

Ankylosing Spondylitis Genotyping (*HLA-B27*)

Indications for Ordering

Use as adjunct test for diagnosis in individuals symptomatic for ankylosing spondylitis (AS)

- Should not be performed in asymptomatic individuals or those who do not have high suspicion for AS based on specific symptoms

Test Description

Ankylosing Spondylitis (*HLA-B27*) Genotyping

- Polymerase chain reaction/fluorescence monitoring

HLA-B27

- Qualitative flow cytometry

Tests to Consider

[Ankylosing Spondylitis \(*HLA-B27*\) Genotyping 0050392](#)

- Not a diagnostic test for AS
 - May assist in the diagnosis of the condition only if other clinical signs and symptoms are present
- Test should not be performed for prenatal diagnosis of AS; a positive result is not predictive for the disorder

[HLA-B27 0095840](#)

- Not a diagnostic test for AS, juvenile rheumatoid arthritis, or Reiter syndrome
 - May assist in the diagnosis of these conditions only if other clinical signs and symptoms are present

Disease Overview

Prevalence: based on ethnicity

Gender: female:male, 1:2

Symptoms

- Lower back pain and stiffness
- Arthritis of spine, knees, hips, shoulders
- Fever
- Fatigue, malaise, weight loss
- Anemia
- Other potential organs involved include eyes, lungs, kidneys, and heart
- Confirmation of diagnosis requires classic x-ray findings
 - Blurring of bony margins of joints
 - Bilateral sacroiliac involvement
 - Patchy sclerosis with superficial bony erosions
- Late squaring of vertebral bodies with bamboo spine and complete ankylosis

Genetics

Gene: *HLA-B27*

Inheritance: multifactorial

Structure/Function

Located on chromosome 6

- Encodes for protein with many functions
 - Phagocytosis in infectious diseases
 - Graft rejection
 - Ability to recognize self from nonself in the immune system
- Strong genetic association between *HLA-B27* and AS

Variants

At least 49 subtypes identified

Test Interpretation

Sensitivity/Specificity

- Clinical sensitivity: 90%
- Clinical specificity in an unaffected individual without a family history: <1%
- Analytical sensitivity/specificity: >99%

Results

- Positive: one copy of *HLA-B27* detected
 - Associated with AS and related disorders (Reiter syndrome, anterior uveitis, psoriatic arthritis, and inflammatory bowel disease)
- Negative: no copy of *HLA-B27* identified
 - Does not rule out AS, as 10% of affected individuals lack this antigen
 - Clinical sensitivity: 90%

Limitations

- Contraindicated for prenatal or carrier testing
- Rare diagnostic errors can occur due to probe-site variants
- This test does not rule out the B*27:06 and 27:09 alleles, which are not associated with spondyloarthropathies
- Certain rare alleles present in less than 1% of the population will not be detected
- Other rare or uncharacterized alleles may occur which may lead to false positive or false negative results