

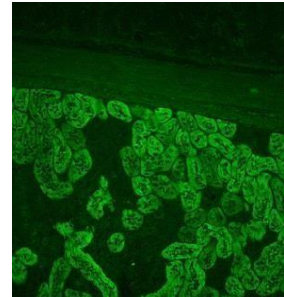
NATIONAL IMMUNOLOGY REFERENCE LABORATORY (NIRL)

Department of Laboratory Services

NIRL provides investigation for the detection of autoantibodies and also aid in diagnosing and monitoring the therapeutic response in autoimmune diseases.

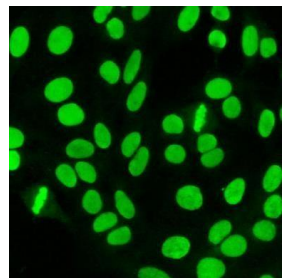
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Laboratory Personnel

Head of Section: Saifuddin Haji Bagol
Deputy Head of Section: Amirah Batrisyia Zakirah Binti Haji Suhaimi
Staff:
Chief Scientific Officer
Scientific Officer
Medical Scientific Officer
Senior Medical Laboratory Technologist
Laboratory Assistants

Operating Hours

Monday to Thursday and Saturday
7.45am - 12.15pm and 1.30pm - 4:30 pm
Fasting month: 8.00am – 2.00pm

NIRL LABORATORY SERVICE GUIDE

NIRL is a division of the Department of Laboratory services which provides test specialising in autoimmunity and allergy. ELISA, Indirect immunofluorescence and Fluoro-enzyme-immunoassay and Lineblot assay are the methodology used to investigation for the detection of auto immune disease and allergy. This will aid in diagnosing, monitoring and management of the therapeutic responses. To provide the best quality service we rely on feedback and day-to-day communication with our clients.

In June 2015, Rheumatoid Arthritis (RA) Factors was removed and transferred to Clinical Chemistry Laboratory Services In February 2017 and in April 2017, TSHR and NMDAR were added to our Immunology test list respectively.

In December 2019, ANABLOT, ANCABLOT, MPBLOT, SSBLOT, NEUROBLOT AND LIVERBLOT was added. In August 2024, anti-PLA2R, anti-IA2, anti-GAD, anti-tissue Transglutaminase IgG and IgA was added.

NIRL TEST CATALOGUE

Anti-Cardiolipin Antibodies IgG and IgM

SYNONYM: ACG ACM, Cardiolipin IgG cardiolipin IgM

Specimen	Blood (red top, 6mL or SSTII gold top, 3.5-5mL)
Unacceptable	Haemolysed, Lipemic, Icteric
Method	Enzyme linked immunosorbent assay (ELISA)
Performed	Office hours only
TAT	14 working days
Clinical Usage	Investigation of inappropriate blood clot formation, to help determine the cause of recurrent miscarriage, or as part of an evaluation for antiphospholipid syndrome or sometimes other autoimmune diseases.

Anti-Cyclic Citrullinated Peptides (anti-CCP)

Specimen	Blood (red top, 6mL or SSTII gold top, 3.5-5mL)
Unacceptable	Haemolysed, Lipemic, Icteric
Method	Enzyme linked immunosorbent assay ELISA
Performed	Office hours only
TAT	14 working days
Clinical Usage	Useful in the early diagnosis of rheumatoid arthritis (RA)

Anti-DNA Antibody

SYNONYM: Anti Double strand DNA antibody, Anti ds DNA, ds DNA Antibody

Specimen	Blood (red top, 6mL or SSTII gold top, 3.5-5mL)
Unacceptable	Haemolysed, Lipemic, Icteric
Method	Indirect immunofluorescence assay (IIFA) and Enzyme linked immunosorbent assay ELISA
Performed	Office hours only
TAT	7 working days
Clinical Usage	Useful in the diagnosis of systemic lupus erythematosus (SLE).

Anti Extractable Nuclear Antigens (ENA)**Anti-Ro (SSA) RNP ANTI-RNP Anti Scl70 Anti-Jo-1**

Specimen	Blood (red top, 6mL or SSTII gold top, 3.5-5mL)
Unacceptable	Haemolysed, Lipemic, Icteric
Method	Enzyme linked immunosorbent assay ELISA
Performed	Office hours only
TAT	7 working days
Clinical Usage	Aid in the diagnosis and treatment of autoimmune connective tissue disorders

**Anti-B2-Glycoprotein and IgG
IgM**

Specimen	Blood (red top, 6mL or SSTII gold top, 3.5-5mL)
Unacceptable	Haemolysed, Lipemic, Icteric
Method	Enzyme linked immunosorbent assay ELISA
Performed	Office hours only
TAT	14 working days
Clinical Usage	To help investigate inappropriate blood clot formation ; to help determine the cause of recurrent miscarriage; as part of an evaluation for antiphospholipid syndrome (APS)

Anti-Mitochondrial Antibody (AMA)

Specimen	Blood (red top, 6mL or SSTII gold top, 3.5-5mL)
Unacceptable	Haemolysed, Lipemic, Icteric
Method	Indirect immunofluorescence assay IIFA
Performed	Office hours only
TAT	14 working days
Clinical Usage	Aids in the diagnosis of primary biliary cirrhosis. Low titres of AMA may be detected in other liver disorders which include chronic active hepatitis and cryptogenic cirrhosis

Anti-Smooth Muscle Antibody (ASMA)**SYNONYM: Smooth Muscle Ab, SMA, Smooth Muscle
Antibody**

Specimen	Blood (red top, 6mL or SSTII gold top, 3.5-5mL)
Unacceptable	Haemolysed, Lipemic, Icteric
Method	Indirect immunofluorescence assay IIFA
Performed	Office hours only
TAT	14 working days
Clinical Usage	Useful in the diagnosis of autoimmune hepatitis

Anti-Parietal Cell Antibodies (APCA)**SYNONYM: Parietal Cell Ab, PCA, Parietal Cell Antibody**

Specimen	Blood (red top, 6mL or SSTII gold top, 3.5-5mL)
Unacceptable	Haemolysed, Lipemic, Icteric
Method	Indirect immunofluorescence assay IIFA
Performed	Office hours only
TAT	14 working days
Clinical Usage	APCA occurs in the serum of 90% of patients with autoimmune pernicious anaemia

Anti-Liver Kidney Microsomal Antibodies (LKM)

Specimen	Blood (red top, 6mL or SSTII gold top, 3.5-5mL)
Unacceptable	Haemolysed, Lipemic, Icteric
Method	Indirect immunofluorescence assay IIFA
Performed	Office hours only
TAT	14 working days
Clinical Usage	Aids in the diagnosis and management of autoimmune hepatitis

Anti-Neutrophil Cytoplasmic Antibody (ANCA)**(Antineutrophil Cytoplasmic Antibodies; Myeloperoxidase Antibodies-MPO; Proteinase 3 Antibodies-PR3)****SYNONYM: Anti neutrophil Cytoplasmic ,ANCA,ANCAIIF,CANCA,PANCA Anti Myeloperoxidase Antibody Anti Proteinase 3, Anti PR3, PR3 Antibody**

Specimen	Blood (red top, 6mL or SSTII gold top, 3.5-5mL)
Unacceptable	Haemolysed, Lipemic, Icteric
Method	Indirect immunofluorescence assay IIFA and Enzyme linked immunosorbent assay ELISA
Performed	Office hours only
TAT	14 working days
Clinical Usage	Useful in the diagnosis of autoimmune vasculitis diseases such as Wegener's granulomatosis, microscopic polyangiitis, polyarteritis nodosa and Churg-Strauss Syndrome. NOTE: Not all specimens positive for P-ANCA are positive for Anti-MPO and not all specimens positive for C-ANCA are positive for Anti-PR3 antibody.

Anti-Nuclear Antibodies (ANA)**SYNONYM: Anti ANA, ANA, ANF**

Specimen	Blood (red top, 6mL or SSTII gold top, 3.5-5mL)
Unacceptable	Haemolysed, Lipemic, Icteric
Method	Indirect immunofluorescence assay IIFA
Performed	Office hours only
TAT	7 working days
Clinical Usage	A positive ANA result usually occurs in patients with autoimmune disorders such as SLE, mixed connective tissue disease (MCTD), RA, Sjogren's syndrome (SS), and progressive systemic sclerosis (PSS). A negative result do not exclude presence of autoimmune disease.

Thyroglobulin Antibodies (TG Ab)

Specimen	Blood (red top, 6mL or SSTII gold top, 3.5-5mL)
Unacceptable	Haemolysed, Lipemic, Icteric
Method	Enzyme linked immunosorbent assay ELISA
Performed	Office hours only
TAT	14 working days
Clinical Usage	Useful in the diagnosis of Graves disease, postpartum thyroiditis

Thyroid Peroxidase Antibodies (TPO Ab)

Specimen	Blood (red top, 6mL or SSTII gold top, 3.5-5mL)
Unacceptable	Haemolysed, Lipemic, Icteric
Method	Enzyme linked immunosorbent assay ELISA
Performed	Office hours only
TAT	14 working days
Clinical Usage	Useful in diagnosis of Graves disease, postpartum thyroiditis

Anti NMDAR antibody**SYNONYM : Anti-N-methyl-D-aspartate-receptor Ab, Anti NMDA Receptor Ab**

Specimen	Blood (red top, 6mL or SSTII gold top, 3.5-5mL) CSF (Sterile bottle)
Unacceptable	Haemolysed, Lipemic, Icteric
Method	Indirect immunofluorescence assay IIFA
Performed	Office hours only
TAT	7 working days
Clinical Usage	Aids in the diagnosis and treatment of autoimmune encephalitis

Thyroid Stimulating Hormone Receptors Antibodies (TSHR)

Specimen	Blood (red top, 6mL or SSTII gold top, 3.5-5mL)
Unacceptable	Haemolysed, Lipemic, Icteric
Method	Enzyme linked immunosorbent assay ELISA
Performed	Office hours only
TAT	14 working days
Clinical Usage	Distinguish Graves' disease from toxic nodular goitre. Monitor anti-thyroid therapy and predict remission

Total Immunoglobulin E (TIGE)

Specimen	Blood (red top, 6mL or SSTII gold top, 3.5-5mL)
Unacceptable	Haemolysed, Lipemic, Icteric
Method	Fluoro-enzyme- immunoassay (FEIA)
Performed	Office hours only
TAT	14 working days
Clinical Usage	Levels increased in atopic diseases, parasitic diseases and IgE myeloma.

Specific Immunoglobulin E (SIGE)

D. pteronyssinus, d1	Soya Bean, f14	banana, f92	Cockroach American, i206
Cat dander, e1	Hazel nut, f17	Cacao, f93	Formaldehyde/Formalin K80
Common silver birch (Betula Verrucosa), t3	Brazil nut, f18	Cashew Nut, f202	Latex, k82
D. farinae, d2	Almond, f20	Pistachio, f203	Cladosporium mix, m2
D. microceras, d3	Crab, f23	Mackerel, f206	Aspergillus Fumigatus, m3
Blomia tropicalis, d201	Shrimp, f24	Clam, f207	Acacia, t19
Horse dander, e3	Beef, f27	Egg, f245	Penicilloyl G, c1
Dog dander, e5	Orange, f33	Walnut, f256	Penicilloyl V, c2
Chicken feathers, e85	Coconut, f36	Squid, f258	
duck feathers, e86	Blue mussel, f37	Oyster, f290	
Egg white, f1	Tuna, f40	Mandarin, f302	
Milk, f2	Salmon, f41	Chick Pea , f309	
Fish (cod), f3	Strawberry, f44	Anchovy, f313	
Wheat, f4	Egg yolk, f75	Watermelon, f329	
Oat, f7	Gluten, f79	Scallop, f338	
Maize,Corn f8	Lobster, f80	Macadamia nut, f345	
Rice, f9	Cheese, Cheddar type,f81	Bermuda grass, g2	
Sesame Seed, f10	Chicken, f83	Bahia grass, g17	
Pea, f12	Melon, f87	Hollister-Stier Labs, h2	
Peanut, f13	Mutton, f88	Cockroach German i6	

Specimen	Blood (red top, 6mL or SSTII gold top, 3.5-5mL)
Unacceptable	Haemolysed, Lipemic, Icteric
Method	Fluoro-enzyme-immunoassay (FEIA)
Performed	Office hours only
TAT	14 working days
Clinical Usage	Aids in the diagnosis of IgE mediate allergic disorders

The ordering and interpretation of specific IgE tests should be made with careful clinical correlation. They are useful for confirming the allergen specificity in patients with clinically documented allergic disease. They may be less effective when used for screening.

Please call Ext 6348 to discuss the availability of allergen.

Note: Below is the list of allergens under SIgE that will only be available upon verbal request to NIRL, any test that is not verbally requested to NIRL will not be processed, tests affected are:

ImmunoCAP Horse dander, e3	ImmunoCAP Chicken Feathers, e85	ImmunoCAP Duck feathers, e86
ImmunoCAP Strawberry, f44	ImmunoCAP Melon, f87	ImmunoCAP Banana, f92
ImmunoCAP Watermelon, f329	ImmunoCAP Formaldehyde/Formalin, k80	ImmunoCAP Latex, k82
ImmunoCAP Alternaria alternate, m6	ImmunoCAP Penicillioyl G, c1	ImmunoCAP Penicillioyl V, c2
ImmunoCAP Orange, f33	ImmunoCAP Mandarin, f302	ImmunoCAP Bermuda grass, g2
ImmunoCAP Acacia, t19		

ANABLOT

SYNONYM: ANA Profile 3 plus DFS70 Immunoblot

Specimen Blood (red top, 6mL or SSTII gold top, 3.5-5mL)

Unacceptable Haemolysed, Lipemic, Icteric

Method Immunoblot

Performed Office hours only

TAT 7 working days

Clinical Usage

Antigen	Associated Diseases
RNP/Sm	MCTD, SLE, Systemic Sclerosis, Polymyositis, Dermatomyositis
Sm	SLE
SS-A native (60 kDa)	Sjögren's syndrome, SLE, Neonatal lupus erythematosus, Primary biliary cirrhosis
Ro-52 recombinant	Sjögren's syndrome, SLE, Neonatal lupus erythematosus, Systemic sclerosis, Myositis, Polymyositis, Dermatomyositis, MCTD, Primary biliary cirrhosis, RA, Autoimmune hepatitis, Viral hepatitis. Note: Not disease specific and only considered as positive if accompanied by another positive marker.
SS-B	Sjögren's syndrome, SLE, Neonatal lupus erythematosus
Scl-70	Systemic sclerosis (diffuse and limited form)
PM-Scl	Systemic sclerosis, Polymyositis, Overlap syndrome
Jo-1	Polymyositis, Dermatomyositis
Centromere B	Systemic sclerosis (diffuse and limited form), Primary biliary cirrhosis
PCNA	SLE
dsDNA	SLE
Nucleosome	SLE
Histones	Drug-induced lupus erythematosus, SLE, RA
Ribosomal-P-protein (RIB)	SLE
AMA-M2	Primary biliary liver cirrhosis
DFS70	Atopic dermatitis, asthma, Vogt-Harada syndrome and interstitial cystitis, as well as rheumatic disease, healthy blood donors

ANCABLOT		
SYNONYM: Autoantibody profile in Systemic Sclerosis Immunoblot		
Specimen	Blood (red top, 6mL or SSTII gold top, 3.5-5mL)	
Unacceptable	Haemolysed, Lipemic, Icteric	
Method	Immunoblot	
Performed	Office hours only	
TAT	7 working days	
Clinical Usage	Antigen	Associated Diseases
	Myeloperoxidase (MPO)	Eosinophilic granulomatosis with polyangiitis (EGPA) ; Microscopic polyangiitis (MPA)
	Proteinase 3 (PR3)	Granulomatosis with polyangiitis (Wegener's) (GPA) ; Microscopic polyangiitis (MPA)
	Glomerular basement membrane (GBM)	Goodpasture's syndrome

LIVERBLOT		
SYNONYM: Profile Autoimmune Liver disease Immunoblot		
Specimen	Blood (red top, 6mL or SSTII gold top, 3.5-5mL)	
Unacceptable	Haemolysed, Lipemic, Icteric	
Method	Immunoblot	
Performed	Office hours only	
TAT	7 working days	
Clinical Usage	Antigen	Associated Diseases
	AMA-M2	Primary Biliary Cirrhosis (PBC)
	M2-3E (BPO)	Primary Biliary Cirrhosis (PBC)
	Sp100	Primary Biliary Cirrhosis (PBC)
	PML	Primary Biliary Cirrhosis (PBC)
	gp210	Primary Biliary Cirrhosis (PBC)
	LKM-1	Type 2 Autoimmune Hepatitis (AIH)
	LC-1	Type 2 Autoimmune Hepatitis (AIH)
	SLA/LP	Type 1 or Type 3 Autoimmune Hepatitis (AIH)
	Ro-52	Sjögren's syndrome, SLE, Neonatal lupus erythematosus, Systemic sclerosis, Myositis, Polymyositis, Dermatomyositis, MCTD, Primary Biliary Cirrhosis (PBC), RA, Autoimmune hepatitis, Viral hepatitis. Note: Not disease specific and only considered as positive if accompanied by another positive marker.

MPBLOT**SYNONYM: Autoimmune Inflammatory Myopathies 16 Ag
Profile Immunoblot**

Specimen Blood (red top, 6mL or SSTII gold top, 3.5-5mL)

Unacceptable Haemolysed, Lipemic, Icteric

Method Immunoblot

Performed Office hours only

TAT 7 working days

Clinical Usage

Antigen	Associated Diseases and Autoantibody Prevalence
Mi-2 α	15-30% in DM patients ; 8-12% in idiopathic myositis patients
Mi-2 β	15-30% in DM patients ; 8-12% in idiopathic myositis patients
TIF1g	15% in DM patients
MDA5	13-26% in DM patients ; 95% in clinically amyopathic DM patients
NXP2	18-25% in juvenile PM/DM patients
SAE1	8% in DM patients
Ku	Myositis associated. 40% in myositis or systemic sclerosis
PM-Sc100	Myositis associated. 50-70% in overlap PM/DM/systemic sclerosis patients
PM-Sc175	Myositis associated. 50-70% in overlap PM/DM/systemic sclerosis patients
Jo-1	25-55% in PM patients
SRP	5% in PM patients
PL-7	3-6% in myositis patients
PL-12	3% in myositis patients
EJ	1-3% in PM patients
OJ	3% in (poly) myositis patients
Ro-52	25% in myositis patientsNote: Not disease specific and only considered as positive if accompanied by another positive marker.

SSBLOT**SYNONYM: Autoantibody profile in Systemic Sclerosis
Immunoblot**

Specimen Blood (red top, 6mL or SSTII gold top, 3.5-5mL)

Unacceptable Haemolysed, Lipemic, Icteric

Method Immunoblot

Performed Office hours only

TAT 7 working days

Clinical Usage

Antigen	Autoantibody Prevalence in Systemic Sclerosis (SSc)
Sc1-70	40-78% in SSc (diffuse form) ; 5-15% in SSc (limited form)
Centromere A	5-10% in SSc (diffuse form) ; 80-95% in SSc (limited form)
Centromere B	5-10% in SSc (diffuse form) ; 80-95% in SSc (limited form)
RP11	5-22% in SSc (diffuse form)
RP155	5-22% in SSc (diffuse form)
Fibrillarin	5-10% in SSc (diffuse form)
NOR90	rarely (<5% in SSc)
Th/To	rarely (<5% in SSc)
PM-Sc100	10-20% in SSc
PM-Sc175	10-20% in SSc
Ku	rarely (<5% in SSc)
PDGFR	rarely (<5% in SSc)
Ro-52	Antibodies against Ro-52 are not systemic sclerosis specific but often co-occur with antibodies against SSc specific antigens.

NEUROBLOT**SYNONYM: Neuronal Antigen Profile Immunoblot**

Specimen Blood (red top, 6mL or SSTII gold top, 3.5-5mL)

Unacceptable Haemolysed, Lipemic, Icteric

Method Immunoblot

Performed Office hours only

TAT 7 working days

Clinical Usage	Antigen	Associated Diseases	Associated Tumors
	Amphiphysin	Stiff-person syndrome	Breast carcinoma; small-cell lung carcinoma
	CV2	Limbic encephalitis	Small-cell lung carcinoma; thymoma
	PNMA2 (Ma2/Ta)	Rhombencephalitis; paraneoplastic limbic encephalitis; brain stem encephalopathy	Germinal carcinoma of the testis (seminoma)
	Ri	Paraneoplastic opsoclonus myoclonus ataxia	Small-cell lung carcinoma; breast carcinoma
	Yo	Paraneoplastic cerebellar degeneration	Ovarian, breast, uterine carcinoma
	Hu	Encephalitides with focus in brain stem, cerebellum and limbic system; myelitis; polyneuropathy (autonomous, sensory, sensory-motor)	Small-cell lung carcinoma; neuroblastoma
	Recoverin	Retinopathy	Small-cell lung carcinoma
	SOX1	Lambert-Eaton myasthenic syndrome	Small-cell lung carcinoma
	Titin	Myasthenia gravis	Thymoma

Anti-PLA2R**SYNONYM: Autoantibodies of class IgG against phospholipase A2 receptors**

Specimen Blood (red top, 6mL or SSTII gold top, 3.5-5mL)

Unacceptable Haemolysed, Lipemic, Icteric

Method Enzyme linked immunosorbent assay ELISA

Performed Office hours only

TAT 14 working days

Clinical Usage Useful in the diagnosis of primary membranous glomerulonephritis (MGN, pMGN)

Anti-tissue Transglutaminase ELISA (IgG)**SYNONYM: Autoantibodies of class IgG against tissue transglutaminase**

Specimen Blood (red top, 6mL or SSTII gold top, 3.5-5mL)

Unacceptable Haemolysed, Lipemic, Icteric

Method Enzyme linked immunosorbent assay ELISA

Performed Office hours only

TAT 30 working days

Clinical Usage Useful in the diagnosis of gluten-sensitive enteropathy (coeliac disease) and Dermatitis herpetiformis Duhring.

Anti-tissue Transglutaminase ELISA (IgA)

SYNONYM: Autoantibodies of class IgA against tissue transglutaminase

Specimen	Blood (red top, 6mL or SSTII gold top, 3.5-5mL)
Unacceptable	Haemolysed, Lipemic, Icteric
Method	Enzyme linked immunosorbent assay ELISA
Performed	Office hours only
TAT	30 working days
Clinical Usage	Useful in the diagnosis of gluten-sensitive enteropathy (coeliac disease) and Dermatitis herpetiformis Duhring.

Anti-GAD

SYNONYM: Autoantibodies of class IgG against Glutamic Acid Decarboxylase

Specimen	Blood (red top, 6mL or SSTII gold top, 3.5-5mL)
Unacceptable	Haemolysed, Lipemic, Icteric
Method	Enzyme linked immunosorbent assay ELISA
Performed	Office hours only
TAT	14 working days
Clinical Usage	Useful in the diagnosis of type 1 diabetes mellitus (insulin-dependent diabetes mellitus, IDDM).

Anti-IA2

SYNONYM: Autoantibodies of class IgG against Tyrosine phosphatase (IA2)

Specimen	Blood (red top, 6mL or SSTII gold top, 3.5-5mL)
Unacceptable	Haemolysed, Lipemic, Icteric
Method	Enzyme linked immunosorbent assay ELISA
Performed	Office hours only
TAT	14 working days
Clinical Usage	Useful in the diagnosis of type 1 diabetes mellitus (insulin-dependent diabetes mellitus, IDDM).