CAH (21-Hydroxylase Deficiency) Common Mutations 14755X

Clinical Use

- Confirm diagnosis of 21-hydroxylase deficiency (21-OHD)
- Screen for 21-OHD carrier status in at-risk individuals
- Prenatal diagnosis of 21-OHD

Reference Range

Negative (no mutations detected)

Interpretive Information

Positive (mutations detected)

- 21-hydroxylase deficiency (carrier or affected)

Clinical Background

21-Hydroxylase deficiency, the most common cause of congenital adrenal hyperplasia (CAH), is an autosomal recessive disorder caused by mutations or rearrangements in the *CYP21A2* gene on chromosome 6. The deficiency is characterized by decreased cortisol and increased androgen blood levels. Severe reduction in 21-hydroxylase activity causes classic CAH, the simple virilizing form (25% of cases), and/or the salt-wasting form, which is further characterized by decreased aldosterone levels. Onset occurs prenatally and, if detected prenatally, it can be treated to reduce virilization in affected females. Non-classic CAH, on the other hand, presents postnatally with signs of hyperandrogenism.

Testing for the more common mutations can detect both relevant mutations in 81% and 1 mutation in about 18% of affected individuals. Preparation for prenatal testing requires mutation analysis of parents and/or an affected offspring.

Method

- Polymerase chain reaction (PCR) and DNA mini-sequencing
- Common mutations sought: P30L; Intron 2 "g"; G110del8nt; I172N; exon 6 cluster of I236N, V237E & M239K; V281L; F306+1nt; Q318X; R356W; and P453S
- Deduction of deletions and recombinations between *CYP21A2* and its pseudogene

Specimen Requirements

5 mL room temperature whole blood

3 mL minimum

Collect blood in a lavender-top (EDTA) or yellow-top (ACD solution B) tube.

For prenatal testing, submit amniotic fluid, CVS sample, or cultured cells from either source.