

FARRZYME™ High Avidity Anti-Double Stranded DNA Assay

A selective Enzyme Immunoassay (EIA) specific for high avidity IgG anti-dsDNA antibodies to aid diagnosis and management of patients with Systemic Lupus Erythematosus (SLE).



- Specifically detects clinically significant IgG class anti-dsDNA antibodies
- Easy to use, standard EIA protocol
- Fully quantitative
- Non-isotopic
- Flexible automation friendly format

A clearer diagnosis of SLE.

FARRZYME™ High Avidity Anti-Double Stranded DNA Assay

FARRZYME is a selective EIA assay for the detection of high avidity IgG anti-dsDNA antibodies.

When used in combination with other assays, FARRZYME aids the diagnosis of SLE and lupus nephritis.

Systemic Lupus Erythematosus (SLE)

SLE is an inflammatory multi-system autoimmune disorder. Patients present with diverse and often complex, clinical manifestations involving inflammation of a number of tissues and organs. Kidney damage can be one of the most serious complications of lupus, with nephritis being a major cause of morbidity and mortality.

Clinical diagnosis is difficult since early symptoms are frequently not specific to SLE. The disease is characterised by recurrent flares of inflammatory activity. However, the risk of flares is uncertain and the severity of inflammation unpredictable.¹

Anti-dsDNA antibodies in SLE

A significantly raised level of anti-dsDNA antibodies is a well established criterion of the ACR (American College of Rheumatology) classification for SLE. Up to 80% of SLE patients can present with elevated levels of antibodies to dsDNA. These antibodies can occur in rheumatologic conditions other than SLE but tend to be low titre.^{2, 3, 4}

Lupus Nephritis

In more than a third of SLE patients, nephritis is a complicating factor and is associated with renal failure.

A large proportion of lupus nephritis patients will have periods of increased inflammatory activity or flares. Each renal flare leaves a number of sclerosed glomeruli and areas of tubulointerstitial fibrosis. Consequently recurrent flares represent a significant problem due to the potential for cumulative damage and subsequent deterioration of renal function.

Early recognition of imminent disease flares may allow appropriate interventions to be undertaken, minimising tissue damage and preserving renal function.^{5, 6, 7}

High avidity anti-dsDNA antibodies

Serological detection of anti-dsDNA antibodies can be an important indicator of disease activity in SLE. The association between high avidity serum IgG anti-dsDNA antibodies and renal inflammatory activity has been reported. Patients are at a higher risk of progressing to more severe disease if they have high avidity antibodies compared to those patients who have only lower avidity anti-dsDNA antibodies detectable.^{6, 7}

FARRZYME™ high avidity anti-dsDNA antibody assay.

FARRZYME is an EIA developed to selectively detect high avidity anti-dsDNA antibodies. The selectivity of FARRZYME for high avidity anti-dsDNA antibodies has been clearly demonstrated in the table below.

| Monoclonal Antibody | High Avidity Antibody - 32B9 (9.6 x 10 ⁻⁷ Kd) | Low Avidity Antibody - 33H11 (6.6 x 10 ⁻⁷ Kd) |
|---------------------------------|--|--|
| FARRZYME (IU/mL) | Strong Positive | Negative |
| Standard anti-dsDNA EIA (IU/mL) | Strong Positive | Strong Positive |

A recent multicentre study (Italy) measuring high avidity anti-dsDNA antibody levels, by FARRZYME in SLE patients at the point of diagnosis, found the assay to be 90.6% specific. During follow up, levels were found to be higher in patients with active disease and renal involvement.⁸

Jaekel *et al.* reported that, of several assays tested, only FARRZYME and Farr radioimmunoassay (RIA) were suitable for the detection of high avidity anti-dsDNA antibodies. They showed that when sera from SLE patients with either active or inactive disease were tested, the specificity of the FARRZYME and Farr RIA assays for SLE diagnosis was highly comparable at 96% and 95% respectively. Relative sensitivities were found to be 36% and 38%, however when serum from SLE patients with nephritis was analysed, the sensitivity in both assays increased to around 70%.⁹

Several studies have suggested a degree of correlation between results using the FARRZYME and the Farr RIA assay. Jaekel *et al.* showed 85% and 89% concordance of the FARRZYME assay with the Trinity Biotech and CLB reference laboratory (Netherlands) Farr assays respectively. However correlation between the FARRZYME and Farr assays is dependent on the particular Farr assay used, due to the variability between different RIA assays available.

Benefit of using FARRZYME™

FARRZYME can be effective as an additional screening assay for suspected SLE patients due to its high specificity.

When used with other clinical assessments it can help determine risk of flares in lupus nephritis, where a significantly elevated positive result can be a good indicator of the need for closer monitoring with respect to kidney function.

PROPOSED SLE AUTOANTIBODY TESTING PROTOCOL

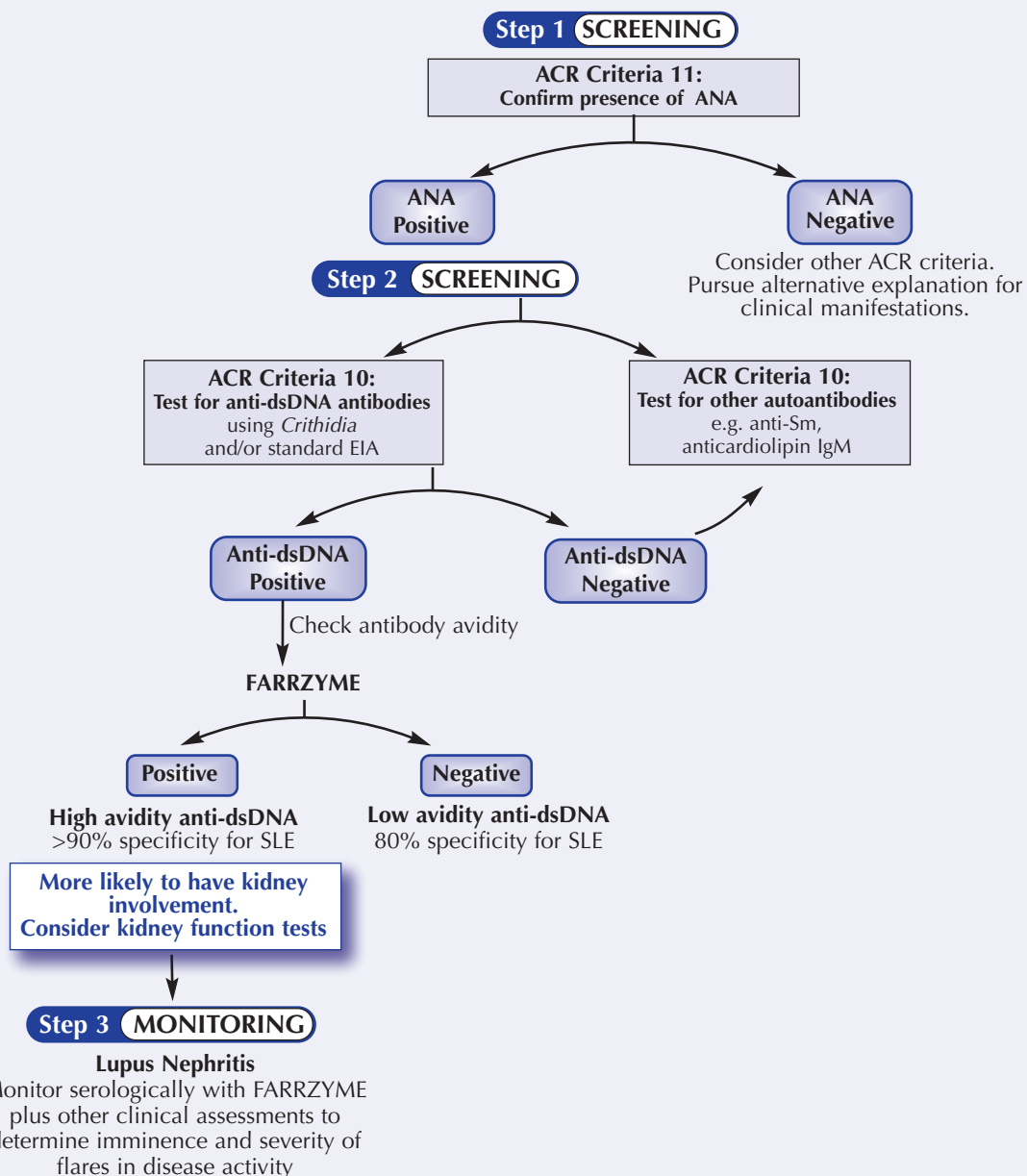
There are 11 ACR criteria of which criteria 10 and 11 refer to serological autoantibody testing.

ACR Criteria 10:

1. double stranded DNA (dsDNA)
2. Sm nuclear antigen
3. phospholipids such as cardiolipin.

ACR Criteria 11:

Positive anti-nuclear antibody (ANA) by immunofluorescence or equivalent testing.



Ordering Information

| DESCRIPTION | PACK | CODE |
|---------------------------------------|---------|-------|
| FARRZYME™ High avidity anti-dsDNA EIA | 96 test | MK072 |

Complementary Binding Site assays for the investigation of SLE.



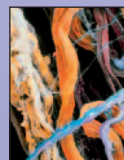
| DESCRIPTION | PACK | CODE |
|------------------------------------|---------|-------|
| Anti-dsDNA EIA | 96 test | MK017 |
| ANA screening EIA | 96 test | MK200 |
| Anti-Sm ENA EIA | 96 test | MK305 |
| Anti-ENA profile EIA | 12 test | MK300 |
| Anti-Cardiolipin IgG EIA | 96 test | MK027 |
| Anti-Cardiolipin IgM EIA | 96 test | MK029 |
| Anti-Cardiolipin IgG/IgM COMBI EIA | 96 test | MK071 |

| DESCRIPTION | WELL | CODE |
|--|----------|---------|
| HEp-2 IFA kits | 10 x 5 | FK001.1 |
| | 25 x 10 | FK001.2 |
| | 20 x 12 | FK001.6 |
| | 100 x 12 | FK001.7 |
| HEp-2 IFA individual slides | 10 x 5 | FS001.1 |
| | 25 x 10 | FS001.2 |
| | 100 x 10 | FS001.3 |
| | 20 x 12 | FS001.6 |
| | 100 x 12 | FS001.7 |
| Crithidia luciliae (dsDNA) IFA kits | 10 x 5 | FK002.1 |
| | 25 x 10 | FK002.2 |
| Crithidia luciliae (dsDNA) individual slides | 10 x 5 | FS002.1 |
| | 25 x 10 | FS002.2 |
| | 100 x 10 | FS002.3 |

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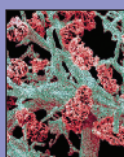
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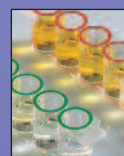
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