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
- Qualitative flow cytometry

Tests to Consider

Ankylosing Spondylitis (HLA-B27) Genotyping 0050392
- May assist in the diagnosis of ankylosing spondylitis, juvenile rheumatoid arthritis, and Reiter’s syndrome
- Tests are not diagnostic for these disorders and should be correlated with other clinical signs and symptoms

HLA-B27 0095840
- Flow cytometry is the preferred test for most patients since sensitivity and specificity are nearly equivalent to the HLA-B27 PCR genotyping test

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
  - Eyes
  - Lungs
  - Kidneys
  - 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

Genes – 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
- Other HLA types will not be detected
- Rare diagnostic errors can occur due to probe-site variants