encompassing a large portion of the gene, aside from the splice junctions, and a few exons have been exlcluded due to technical difficulties.
Methodology:	Next generation sequencing using Agilent SureSelect capture followed by sequencing of the coding regions and splice sites usining Illumina sequencing technologies. Variant calls are generated using the Burrows-Wheeler Aligner followed by Genomic Analysis Tool Kit (GATK) analysis. Detection of copy number variants (CNVs) encompassing 1 or more exons is performed using VisCap™ analysis. Sanger sequencing is used to fill in regions with insufficient coverage. All clinically significant variants are confirmed.
References:	Harvard Medical School Partners Healthcare Laboratory of Molecular Medicine April 2016

Updates:

3/21/2011: Test moved to direct to Harvard. Previously forwarded by Mayo.
2/7/2013: CPT update
1/21/2014: CPT update
4/14/2015: Updated genes to expanded RASopathy panel and updated methodology.
4/14/2016: Updated test name to reflect testing changes made at Harvard. Previously listed as Noonan Spectrum Chip.