

# Chromatin ELISA

## *AIDS IN THE DIAGNOSIS OF DRUG-INDUCED LUPUS (DIL) AND SYSTEMIC LUPUS ERYTHEMATOSUS (SLE)*

### Test Highlights

- Chromatin ELISA detects the presence of chromatin antibodies in human serum, found predominantly in people with SLE and DIL.

### Clinical Background

- Systemic lupus erythematosus (SLE) is an autoimmune disorder that can affect multiple organs. The development of SLE may be associated with numerous drugs.
- One of the main uses of this test is to aid in the diagnosis of DIL. Anti-chromatin antibodies have been found in patients with lupus induced by drugs such as procainamide, quinidine, penicillamine, acebutalol, and methyl dopa.
- Anti-chromatin antibodies were found in people taking procainamide shortly before the development of lupus-like symptoms.
- About 50 to 90 percent of SLE patients have been reported to have anti-chromatin antibodies.
- Anti-chromatin antibodies are predominantly found in patients with SLE or DIL, and occasionally in people with other diseases such as primary Sjögren syndrome and primary antiphospholipid syndrome.
- In general, more SLE patients are positive for anti-chromatin antibodies than for anti-histone or anti-DNA antibodies.
- The presence of anti-chromatin antibodies has also been linked to proteinuria, glomerulonephritis, and disease activity in SLE patients.

### Pathophysiology

- Chromatin antibodies are also called anti-nucleosome, anti-(H2A-H2B) DNA, anti-DNP, and LE-cell factor.
- Naturally found in the nucleus of cells, chromatin is comprised of native DNA wrapped around the (H2A-H2B-H3-H4)<sub>2</sub> histone octamer associated with histone H1 and some non-histone proteins.
- Chromatin antibodies are directed to epitopes consisting of the native histone-DNA complex, native DNA, and the exposed histone regions of chromatin. Consequently, anti-nuclear DNA (anti-nDNA) is a subset of anti-chromatin.

### Indications for Ordering

- Patient with systemic symptoms suggesting DIL or SLE, including:
  - Arthritis
  - Arthralgias
  - Skin rashes
  - Anemia
  - Renal dysfunction
  - Pleuritis
  - Pericarditis

### Interpretation

- A positive result signifies the presence of chromatin antibodies and is suggestive of a possible diagnosis of DIL or SLE.
- A negative result indicates the absence of chromatin antibodies or levels below the negative cut-off of the assay.
- Results should be used in combination with clinical findings and other serological tests to determine the presence of disease.

### Limitations

- Presence of immune complexes or other immunoglobulin aggregates in patient serum may result in an increased level of non-specific binding, producing false positives in this assay.
- The absence of chromatin antibodies does not rule out DIL or SLE.
- Results should be used in conjunction with clinical findings and other serological tests.
- Serum is the only matrix for which assay performance characteristics have been established.

### Methodology

The presence of anti-chromatin antibodies in serum is detected by ELISA using microwell plates coated with purified chromatin antigen.

### Related Tests

Anti-chromatin antibodies can also be measured by LE cell test, immunoprecipitation, and immunofluorescence of histone-reconstituted, acid-extracted cells.

### References

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- Souza A, et al. Anti-nucleosome and anti-chromatin antibodies are present in active systemic lupus erythematosus but not in the cutaneous form of the disease. *Lupus* 2009;18(3):223–9.
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- Burlingame RW, Cervera R. Anti-chromatin (anti-nucleosome) autoantibodies. *Autoimmun Rev* 2002;1(6):321–8.
- Chromatin ELISA (package insert). San Diego, CA: INOVA Diagnostics, Inc.; 2008.

## Test Information

**2005287**

**Chromatin Antibody, IgG**

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For information on test selection, ordering, and interpretation, refer to ARUP Consult® at [www.arupconsult.com](http://www.arupconsult.com).

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