Immunological Tests.

ANA
Antinuclear Antibody

Directed against a variety of nuclear antigens and may be induced by drugs such as Hydralazine. Can be of any Ig class.
Different staining patterns
Homogenous staining; suggests lupus
Speckled Staining: Suggests mixed connective tissue disease
Centromere Staining; suggests CREST syndrome

Found in
Drug induced lupus (100%)
SLE (99%)
Scleroderma (97%)
Sjogrens syndrome (96%)
Mixed connective tissue disease (93%)
Polymyositis(78%)

Extractable Nuclear Antigens

These are usually associated with positive ANA

Anti Ro Sjogrens syndrome, Congenital Heart Block, ANA negative SLE
Anti La primary Sjogrens syndrome
Anti Sm SLE (20%)
Anti RNP MCTD (100%)
Anti Jo1 Polymyositis
Anti SCL 70 progressive systemic sclerosis (20%)
Anticentromere CREST Syndrome

Antineutrophil cytoplasmic antibody (ANCA) has been shown to be a serological marker for a spectrum of diseases characterised by systemic narcotising vasculitis and crescentic vasculitis.
The presence of ANCA characterises a group of vasculitides, including Wegener's granulomatosis (WG),
Microscopic polyangiitis (MPA),
Churg–Strauss syndrome (CSS)

Indications for ANCA testing:

- patients suspected of Wegener's granulomatosis, microscopic polyangiitis, Churg–Strauss syndrome or idiopathic necrotising glomerulonephritis
- chronic destructive disease of the upper airways Pulmonary nodules (not obviously malignant)
- subglottic stenosis of the trachea
- pulmonary–renal syndrome
- glomerulonephritis
- vasculitis of the skin with evidence of systemic disease
- mononeuritis multiplex
- retro-orbital mass
- any other condition resembling systemic vasculitis
-

ANCA patterns and antibody specificity ANCA describes a number of circulating autoantibodies specifically directed against the cytoplasmic constituents of neutrophils and monocytes

- two ANCA patterns were originally identified by indirect immunofluorescence (IIF): the cytoplasmic (C-ANCA) and the perinuclear (P-ANCA) patterns
    - these apparent morphological differences are purely artefactual and based on the fixative used to preserve the neutrophil substrate
        - 'classical' C-ANCA is associated with antibodies reacting with the 29–30 kDa elastinolitic enzyme, serine proteinase 3 (PR3)
            - composed of 229 amino acids and found in the azurophilic granules of neutrophils and monocytes
        - 'classical' P-ANCA pattern is associated with antibodies to myeloperoxidase (MPO), a 140 kDa heterodymeric enzyme also associated with the antimicrobial properties of neutrophils

Presence of C-ANCA (1)

- Wegener's granulomatosis usually
- microscopic polyangiitis sometimes
- idiopathic glomerulonephritis sometimes
- Churg-Strauss syndrome sometimes
- ulcerative colitis sometimes

Other positive c-ANCA test results have been reported in patients with tuberculosis, Hodgkin's lymphoma, human immunodeficiency virus infection, nasal septal perforation, monoclonal gammopathies, and drug-induced Wegener-like disease (2).

P-ANCA pattern is associated with antibodies to myeloperoxidase (MPO), a 140 kDa heterodymeric enzyme also associated with the antimicrobial properties of neutrophils if IIF and ELISA results are combined, the presence of P-ANCA and anti-MPO has 99% specificity for the diagnosis of primary systemic vasculitis, as does the combination of C-ANCA and anti- PR3 P-ANCA and anti-MPO are more often seen in microscopic polyangitis (MPA), Churg-Strauss Syndrome (CSS) and idiopathic necrotising glomerulonephritis

- in the context of vasculitis, C-ANCA in more than 90% of cases is directed against PR3, whereas in 80–90% of cases P-ANCA reacts with MPO

Auto- antibodies in GI and Liver disease

Anti-mitochondrial antibody – primary biliary cirrhosis (96%)
Anti – smooth muscle antibody - auto-immune hepatitis, cryptogenic cirrhosis
Gastric parietal cell antibodies - pernicious anaemia (90%) gastric atrophy (40%)
Intrinsic Factor Antibodies – pernicious anaemia (70%)
Anti-gliadin, anti –endomesial antibody – coeliac disease (continued positive anti-gliadin tests suggest inadequate dietary

Autoantibodies in thyroid disease

Antithyroglobulin antibody high titre in autoimmune thyroiditis (90%)
Antimicrosomal antibodies low titre in Graves Disease (35%) and in adenocarcinoma (10%)

Anti glomerular basement membrane goodpastures syndrome
Acetylcholine receptor antibody – myaesthenia gravis (87%)