# السـيرة الذاتيـة

## البيـانـات الـشخصيـه :

الاسم : فـاطمه ريـاض بـداى

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# المؤهلات الدراسية :

| الشهادة | تخصص | الكلية | سنة التخرج |
|---|---|---|---|
| Ph.D | Medical Immunology | Tarbiat Modares University- Tehran-Iran | 2016 |
| MSD | Medical Immunology | Tarbiat Modares University- Tehran-Iran | 2011 |
| Bachelor's degree | Microbiology | Qom Islamic Azad University-Qom-Iran | 2007 |

# الف- الخبرات التعليمية :

1- تدريس :

| ردیف | تدریس نظري | تدریس عملي | مقطع التدریس | |
|---|---|---|---|---|
| | | | MSD | PhD |
| 1 | | RNA extraction and cDNA synthesis | * | * |
| 2 | | Cloning of genes in expression vector | * | * |
| 3 | | SDS-PAGE , Western blotting | * | * |
| 4 | | ، plasmid DNA extraction gel purification of plasmid DNA extraction | * | * |

## ب) البحوث:

| اسم المجلة | Index | English | سنة نشر المقالة | عنوان البحث |
|---|---|---|---|---|
| Journal of Mycology Research (JMR) | ISI | بلى- | 2013 | General Glance to Fungal allergic asthma |
| Academy for Environment and Life Sciences | ISI | بلي- | 2007 | A Report of Sever Shoe Contact Dermatitis |
| Avicenna Journal of Biotechnology Medical | ISI | بلى- | 2016 | Alpha Alumina Nanoparticle Conjugation to Cysteine Peptidase A and B: An Efficient Method for Autophagy Induction |
| Immunologic Research | ISI | بلى- | 2016 | Enhancement of immune response against Leshmania cysteine peptidase A, B by an autophagy inducing system |
| European Journal of Pharmacology | ISI | بلى | 2016 | Critical role of Toll-like receptors in pathophysiology of allergic asthma |

ج -Oral Presentation

| Presentation | ردیف |
|---|---|
| International Congress of Immunology and Allergy | |
| Comparsion of pattern of autophagy in mycobacterium bovis (BCG) and Leishmania major in Balb/c mice macrophages. at the 12 th International Congress of Immunology and Allergy of Iran to be held at Milad Tower, Tehran, Iran 29thApril-2nd May 2014 | 1 |
| Study of the effect of zinc on the - process of autophagy in BCG infected macrophage. at the 11 th International Congress of Immunology and Allergy of Iran to be held at Milad Tower, Tehran, Iran 29thApril-2nd May 2012 | 2 |

د- المهارات و الخبرات:

1. Differentiation of human dendritic cells from monocytes
2. Cloning of genes
3. Recombinant protein expression
4. Flowcytometry
5. RT-PCR
6. Cell Culture
7. Peritoneal macrophage preparation and uptake assay
8. Naïve $CD_8^+$ Tcell isolation
9. Naïve $CD_4^+$ Tcell isolation

10. intracellular fluorescent dye carboxyfluorescein diacetate succinimidyl ester-labelled naive $CD_8^+$T cells
11. Preparation of FITC-labeled α-alumina-conjugated with proteins
12. Fourier Transform Infrared Spectroscopy (FTIR)
13. α-alumina particles-conjugated with protein
14. SDS-PAGE
15. Western blot
16. Ni affinity column and purification
17. Cytotoxicity assay (MTT Assay)
18. florescent microscopy

**ه) الدورات العلمية:**

1. Immunohistochemical staining

2. RT-PCR

# *Work Experience in laboratory:*

**1) Hepatitis serologic test:**

**HBS Ag**

HBsAg is an enzyme immunoassay for the qualitative detection of hepatitis B (surface) antigen in human serum or plasma. Type B viral hepatitis is usually accompanied by the appearance of hepatitis B surface antigen (HBsAg) in the serum. Normally, HBsAg can be detected in the serum as early as 2 or 3 weeks before the onset of the illness and reaches a peak titer at the time when the characteristic symptoms appear (jaundice, changes in the concentrations of liver-specific enzymes. In addition, the HBsAg test is also used for the diagnosis of acute or chronic hepatitis B infection·

**Anti-HBs Total:**

Enzyme immunoassay for the qualitative detection and quantitative determination of specific antibodies to the hepatitis B surface antigen (HBsAg) in human serum and plasma. Patients found to have anti-HBs values < 100 IU/L after the completion of basic immunization require booster vaccination within one year

**Anti-HBc monoclonal:**

Enzyme immunoassay for the qualitative detection of specific antibodies to Hepatitis B (core) Antigen in human serum or plasma. Antibodies to hepatitis B (core) antigen (anti-HBc) are the first antibodies to appear in an acute hepatitis B infection. They occur shortly after the antigens HBsAg and HBeAg , and often persist for life Consequently, the determination of anti-HBc in the serum can be utilized for monitoring the course of a hepatitis B infection. Furthermore, anti‑HBc can serve as a marker for the differential diagnosis of hepatitis A, hepatitis B, and non-A/non-B hepatitis.When the anti-HBc assay is used for screening purposes, a positive finding will indicate past contact with the hepatitis B virus even in cases of sera negative for HBsAg and anti-HBs.

**HBc IgM**

Enzyme ImmunoAssay for the quantitative/qualitative determination of IgM class antibodies to Hepatitis B Virus core Antigen in human plasma and sera with the "capture" system. Anti HBcAg IgM titers, very high during the acute phase, decrease along the illness, as IgG antibodies appear, down to undetectable levels in convalescent patients.

In chronic hepatitis, however, spikes of anti HBcAg IgM synthesis are present, confirming reactivation of HBV in hepatocites and giving origin to permanent IgM low titers. The determination of anti HBcAg IgM antibodies has become very important for the fast classification of the virus, of the phase of the illness and for the monitoring of patients under treatment with interferon.

**HBe Ag&Ab**

Enzyme ImmunoAssay (ELISA) for the determination of Hepatitis B Virus "e" Antigen and Antibody in human plasma and sera. The kit is intended for the follow-up of acute infection and of chronic patients under therapy.

Hepatitis B “e” Antigen or HBeAg is known to be intimately associated with Hepatitis B Virus or HBV replication. Recently, it has been found that HBeAg is a product of proteolytic degradation of Hepatitis B core Antigen or HBcAg, occurring in hepatocites, whose expression is under the control of the precore region of HBV genome. If HBeAg is considered a specific marker of infectivity, the presence of anti HBeAg antibodies in blood is recognised to be a clinical sign of recovery from infection to convalescence.

**HAV IgM**

Enzyme ImmunoAssay (ELISA) for the determination of IgM class antibodies to Hepatitis A Virus in human plasma and sera with the "capture" system. Serologic testing to detect immunoglobulin M (IgM) antibody to the capsid proteins of HAV (IgM anti-HAV) is required to confirm a diagnosis of acute HAV infection. In most persons, IgM anti-HAV becomes detectable 5-10 days before the onset of symptoms and can persist for up to 6 months after infection. Immunoglobulin G (IgG) anti-HAV, which appears early in the course of infection, remains detectable for the person's lifetime and confers lifelong protection against the disease.

**HDV Ab**

Enzyme ImmunoAssay (ELISA) for the determination of antibodies to Hepatitis Delta Virus or HDV in human plasma and sera with a “two-steps” methodology and used for the follow-up of patients infected by HDV.

**Hepatitis C Virus Test:**

**HCV Ab**

ELISA for the determination of antibodies to Hepatitis C Virus in human plasma and may be used for the screening of blood units of HCV-infected patients.

**RIBA Test:**

The RIBA Test is a line Immuno Assay (blotting or western blot) for the detection of antibodies to human hepatitis C virus in human serum or plasma. It is intended for use as a supplementary test on human serum or plasma specimens found to be reactive using an anti-HCV screening procedure. The RIBA Test is based on the principle of an enzyme immunoassay. A test sample is incubated in a trough together with the test strip. If present in the sample, HCV antibodies will bind to the HCV antigen lines on the strip. Subsequently, an affinity-purified alkaline phosphatase-labelled goat anti-human IgG (H+L) conjugate is added and reacts with specific HCV antigen/antibody complexes, if previously formed. Incubation with the enzyme substrate produces a chesnut-like color, the intensity of which is proportionate to the amount of HCV-specific antibody captured from the sample on any given line.

**HIV Tests for Diagnosis:**

**HIV Ag-Ab**

Enzyme immunoassay for the qualitative detection of HIV p24 antigen and specific antibodies to human immunodeficiency viruses of type 1 and 2 (HIV1 including HIV1 subtype O virus and HIV2) in human serum and plasma.

**HIV blotting (confirmatory test)**

HIV blot is a line Immuno Assay, to confirm the presence of antibodies against the human immunodeficiency virus type 1 (HIV-1), including group O, and type 2 (HIV-2) in human serum or plasma. HIV blot also differentiates between HIV-1 and HIV-2 infections. Test principle Recombinant proteins and synthetic peptides from HIV-1 and HIV-2, and a synthetic peptide from HIV-1 group O are coated as discrete lines on a nylon strip with plastic backing. Five HIV-1 antigens are applied: sgp120 and gp41, which detect specific antibodies to HIV-1, and p31, p24, and p17, which may also cross-react with antibodies to HIV-2. HIV-1 group O peptides are present in the HIV-1 sgp120 band. The antigens gp36 and sgp105 are applied to detect antibodies to HIV-2.

**HTLVI/II**

Immunoassay for the in vitro qualitative determination of antibodies to HTLVI/II in human serum and plasma. This assay is indicated as a screening test and as an aid in the diagnosis of HTLV-I or HTLV-II infection. This assay is also indicated as a donor screening test for the detection of antibodies to Human T-Lymphotropic Virus Type I (HTLV-I) and/or Human T-Lymphotropic Virus Type II (HTLV-II) in serum and plasma specimens from individual human blood donors.

**HBV, HIV Quantitative PCR (viral load assay)**

Hepatitis B Virus PCR Detection is destined for qualitative detection of HBV DNA in serum and plasma of Human blood and other Human sample by the method of Polymerase Chain Reaction

# TORCH Screen

**Toxoplasma Antibodies (IgG, IgM)**

Toxoplasmosis is a parasitic infection caused by the protozoan *Toxoplasma gondi*i(Immunoassay). Approximately 23% of the immunocompetent population are asymptomatic carriers of the parasite. The combination of high titers of IgG and IgM antibodies to *Toxoplasma gondii* is consistent with infection in the last three months. High titers of IgG and low to medium titers of IgM antibodies to *Toxoplasma gondii* are consistent with infection in the last three to six months.

**Cytomegalovirus Antibodies (IgG, IgM)**

CMV (Immunoassay) infections occur in 0.5 to 2.2% of all live births. Symptomatic congenital infections usually occur in infants born to non-immune mothers who have primary infections during pregnancy. Latency and reactivation of CMV influence the interpretation of serological results. A single positive CMV IgG result is an indication of present or past infection. The presence of CMV IgM suggests a recent CMV exposure but does not differentiate between primary infection and reactivation.

**Rubella Antibodies (IgG, IgM)**

Rubella (German Measles) (Immunoassay) is a common and usually benign viral infection of children. IgM antibody is detectable 11-25 days after the onset of exanthem, in most individuals 15-25 days after vaccination, and in 90-97% of infants with congenital rubella between 2 weeks and 3 months after birth. Acute and convalescent IgG titers may be interpreted to identify a >30% rise in the antibody index. A positive IgG antibody indicates successful immunization or past exposure.

**Herpes Simplex Virus 1 and 2 (IgM) and Type-Specific (IgG)**

Clinical manifestations of HSV (Immunoassay) infections include genital tract infections, neonatal herpes, meningoencephalitis, keratoconjunctivitis, and gingivostomatitis. Most infections at non-genital sites are caused by HSV-1, whereas both HSV-1 and HSV-2 may cause genital herpes. Compared to HSV-1 genital infections, HSV-2 genital infections are associated with higher recurrence rates and asymptomatic transmission events; thus information on the HSV type causing genital infection is useful in

guiding treatment and management options. Although HSV IgM is detectable in most cases of primary HSV infection, it may also be found in association with recurrences.

**H.Pylori IgA, IgM, IgG**

H. pylori IgA, IgM, IgG Enzyme-Linked Immunosorbent Assay (ELISA) is intended for the detection and qualitative determination of IgA, IgM, IgG antibodies to Helicobacter pylori (H. pylori) in human serum.
Serologic tests have been developed to aid in the diagnosis of Helicobacter pylori infection.

**Varicella-Zoster Virus Antibodies (IgG, IgM)**

A positive result indicates that the patient has antibody to VZV but does not differentiate between an active or past infection. This assay reliably measures immunity due to previous infection but may not be sensitive enough to detect antibodies induced by vaccination. Thus, a negative result in a vaccinated individual does not necessarily indicate susceptibility to VZV infection.

**EBV IgM, IgG**

Epstein-Barr Virus Viral Capsid Antigen (VCA) IgM is an EnzymeLinked Immunosorbent Assays (ELISA) intended for the qualitative determination of IgM antibodies in human serum to VCA antigen.

**PSA (Prostate Specific Antigen), Free and Total**

In men over 50 years with total PSA between 4.0 and 10.0 ng/mL, the percent (%) free PSA gives an estimate of the probability of cancer.Elevated levels of Prostate Specific Antigen (PSA) have been associated with benign and malignant prostatic disorders. Studies indicate that in men 50 years or older measurement of PSA is a useful addition to the digital rectal exam in the early detection of prostate cancer. In addition, PSA decreases to undetectable levels following complete resection of the tumor and may rise again with recurrent disease or persist with residual disease. Thus, PSA levels may be of assistance in the management of prostate cancer patients.

**Total IgE**

IgE is also known as the reagenic antibody. In general, elevated levels of IgE indicate an increased probability of an IgE-mediated hypersensitivity, responsible for allergic reactions. Parasitic infestations such as hookworm, and certain clinical disorders including aspergillosis, have also been demonstrated to cause high levels of IgE. Decreased levels of IgE are found in cases of hypogammaglobulinemia, autoimmune diseases, ulcerative colitis, hepatitis, cancer, and malaria. Cord blood or serum IgE levels may have prognostic value in assessing the risk of future allergic conditions in children. The IgE serum concentration in a patient is dependent on both the extent of the allergic reaction and the number of different allergens to which he is sensitized. Nonallergic normal individuals have IgE concentrations that vary widely and increase steadily during childhood, reaching their highest levels at age 15 to 20, and there after remaining constant until about age 60, when they slowly decline. The total IgE Quantitative Enzyme Immuno- assay provides a rapid, sensitive, and reliable assay for total serum IgE.

**Thyroid Peroxidase Antibodies (TPO)**

Assists in the diagnosis of thyroid diseases such as endemic goiter, Graves Disease, autoimmune thyroiditis, Addison's Disease, insulin-dependent diabetes mellitus, Hashimoto's Disease and polyendocrine auto-immunopathies.

**Anti ds-DNA**

Enzyme immunoassay with human recombinant double-stranded DNA (dsDNA) for the quantitative and qualitative detection of IgG antibodies against dsDNA in human serum. Antibodies binding to DNA belong to the group of anti-nuclear antibodies (ANA) that have been observed in several autoimmune diseases. Antibodies reacting with native doublestranded (ds) DNA are regarded as being specific for systemic lupus erythematosus (SLE) and have been observed in approximately 50-80% of the patients. Antibodies against dsDNA are found during active phases of SLE. The amount of the serum concentration is positively correlated with the severity of the Disease. Thus, detection of these autoantibodies is important for the diagnosis and the clinical monitoring of SLE.

**ANA**

ANA-HEp-2 is a solid phase enzyme immunoassay for the combined qualitative detection of IgG antibodies against HEp2 cells in human serum. Each well is coated with lysed HEp2 cells. The assay is a tool in the diagnosis of systemic rheumatic diseases like systemic lupus erythematosus (SLE), mixed connective tissue diseases (MCTD), scleroderma, Sjögren`s syndrome, polymyositis and dermatomyositis.

Anti-nuclear antibodies (ANA) directed against a variety of nuclear and cytoplasmic antigens occur in high frequency in systemic rheumatic diseases and thus are an important tool for the differential diagnosis.

**Double Marker Test - A Type of Pregnancy Test**.

1) **PAPP-A**

PAPP-A is an enzyme immunoassay for the quantitative in vitro diagnostic measurement of Pregnancy associated plasma protein A (PAPP-A) in serum and plasma.

PAPP-A is a protein produced by the developing placenta. Its concentration in the maternal blood increases rapidly after the 7th week of pregnancy. The measurement of PAPP-A in the first trimester of pregnancy has been reported as a useful marker in antenatal screening for Down Syndrome and other fetal aneuploidies. Reduced PAPP-A values in combination with maternal age, the measurement of free ß-HCG and the ultrasonic determination of nuchal translucency (NT) in pregnancy weeks 11 to 14 may detect up to 90 % of pregnancies with Down syndrom .

2) **ß-hCG free**

The Free β-HCG is an enzyme immunoassay for the quantitative in vitro diagnostic measurement of free beta subunit of human chorionic gonadotropin (free β-hCG) in serum and plasma.

Human Chorionic Gonadotropin (hCG) is a glycoprotein hormone normally produced by placenta during pregnancy. The hormone is present in blood and urine around seven to thirteen days following implantation of the fertilized ovum. The measurement of free β-HCG in the first trimester of pregnancy has been reported as a useful marker in antenatal screening for Down Syndrome and other fetal aneuploidies. Increased free β-HCG values in combination with maternal age, the measurement of PAPP-A and the ultrasonic determination of nuchal translucency (NT) in pregnancy weeks 11 to 14 may detect up to 90 % of pregnancies with Down Syndrome.

**Quad Screen: A Type of Pregnancy Test:**

1) **AFP,**
2) **unconjugated Estriol,**
3) **hCG,**
4) **Dimeric Inhibin A (Immunoassay )**

Quad Screen results consistent with an increased risk of trisomy should be confirmed with amniotic fluid specimen. Results consistent with increased risk of NTD may be followed-up with appropriate diagnostic testing as detailed in the report. Maternal serum screening yields a low percentage of false negatives. A wide range of other chromosomal abnormalities are not identified by maternal serum screening.

**25-Hydroxyvitamin D (D2, D3)**

Measurement of serum 25-OH vitamin D concentrations provide a good index of circulating vitamin D activity in patients not suffering from renal disease. Lower than normal 25-OH vitamin D levels can result from a dietary deficiency, poor absorption of the vitamin or impaired metabolism of the sterol in the liver. A 25-OH vitamin D deficiency can lead to bone diseases such as rickets and osteomalacia. Above normal levels can lead to hypercalcemia..

**Vitamin B12**

Vitamin B12 is decreased in pernicious anemia, total or partial gastrectomy, malabsorption and certain congenital and biochemical disorders.

**Anti Cardiolipin-A (ACL)**

Anti-cardiolipin antibodies are frequently found in sera of patients with systemic lupus erythematosus (SLE) and related diseases. The prevalence of anti-cardiolipin antibodies in SLE is 24-50 %.
The occurrence of anti-cardiolipin antibodies in patients with SLE and related diseases is typical for a secondary anti-phospholipid syndrome (APS). In contrast, anti-cardiolipin antibodies in patients with no other autoimmune diseases characterize the primary anti-phospholipid syndrome (APS). Many studies have shown a correlation between these autoantibodies and an enhanced incidence of thrombosis, thrombocytopenia and habitual abortions (as a consequence of placental infarct). The exact mechanism by which pathogenic anti-phospholipid antibodies induce thrombosis is not yet revealed fully.

**Anti- Phospholipid (APL)**

Enzyme immunoassay for the separate qualitative and quantitative detection of IgG and/or IgM antibodies against phospholipids in human serum.
Antibodies against phospholipids, components of the biological membranes, are specific for phospholipids such as Cardiolipin, Phosphatidyl -inositol, -ethanolamine,- serine, -choline and Sphingomyelin. Anti-phospholipid antibodies are frequently found in sera of patients with systemic lupus erythematosus (SLE) and related diseases. The occurrence of anti-phospholipid antibodies in patients with SLE and related diseases is typical for a secondary anti-phospholipid syndrome (APS). In contrast, anti-phospholipid antibodies in patients with no other autoimmune diseases characterize the primary APS.

**Anti-CCP Test (Anti-Cyclic Citrullinated Peptide)**

Anti-cyclic citrullinated peptide (anti-CCP) (ELISA) is an antibody present in most rheumatoid arthritis patients. Levels of anti-CCP can be detected in a patient through a blood test. A positive anti-CCP test result can be used in conjunction with other blood tests, imaging tests, and physical examinations to reach a rheumatoid arthritis diagnosis

**Immunofluorescence**

1) **Anti-Smooth Muscle Antibodies (ASMA)**

Indirect immunofluorescence test for the qualitative determination of antibodies against smooth muscle (ASMA) in serum or plasma. Tissue sections from rat stomach are used for the detection of anti-smooth muscle antibodies (ASMA) in serum or plasma. ASMA bind to the corresponding antigens in the muscle layers of the blood vessels and the interglandular fibrils in the rat stomach. Anti-smooth muscle antibodies are the standard diagnostic markers for autoimmune hepatitis. Anti-actin antibodies, a subgroup of smooth muscle antibodies, are found in the sera of 52-85 % of patients with active chronic autoimmune hepatitis and 22 % of patients with primary biliary cirrhosis..

2) **Anti-Nuclear Antibodies HEp-2 (ANA-HEp-2)**

Indirect immunofluorescence test for the qualitative determination of antinuclear IgG antibodies (ANA) in serum or plasma. Evaluation of different fluorescence patterns provides additional information beyond mere antibody recognition. Homogeneous distribution of the bound antibodies is indicative of systemic lupus erythematosus (SLE). A speckled pattern is strongly related to SLE, but it may also occur in patients with mixed connective tissue disease, Sjögren's syndrome, polymyositis or scleroderma. Peripheral fluorescence can be observed in patients with connective tissue diseases. A nucleolar pattern has been described in patients with overlapping scleroderma and polymyositis/ dermatomyositis syndromes and with systemic scleroderma, especially for those with renal involvement. In patients with the limited cutaneous form of systemic sclerosis staining of the centromeres can be detected.

**FTA TEST**

The FTA test is used for the detection of human antibody to the antigens of Treponema Pallidum, the etiological agent of syphilis. Cultured organisms are placed in the wells of specially prepared microscope slides.The FTA-ABS test is a confirmatory procedure for reactive screening test results.

3) **Listeria monocytogenes Detection**

Listeria monocytogenes is known to be responsible for listeriosis, a rare but often lethal food-borne infection with a lethality rate of up to 25%. Usually Listeria is transmitted through contaminated food, such as raw milk, cheeses, raw and cooked poultry, raw meats, ice cream, raw or smoked fish and raw vegetables. Listeria is very resistant and able to grow in temperatures ranging from 4 °C to 37 °C.

# HLA Typing:

Human leukocyte antigens (HLA) used to be determined by the lymphocytotoxicity test.

1) **DNA Purification from Blood or Body Fluids**

This protocol is for purification of total (genomic, mitochondrial, and viral) DNA from whole blood, plasma, serum, buffy coat, lymphocytes, and body fluids using a microcentrifuge

2) **PCR-based techniques**
3) **Gel Electrophoresis**

After the PCR process, the amplified DNA fragments are size-separated e.g. by agarose gel electrophoresis, visualized by staining with ethidium bromide and exposure to ultraviolet light, documented by photography and interpreted. Interpretation of PCR-SSP results is based on the presence or absence of specific PCR product(s). The relative sizes of the specific PCR product(s) may be helpful in the interpretation of the results.