

Cell Biology - Assays Kits

Immunology (Allergy, Diabete, Autoimmunity)

See also M-PCR Kits for immunology

Allergy EIA kits

Histamine EIA Kit

Histamine (1H-imidazole 4-ethaneamine) is a component of the storage granules of myeloid cells including basophils and mast cells. The clinical importance of histamine in the pathogenesis of allergy and asthma has long been appreciated. Our Histamine EIA kit is a derivatization-amplified competitive enzyme immunoassay, which detects histamine within the range from 40 pg/ml to 5 500 pg/ml. The assay can be used for the analysis of histamine in blood (plasma or serum) without extraction or purification. The use of other sample types may require further processing or purification of the sample.

Description	Cat.#	Qty
Histamine EIA Kit	HF6130	96 wells

See also Antibodies Research Area ; #9 (Cytokine/ Chemokine/Growth factors ; #10-DNA Replication/Transcription/Repairs

Autoimmunity

Technical tip

Autoimmunity

Autoimmunity is a dysfunction or normal immunity processes. Immunity enables the organism to respons by 2 main ways, mediated by cells (B lymphocytes, but also macrophages and other potentiated cells) and antibodies (produced by T lymphocytes). Strong regulation ensures that pathogens are eliminated, and the immune response is shut down to avoid wasted resources and hypersensitivity. In spite of this regulation and mechanisms for clonal deletion of many self-reactive T and B cells, the immune system can occasionally attack self tissues. This causes se-called autoimmunes diseases, that may be temporar, organ-specific or systemic.

Disease	Autoantigen	Symptoms	Extent*	Type*
Type II				
Autoimmune hemolytic anemia	Rh blood group antigens, I antigen	Lysis of RBC by complement and FcR ⁺ cells, anemia	O	II
Autoimmune thrombocytopenic purpura	Platelet integrin GpIIb :IIIa	Abnormal bleeding	O	II
Goodpasture's syndrome	Basement membrane Type IV collagen	Glomerulonephritis, pulmonary hemorrhage	O	II
Graves' disease	Thyroid-stimulating hormone receptor	Thyroid over-activity	O	II
Hashimoto's thyroiditis	Thyroglobulin, thyroid peroxidase	Thyroid under-activity	O	II
Hypoglycemia	Insulin receptor (agonist)	Low blood glucose	O	II
Insulin-resistant diabetes	Insulin receptor (antagonist)	High blood glucose, ketoacidosis	O	II
Myasthenia gravis	a chain of nicotinic acetylcholine receptor	Progressive weakness	O	II
Pemphigus vulgaris	Epidermal cadherin	Skin blisters	O	II
Pernicious anemia	Intrinsic factor, gastric parietal cells	Anemia	O	II
Rheumatic fever	Streptococcal cell wall antigens; antibodies cross-react with heart muscle	Arthritis, myocarditis, heart valve scars	O	II
Spontaneous infertility	Sperm antigens	Infertility	O	II
Type III				
Ankylosing spondylitis	Immune complexes	Damage to vertebrae	S	III
Mixed essential cryoglobulinemia	Rheumatoid factor IgG complexes	Systemic vasculitis	S	III
Rheumatoid arthritis	Rheumatoid factor IgG complexes	Arthritis	S	III
Systemic lupus erythematosus (SLE)	DNA, histones, ribosomes, snRNP, scRNP	Glomerulonephritis, vasculitis, rash	S	III
Type IV				
Experimental autoimmune encephalomyelitis (EAE), multiple sclerosis (MS)	Myelin basic protein, proteolipid protein, myelin oligodendrocyte glycoprotein	Brain invasion by CD4 T cells, weakness	S	IV
Hashimoto's thyroiditis	Thyroid antigen(s)	Thyroid under-activity	O	IV
Insulin-dependent (Type I) diabetes mellitus (IDDM)	Pancreatic b cell antigen(s)	b cell destruction	O	IV
Rheumatoid arthritis	Unknown synovial joint antigen	Joint inflammation and destruction	S	IV

*O : Organ-target ; S : System target

*Type II : antibodies to cell surface molecules ; Type III : Immune complex disease ; Type IV : T cell-mediated disease

Autoimmunity

ELISA Kits For Human Autoimmune Diseases

The following ELISA kits has been developed to screen the presence of autoantibodies in human serum. They are chromogenic. They should by used for research use only (a Research Use Notification is required).

- ◆ Precoated, ready to use 96-well strip plate for multiple uses over 12-18 months, economical.
- ◆ Direct sample (100 µl) analysis. No sample dilution/processing allows rapid analysis.
- ◆ 75 min. assay time, three convenient room temperature incubation (30+30+15 min).
- ◆ Time saving ready-to-use substrate solution and other assay components.
- ◆ Negative and positive controls provided.
- ◆ Up to 1 year shelf life.

Description	Cat.#	Qty
ANA (anti-Nuclear Antigens)	BP8200	96 tests
Anti-ds-DNA IgG (Anti-DNA IgG)	BP8190	96 tests
A 95% specific with 100% sensitivity was found compared to standard IFA test.		
Rheumatoid Factors IgM (RF)	BP8180	96 tests

The assay is specific, showing negative result with Serum samples known to be positive for extractable nuclear antibodies (ENA), anti-single stranded (ss)-DNA, anti-rheumatoid factor (RF), anti-toxoplasma gondii IgG, IgM, and anti-cytomegalovirus IgG.

Samples containing less than 25 IU/ml RF IgM can be considered as RF IgM-negative; samples showing greater than 25 IU/ml concentrations can be considered as RF IgM-positive. Concentrations of higher than 75 IU/ml RF IgM usually indicate rheumatoid arthritis.

ELISA Kits For Mouse Autoimmune Diseases

A great deal of our understanding of autoimmune diseases comes form the study of animal models that mimic the clinical picture in humans.

The following ELISA kits has been developed to screen the presence of autoantibodies in mouse serum. All are sandwich assays. They detect total antibody levels as the conjugate used is anti-mouse IgG (H+L). It is however possible to an isotype specific conjugate (e.g., anti-mouse IgG (gamma chain) or anti-IgM (mu-chain) specific – HRP conjugate to determine autoantibodies for a given isotype.

- ◆ Precoated, ready to use 96-well strip plate for multiple uses over 12-18 months
- ◆ Direct sample analysis (usually need 100 µl of 1 :100 diluted serum)
- ◆ High Sensitivity
- ◆ 75 min. assay time, three convenient room temperature incubation (30+30+15 min)
- ◆ Time saving ready-to-use substrate solution and other assay components

Description	Cat.#	Qty
Anti-Nuclear Antigen (ANA)	U50900	96 tests
a rapid, sensitive and semi-quantitative kit for total antibody levels anti Nucleic Acids to research the development and progression of ANA-associated diseases.		
Anti-double Stranded DNA (Anti-dsDNA)	U50890	96 tests
Anti-Single Stranded (Anti-ssDNA)	BN1160	96 tests
Anti-Smith Antigen (Anti-Sm)	BP8240	96 tests
Anti-nRNP (Anti-nRNP)	BP8250	96 tests
Anti-Histones	BP8270	96 tests
Anti-SS-A/Ro Antigen	BP8280	96 tests
Anti-SS-B (La Antigen)	BP8290	96 tests
Circulating Immune Complexes (CIC)	BP8300	96 tests
Anti-Jo-1	BP8310	96 tests
Anti-Scl-70	BP8320	96 tests
Anti-Cardiolipin	U57140	96 tests
RF IgG (A+G+M)	BB8520	96 tests

Technical tip

Anti-Nuclear Antibodies (ANA) are autoantibodies which binds to cellular nuclear antigens including ds-DNA, ss-DNA histones, ribonucleoproteins (RNP) and the SS-A, SS-B, and Sm antigens. Currently, ANA is widely used as screening procedure for autoantibodies.

The frequency of ANA positivity in various rheumatic diseases has been reported for SLE, rheumatoid arthritis (RA), progressive systemic sclerosis (PSS), polymyositis (PM), dermatomyositis (DM), mixed connective tissue diseases, drug-induced SLE, and Sjogren's syndrome (SS). Most of these studies are based on tedious immunofluorescence assay. Recently, ELISA has been used for this purpose.

Technical tip

The presence of serum antibodies to native ds-DNA is one of the major criterion for systemic lupus erythematosus (SLE). These auto antibodies are rarely found in patients with other rheumatic diseases, and their levels especially of those with complement fixing activity, often correlate with active disease. An increase in anti-dsDNA antibodies > 30 IU/ml in less than 10 weeks in conjunction with a decrease in C4 levels is a reliable indicator of exacerbation of SLE.

Antibody to ds-DNA are directed against the phosphate-deoxyribose backbone of the DNA molecule, and appear to be generated due to preferential activation of specific B cells and are not merely due to polyclonal B-cell hyperactivity prior to exacerbation of SLE. The common DNA idiotype (Id), designated 16/6 and encode by a germ line gene, is found in SLE and other autoimmune disease. Immunization with hu Mab 16/6 as well as with T-cell lines specific for the 16/6 Id causes SLE-like disease in mice.

SLE patients tend to have high levels of anti-DNA IgG, while patient with other autoimmune diseases such as Sjogren's syndrome or rheumatoid arthritis may be low positive for anti-DNA.

ELISA kits offer several advantages over other assays. For example, Anti dsDNA ELISA assay, compared to alternative techniques such as hemagglutination, complement fixation, immunofluorescence (IFA) and RIA, increase sensitivity, reproducibility, and efficiency without sacrificing specificity and rease of use (i.e. avoid radioactive reagents)

Technical tip

Different Anti-Nuclear Antibodies (ANA) types and pathologies

Anti-Nuclear Antibodies (ANA) are autoantibodies which binds to cellular nuclear antigens including ds-DNA, ss-DNA histones, ribonucleoproteins (RNP) and the SS-A, SS-B, Sm antigens, , Jo-1, and Scl-70, etc. The presence of ANA is a classic marker of systemic rheumatic diseases including systemic lupus erythematosus (SLE), Sjogren's Syndrome (SS), Mixed connective tissue diseases (MCTD), and progressive systemic sclerosis. Anti-ds-DNA and Anti-Sm appear to occur only in SLE, while others (ssDNA, histones, nRNP, SSA/Ro, and SSB/La) occur in other conditions as well.

Anti ds DNA

Antibodies reactive with ds-DNA are of primary importance for diagnosis systemic lupus erythematosus (SLE). A serological hallmark of SLE, they appear to play a central role in the pathogenesis of tissue injury and are closely correlated with clinical activity. Their presence is also associated with active lupus and usually with immune complex glomerulo-nephritis. Antibodies to ds-DNA are directed against the phosphate-deoxyribose backbone of the DNA molecule, and appear to be generated due to preferential activation of specific B cells and are not merely due to polyclonal B-cell hyperactivity prior to exacerbation of SLE. Antibodies to ssDNA (nucleotide bases) are also common, most notably in ANAs producing homogeneous pattern in indirect immunofluorescence. Anti-ssDNA are also found in non-immunological disorders as wells as in autoimmune diseases such as rheumatoid arthritis, SLE, and systemic sclerosis. However, autoantibodies to dsDNA when present in high concentration are virtually specific for SLE (>90%).

The presence of ss-DNA antibody is frequently associated with drug-induced autoimmunity. Anti-histone antibodies are commonly found in drug induced lupus (90-95%) than SLE (20-30%).

Anti Sm

The Sm antigen (named after the patient "Smith" in whom this autoantibody was detected) was originally classified as ENA. Immunologically active Sm antigen is a heterogeneous, non-histones nuclear protein consisting of polypeptides B (26 kDa), B' (27 kDa), and D (13 kDa). Sm antigen is composed of 5 small nuclear RNAs (U1, U2, U4, U5, and U6). Anti-nRNP autoantibodies do not interact with U2, U4/6, and U5. The U1RNP, precipitated by anti-nRNP, has both Sm and RNP activities. Sm antigen may play an essential role in post-transcriptional processing of pre-mRNA.

Sm antibodies, of which many react with proline-rich dominant epitopes in the B/B' and N proteins, are present in about 30% all patients with SLE. It is rarely found in other connective diseases. The combined presence of Anti-Sm and anti-dsDNA is highly indicative of SLE. Anti-Sm are usually accompanied by anti-RNP. Therefore, it is beneficial to determine both anti-Sm and Anti-nRNP antibodies. Anti-Sm antibodies may also be of clinical relevance in lung fibrosis. Crossreactivities of Sm antibodies include the p24 gag proteins of HIV-1, collagen, and a 28 kDa proteins of several plants.

Rheumatoid

Rheumatoid Factors (RFs) were described as Immunoglobulins (IgGs) in rheumatoid arthritis as detected by agglutination of rabbit IgG coated erythrocytes (1). It was later demonstrated that RFs were IgM molecules reactive with the Fc-portion of the IgG from various species. In addition to the IgM RF, subsequent studies have identified RFs of other IgG subtypes (IgG, IgA, and IgE) in sera of patients with rheumatoid arthritis, and certain other chronic diseases. Most commercial assays measure predominantly IgM RFs. It has been observed that measurement of IgG RF may be a better indicator of rheumatoid arthritis than IgM RF. IgA RF and IgE RF have been implicated in articular disease process in rheumatoid arthritis and rheumatoid vasculitis, respectively. RFs, produced by cells within the joint space, are found in joint fluids as well. RF titer, particularly IgG RF correlate with the intensity of synovitis.

Anti Cardiolipin

Anti Cardiolipin (diphosphatidyl glycerol) Antibodies (ACA) are the commonly tested anti-phospholipid antibodies, when clinical significance of any quantitative differences in other anti-phospholipid antibodies is yet to be established.

ACA are associated with systemic lupus erythematosus (SLE) or lupus like illness, with other chronic illness (B-cell tumors), infectious diseases, drug-induced lupus, and aging. ACA are reported to occur in recurrent thrombotic events, thrombocytopenia, recurrent fetal loss., livedo reticulates (LR), Snedden syndrome, adrenal hemorrhage, and Addison's disease. As in syphilis, ACA in HIV infection are not commonly associated with lupus anticoagulant. Anti-phospholipid antibodies found in rheumatic illness tend to have high titered IgG (IgG2 and IgG4) more than IgM isotype. IgM isotype antibodies are found in infection, drugs, and neoplasm. In infection, low titer, low avidity IgG (IgG1 and IgG3) are much more common.

Obesity EIA Assays

Ghrelin (human acylated) EIA Kit

This EIA kit specifically measures the acylated form of ghrelin and is based on a double-antibody sandwich technique. Each kit contains ghrelin (acylated) AChE-Fab' conjugate, human acylated ghrelin standard, human acylated ghrelin quality control, Ellman's reagent, EIA buffer, wash buffer, Tween 20, plates pre-coated with anti-ghrelin mouse monoclonal antibody, and complete instructions.

Ghrelin (rat acylated) EIA Kit

This EIA kit specifically measures the acylated form of ghrelin. Each kit contains ghrelin (acylated) AChE-Fab' conjugate, rat acylated ghrelin standard, rat acylated ghrelin quality control, Ellman's reagent, EIA buffer, wash buffer, Tween 20, plates pre-coated with anti-ghrelin mouse monoclonal antibody, and complete instructions.

Leptin (human) EIA Kit

Leptin is a 167 amino acid protein encoded by the ob gene, which was originally identified in genetically obese mice. Our new leptin assay is an immunometric sandwich EIA that permits leptin measurements within the range of 1-50 ng/ml, typically with a limit of detection of 1 ng/ml. Inter- and intra-assay CVs of less than 9% can be achieved at most concentrations. This assay allows sensitive, specific analysis of leptin in serum or plasma.

Description	Cat.#	Qty
Leptin (human) EIA Kit Sens : 1 pg/ml	Q90691	1 kit (96 wells)
Ghrelin (human acylated) EIA Kit Sens : 0.3 pg/ml (20 h) - 0.8 nM (3h)	BQ6510	1 kit (96 wells)
Ghrelin (rat acylated) EIA Kit Sens : 0.2 pg/ml (20 h) - 0.7 nM (3 h)	BQ6520	1 kit (96 wells)

Technical tip

Ghrelin

Ghrelin, an endogenous ligand for the growth hormone secretagogue receptor, is synthesized principally in the stomach. It stimulates food intake and transduces signals to hypothalamic regulatory nuclei that control energy homeostasis. The peptide consists of 28 amino acids, with an octanoylation of the serine-3 residue, which is necessary for biological activity. Ghrelin is present in the peripheral circulation in two forms : acylated and non-acylated.

See also Mouse Leptin Elisa Kit #AY7161