ARUP LABORATORIES

Quarterly HOTLINE: Effective June 4, 2018

New Test	**3000544**	**Chronic Granulomatous Disease Panel (*CYBB* Sequencing and *NCF1* Exon 2 GT Deletion)**	**CGD PAN**

Methodology: Polymerase Chain Reaction/ Sequencing/ High Resolution Melt Analysis
Performed: Sun-Sat
Reported: Within 2 weeks

Specimen Required: Collect: Lavender (EDTA), Pink (K_2EDTA), Yellow (ACD).
Specimen Preparation: Transport 3 mL whole blood. (Min: 1 mL)
Storage/Transport Temperature: Refrigerated.
Stability (collection to initiation of testing): Ambient: 1 week; Refrigerated: 1 month; Frozen: 6 months

Interpretive Data:
Background Information for Chronic Granulomatous Disease Panel (*CYBB* Sequencing and *NCF1* Exon 2 GT Deletion):
Characteristics of Chronic Granulomatous Disease (CGD): A primary immunodeficiency disorder characterized by recurrent, severe bacterial and fungal infections of the skin, lymph nodes, liver, lungs, bones, or visceral organs. Dysregulated inflammatory responses result in granulomas.
Incidence: Approximately 1 in 250,000 births.
Inheritance: X-linked recessive for *CYBB*; de novo variants in 10-20 percent of affected males. Autosomal recessive for *NCF1*.
Cause: Pathogenic variants in the X-linked *CYBB* gene (60-70 percent), pathogenic variants in autosomal recessive genes *NCF1* (25 percent), *CYBA* (Less than 5 percent), *NCF2* (Less than 5 percent) and *NCF4* (very rare).
Clinical Sensitivity: Up to 78 percent for CGD
Methodology: Bidirectional sequencing of the *CYBB* coding region and intron-exon boundaries. Polymerase Chain Reaction/High-Resolution Melt Analysis to assess for the common *NCF1* c.75_76delGT variant.
Analytical Sensitivity: 99 percent for *CYBB* and homozygous *NCF1* c.75_76delGT deletion, 90 percent for heterozygous *NCF1* c.75_76delGT deletion.
Analytical Specificity: 99 percent.
Limitations: Diagnostic errors can occur due to rare sequence variations. Regulatory region variants, deep intronic variants, and large duplications will not be detected in patients of either sex; large deletions will not be detected in females. Variants in *NCF1* other than c.75_76delGT are not evaluated. Because of potential recombination between *NCF1* and its pseudogenes, the lack of detection of the c.75_76delGT variant does not rule out carrier status for autosomal recessive CGD.

CPT Code(s): 81479

New York DOH approval pending. Call for status update.

HOTLINE NOTE: Refer to the Test Mix Addendum for interface build information.