

Immunology / Connective Tissue Disease / ANA Screen

Table of Testing

Condition	Relevant Immunology Investigations	Comments
<i>SLE</i>	ANA screen (Hep2)	Positive ANA screen (Hep2) does not usually need a repeat
	dsDNA	Level can be useful in monitoring disease activity
	ENA	Ro, La, Sm or RNP useful supportive results to sub-classify conditions. Ro associated complications are cutaneous and neonatal complications
	Anti-phospholipid antibodies (IgG & B2 Glycoprotein ACA)	See below, should include anticardiolipin antibodies AND lupus anticoagulant
	Complement C3 / C4	Can help in monitoring disease activity (low levels with active disease due to consumption, however genetic deficiency may predispose to SLE)
	Immunoglobulins & Electrophoresis	Polyclonal hypergammaglobulinaemia frequent, other – small monoclonal band or nephrotic pattern with renal involvement.
	Cryoglobulin screen if applicable	Associations low C4, Raynaud's symptoms, cutaneous vasculitis, neuropathy
<i>Scleroderma</i>	ANA screen (Hep2)	Positive ANA screen (Hep2) does not need a repeat Centromere antibodies associated with limited Scleroderma (CREST) Nucleolar pattern associated with systemic disease but can be the result of fixation artefact
	ENA	Scl-70 associated with systemic disease
	Complement C3 / C4 if applicable	Check if Raynaud's or cutaneous vasculitis
	Cryoglobulin screen if applicable	Associations low C4, Raynaud's symptoms, cutaneous vasculitis. Neuropathy
<i>Sjögren's</i>	ANA screen (Hep2), AMA	Positive ANA screen (Hep2) does not need a repeat, AMA positive if associated with PBC
	ENA	Ro, La supportive, associated with extra-glandular disease
	Rheumatoid factor	Found in up to 90% developing arthritis
	Complement C3 / C4	Low C4 seen with cryoglobulinaemia
	Immunoglobulins & Electrophoresis	Hypergammaglobulinaemia frequent (with IgG1 predominance, may be monoclonal +/- IgM paraprotein / cryoglobulin
	Cryoglobulin screen if applicable	Low C4, Raynaud's symptoms, cutaneous vasculitis, neuropathy
<i>Mixed Connective Tissue Disease</i>	ANA screen (Hep2)	Positive ANA screen (Hep2) does not need a repeat
	ENA	RNP useful supportive result
	Rheumatoid factor	Positive in 40-60%
	Complement C3 / C4	Low C4 seen with cryoglobulinaemia
	Immunoglobulins & Electrophoresis	Polyclonal hypergammaglobulinaemia +/- cryoglobulin
	Cryoglobulin screen if applicable	Low C4, Raynaud's symptoms, cutaneous vasculitis, neuropathy
<i>Raynaud's</i>	ANA screen (Hep2)	Primary vs Secondary, if ANA negative less likely to develop connective tissue disease
	Complement C3 / C4 if applicable	Low C4 seen with cryoglobulinaemia
	Cryoglobulin screen if applicable	Secondary Raynaud's, low C4, cutaneous vasculitis, neuropathy
<i>Autoimmune Hepatitis</i>	General autoimmune screen (AIP), ANA screen (Hep2), SMA, AMA	ANA screen positive, LKM or SMA antibody supportive, AMA is PBC overlap
	dsDNA	Seen in type 1 autoimmune hepatitis (lupoid hepatitis)
	Immunoglobulins & Electrophoresis	Polyclonal hypergammaglobulinaemia frequent, IgG predominant

<i>Drug Induced Lupus</i>	ANA screen (Hep2)	ANA screen a diagnostic criterion. Discuss with Lab
<i>Inflammatory Myositis</i>	ANA screen (Hep2)	May be ANA positive, nucleolar pattern may be seen
	ENA	Jo-1 associated with pulmonary involvement, other ENA's seen in overlap syndromes
	MYO	Specialist requesting, contact Richard Brown
<i>Antiphospholipid Syndrome</i>	Cardiolipins (IgG), B2 Glycoprotein	Positive cardiolipin (high titre) +/- or lupus anticoagulant supportive of APS, both are done when phospholipid antibody investigation is requested (PHAB)
	Lupus anticoagulant	BUT both can be seen in infection, should be repeated at 6-8 weeks to confirm
	ANA screen (Hep2)	Distinguish primary vs secondary APS, further knock on testing will be done if ANA positive
<i>Juvenile Arthritis</i>	ANA screen (Hep2)	Positive ANA associated with development of uveitis
	ENA	Ro antibody associated with uveitis
	Rheumatoid factor	Seen in polyarticular disease
	Complement C3 / C4	Complement consumption seen in active disease
<i>Rheumatoid Arthritis</i>	Rheumatoid factor, CCP	Positive in approximately 70%, associated with erosive disease, rheumatoid factor not diagnostic of RA
	ANA screen (Hep2)	ANA often present, no need to repeat if positive
	ENA	Ro, La seen with secondary Sjögren's
	Complement C3 / C4	Low complement (particularly C4) seen in rheumatoid vasculitis, cryoglobulinaemia, high levels seen as part of acute phase response
	Cryoglobulin screen if applicable	Low C4, Raynaud's symptoms, cutaneous vasculitis, neuropathy
<i>Small Vessel Vasculitis</i>	ANCA (telephone Lab if urgent)	C-ANCA or P-ANCA with PR3 or MPO specificity respectively associated with small vessel vasculitis
	Anti-GBM (telephone Lab if urgent)	Associated with pulmonary and renal vasculitis
	Rheumatoid factor	Seen in rheumatoid vasculitis, cryoglobulinaemia
	Complement C3 / C4	Can be low with immune complex vasculitis including cryoglobulinaemia
	Cryoglobulin screen if applicable	Low C4, cutaneous vasculitis, neuropathy
	Other investigations AIP, dsDNA, ENA etc	Governed by clinical context
<i>Primary Biliary Cirrhosis</i>	ANA screen (Hep2), AMA	AMA support PBS, if positive referred for M2 confirmation. May be ANA positive
	Immunoglobulins & Electrophoresis	Polyclonal raised IgM frequent
<i>Pernicious Anaemia</i>	General autoimmune screen (AIP) for GPC antibodies	Seen in PA but also occur in other organ specific autoimmune disease and in normal people with increasing age
	Intrinsic factor antibodies	Seen in early PA
	Other organ specific antibodies	Governed by clinical context
<i>Coeliac Disease</i>	Coeliac Testing (IgA TTG)	If positive supports coeliac disease an endomysial is performed in addition. If IgA deficient a false negative result may be found and so a biopsy is needed if necessary
<i>Thyroid Disease</i>	TPO antibodies	Seen in autoimmune thyroid disease and other organ specific autoimmune disease
	Other organ specific antibodies	Governed by clinical context
<i>Addison's</i>	Adrenal antibodies	If positive screen for other endocrinopathies as appropriate
	Other organ specific antibodies	Governed by clinical context
<i>Bullous Skin Disease</i>	Skin ICS antibodies	Seen in bullous pemphigus
	Skin BM antibodies	Seen in bullous pemphigoid
<i>Myasthenia Gravis</i>	Acetylcholine receptor antibodies	Detected in 90% of patients with systemic features, in 50% with purely ocular myasthenia
	Skeletal muscle antibodies	Marker for underlying thymoma
	Immunoglobulins if thymoma	Thymoma associated with antibody deficiency and risk of pyogenic infection
<i>Paraneoplastic Syndromes</i>	Anti-neuronal antibodies	Anti-Yo antibodies (Purkinje cell cytoplasm) associated with carcinoma of the breast, ovary, Hodgkin's lymphoma

		Anti-Hu antibodies (anti-neuronal nuclear antibodies) associated with small cell carcinoma
<i>Hereditary Angioedema</i>	C4 / C1 esterase inhibitor	C4 useful screening test, refer if low with history of angioedema. C1 inhibitor only if C4 low or case discussed with Lab.
<i>Type 1 Diabetes</i>	GAD, IA-2, ZnT8 antibodies	
<i>Ankylosing Spondylitis</i>	No diagnostic lab test	HLA B27 is not a diagnostic

KEY		
<i>AIP</i>	Autoimmune profile	Auto immunity / General autoimmune screen
<i>AMA</i>	Anti-mitochondrial antibody	Connective tissue disease / ANA screen
<i>ANA</i>	Anti-nuclear antibody	Connective tissue disease / ANA screen
<i>ANCA</i>	Anti-neutrophil cytoplasmic antibody	Connective tissue disease / ANCA
<i>GBM</i>	Anti-glomerular basement membrane antibody	Connective tissue disease / GBM
<i>APS</i>	Anti-phospholipid syndrome	Connective tissue disease / Antiphospholipid
<i>BM</i>	Basement membrane	Contact Lab
<i>CREST</i>	Limited scleroderma	Calcinosis, Raynaud's, Oesophageal dysmotility, Sclerodactyly, Telangiectasia
<i>dsDNA</i>	Double stranded DNA antibody	Connective tissue disease / dsDNA
<i>ENA</i>	Extractable nuclear antigen	Ro, La, Sm, RNP, Scl 70 specific types of disease associated with extractable nuclear antigens, as above
<i>GPC</i>	Gastric parietal cell	Auto immunity / General autoimmune screen
<i>Hep2</i>	Human epithelial cell line type 2	Connective tissue disease / ANA screen
<i>IFA</i>	Intrinsic factor antibody	General search
<i>LKM</i>	Liver-kidney microsome	Auto immunity / General autoimmune screen
<i>MPO</i>	Myeloperoxidase	Connective tissue disease / ANCA
<i>PA</i>	Pernicious anaemia	Auto immunity / General autoimmune screen
<i>PBC</i>	Primary biliary cirrhosis	Connective tissue disease / ANA screen
<i>PR3</i>	Proteinase 3	Done under ANCA
<i>RA</i>	Rheumatoid arthritis	Auto immunity
<i>SLE</i>	Systemic lupus erythematosus	Connective tissue disease / ANA screen / dsDNA
<i>SM</i>	Smooth muscle	Auto immunity / General autoimmune screen
<i>TPO</i>	Thyroid peroxidase	Anti-thyroid antibodies