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Commentary

# A Note on Types of Anti-Nuclear Antibody Tests

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## DESCRIPTION

Autoantibodies that bind to the contents of the cell nucleus are characterized as antinuclear antibodies. Antinuclear factor is another name for them. Antibodies to foreign proteins (antigens) are created in normal people but not to human proteins (auto-antigens), while antibodies to human antigens are occasionally produced. ANAs come in a variety of subtypes, each of which attaches to different proteins or protein complexes within the nucleus. Antibodies can be discovered in a variety of diseases, including autoimmunity, cancer, and infection, with variable antibody prevalence depending on the situation. As a result, ANAs can be used to diagnose several autoimmune diseases. The autoantibodies in a person's blood serum are detected by the ANA test. Indirect immunofluorescence and Enzyme-Linked Immunosorbent Assay (ELISA) are two popular methods for detecting and measuring ANAs.

The level of autoantibodies is recorded as a titre in immunofluorescence. This is the greatest serum dilution at which autoantibodies can still be detected. Positive autoantibody titres at a dilution of 1:160 or higher are often regarded clinically meaningful. Positive titres of less than 1:160 can be found in up to 20% of healthy people, particularly the elderly. Positive titres of 1:160 or higher are significantly linked to autoimmune illnesses, but they can also be seen in 5% of healthy people. Autoantibody testing aids in the identification of autoimmune illnesses, and monitoring levels aids in the prediction of disease development. If there are no additional clinical or laboratory data to support a diagnosis, a positive ANA test is rarely beneficial.

A screening test can confirm the existence of ANAs in the bloodstream. Although there are a variety of methods for ANA detection, Indirect Immunofluorescence And Enzyme-Linked Immunosorbent Assays are the most commonly employed for screening. ANA subtypes are identified after the identification of ANAs.

### Indirect immunofluorescence

One of the most often used ANA tests is indirect immunofluorescence. HEp-2 cells are frequently employed as a substrate for detecting antibodies in human serum. HEp-2 cells are coated on microscope slides, and the serum is incubated with the cells. If the antibodies are present, they will bind to the antigens on the cells; in the case of ANAs, they will adhere to the nucleus. These can be seen by using an anti-human antibody with a fluorescent tag (typically FITC or rhodopsin B) that binds to the antibodies. When a specific wavelength of light shines on the molecule, it fluoresces, which can be observed under a microscope.

### Enzyme-Linked Immunosorbent Assay (ELISA)

The antigen-coated microtitre plates used in the Enzyme-Linked Immunosorbent Test (ELISA) are used to detect ANAs. To detect specific antibodies or screen for ANAs, each well of a microtitre plate is coated with either a single antigen or numerous antigens. The antigens are either recombinant or derived from cell extracts. Blood serum is incubated in the plate's wells before being rinsed out. If antigen-binding antibodies are present, they will persist following washing. A secondary anti-human antibody is added, which is coupled to an enzyme such horseradish peroxidase. The amount of antibody attached to the antigen causes a change in the color of the solution, which is proportional to the amount of enzyme reaction. The detection of ANA by immunofluorescence and different ELISA kits differs significantly, with only a sliver of agreement between them. In order to interpret the results of various tests, a clinician must be conversant with the distinctions.

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