Lab Dept: Anatomic Pathology

Test Name: CYP21A2 (CAH) EVALUATION SEQUENCING

General Information

Lab Order Codes: CYPA

Synonyms: Congenital Adrenal Hyperplasia Evaluation Sequencing; CYP21A2 Sequencing; 21-Hydroxylase Gene Sequencing

CPT Codes: 81405 – Molecular Pathology Level 6 (CYP21A2, full gene sequence)

81402 – Molecular Pathology Level 3 (CYP21A2, common variants)

Test Includes: Sanger sequencing and multiplex ligation-dependent probe amplification to evaluate the CYP21A2 gene for carrier screening and diagnosis of the 21-hydroxylase deficient congenital adrenal hyperplasia (CAH).

Logistics

Test Indications: Carrier screening and diagnosis of 21-hydroxylase deficient congenital adrenal hyperplasia (CAH) in individuals with a personal or family history of 21-hydroxylase deficiency, or as follow-up to positive CAH newborn screens/or measurement of basal and adrenocortotropic hormone-1-23 stimulated 17-hydroxyprogesterone, androstenedione, and other adrenal steroid levels.

May be used to identify CYP21A2 mutations in individuals with a suspected diagnosis of 21-hydroxylase deficient CAH when a common mutation panel is negative or only identifies 1 mutation.

In prenatal cases of ambiguous genitalia detected by untrasound, particularly when the fetus is confirmed XX female by chromosome analysis.

This test code should also be used for known/familial variant analysis for CYP21A2. Due to the complexity of the CYP21A2 locus, site specific testing for known/familial variants is not offered for this gene.

Lab Testing Section: Anatomic Pathology – Sendouts

Referred to: Mayo Medical Laboratories (MML: CYPZ)

Phone Numbers: MIN Lab: 612-813-6280

STP Lab: 651-220-6550

Test Availability: Daily, 24 hours

Turnaround Time:	Performed weekly, analytic time - 14 days
Special Instructions:	Include form CYP21A2 Gene Testing Patient Information Sheet with the specimen.

Specimen

Specimen Type:	Whole blood
Container:	Lavender top (EDTA) tube
Draw Volume:	3 mL (Minimum: 1 mL) blood
Processed Volume:	Same as Draw Volume
Collection:	Routine venipuncture
Special Processing:	Lab Staff: Do Not Centrifuge. Specimen should remain in the original collection container. Store and ship at room temperature. Forward promptly.
Patient Preparation:	None
Sample Rejection:	Mislabeled or unlabeled specimens; specimens other than EDTA whole blood

Interpretive

Reference Range:	An interpretive report will be provided.
Limitations:	Because of the complexity of the genetic structure of the CYP21A2 locus, and the possibility that a patient's congenital adrenal hyperplasia (CAH) may be due to other gene defects, genetic testing results should be correlated carefully with clinical and biochemical data. This testing strategy is superior to approaches previously used, but may still miss some complex and large-scale genetic rearrangements or deletions, as well s genetic changes in far upstream or downstream gene-regulatory elements that impair CYP21A2 gene expression. This can lead to false-negative test results. Rare polymorphisms in primer binding sites can lead to selective allelic drop-out, which can lead to false-negative or false-positive diagnosis. Patients without genetic evidence for disease-causing CYP21A2 genetic changes may still suffer from CAH, but due to a different enzyme defect. Additional and expanded biochemical steroid profiling is, therefore, recommended if the clinical picture is strongly suggestive of CAH.

Methodology:	Polymerase Chain Reaction (PCR); Followed by DNA Sequence Analysis and Gene Dosage Analysis by Multiplex Ligation-Dependent Probe Amplification (MLPA)
References:	Mayo Medical Laboratories April 2017 Phone: 1-800-533-1710
Updates:	1/13/2011: CPT update 4/5/2011: Test moved from Athena Diagnostics to Mayo Medical Laboratories. 2/5/2013: CPT update 4/10/2017: CPT and test update