مختبرات العولقي التخصصية
AULAQI Specialized Med. Lab
التمـيُّزُ ... سِـرُّ النجاح

New Laboratory Tests

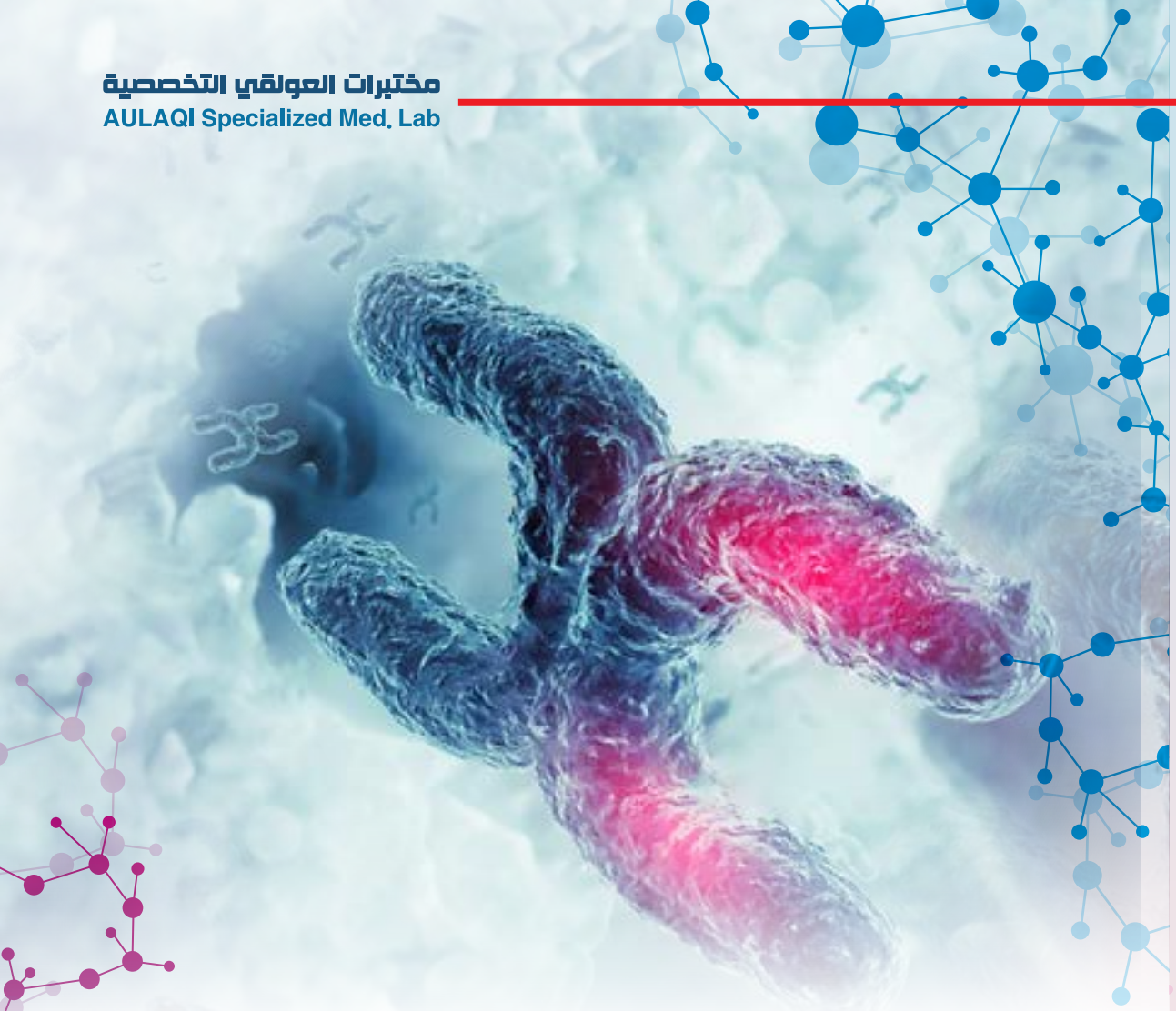
مختبرات العولقي التخصصية
AULAQI Specialized Med. Lab

STart Max

Simplicity born from Expertise

Stago

New Laboratory Tests



فحوصات الجينات والبيولوجيا الجزيئية

PCR & Molecular Genetics Tests:

PCR & Molecular Genetics Tests:

- HCV RNA Quantitative PCR
- HCV RNA Genotyping PCR
- HBV DNA Quantitative PCR
- HIV RNA Quantitative PCR
- TB PCR Qualitative
- Prothrombin II mutation PCR
- Factor V Leiden mutation PCR
- MTHFR Gene mutation PCR
- BCR-ABL 1 Gene mutation PCR
- BCR –ABL T315 I imatinib resistant
- PML RARA
- JAK2 - Gene mutation PCR
- Cardio Vascular Disease Risk Factors PCR
- Cystic Fibrosis CFTR Mutations PCR
- CAH PCR
- FMF PCR
- Lactose Intolerance PCR
- HLA B27 PCR
- HLA B5 PCR
- α-Globin Gene, α-Thalassemia PCR
- β-Globin Gene, β-Thalassemia PCR
- Meningitis pathogens multiplex panel PCR
- Respiratory pathogens multiplex panel PCR
- H1N1 Influenza Virus RNA PCR
- Herpes Simplex Virus I &II DNA PCR
- Human Papilloma Virus DNA Genotyping HR PCR
- Gaucher disease PCR
- KRAS & BRAF
- BARCA1 & BARCA2

Assays Detect Genetic Associated With Cardiac Vascular Diseases (PCR)

The CVD Genetic Teste detect genetic variants that are associated with Cardiovascular Diseases:

Factor V (FV):

Plasminogen Activator Inhibitor 1 (PAI-1, Serpin E1) 4G/5G:

Prothrombin (PTH; Factor II) G20210A:

Endothelial Protein C Receptor (EPCR):

Prothrombin (PTH; Factor II) G20210A:

Apolipoprotein B (Apo B) R3500Q:

5,10-Methylenetetrahydrofolate Reductase (MTHFR):

Apolipoprotein E (Apo E) E2/E3/E4:

Beta-Fibrinogen (FGB) -455 G>A:

Factor XIII (FXIII) V34L:

Human Platelet Antigen 1 (HPA1; Gp IIIa; integrin beta 3) L33P (1a/b):

Angiotensin-Converting Enzyme (ACE) 287 bp insertion/deletion (I/D):

Endothelial Nitric Oxide Synthase (eNOS; NOS3):

Lymphotoxin Alpha (LTA) 804 C>A (Thr26Asn):

• Methylenetetrahydrofolate reductase (MTHFR)gene

Mutation in the MTHFR gene are associated with decreased enzyme activity , which leads to hyperhomocysteinemia and toxic side effects of methotrexate therapy.

when a person has 2 copies of MTHFR C677T (homozypous) or 2 Copies of MTHFRC677T & one cope of A 1298C (copmer heterozygous)decrease MTHFR activity slow for the hemosystine to methionine

Hyperhomocysteinemia affects methotrexate sensitivity

- Two common mutations in the MTHFR gene, 677C>T and 1298A>C, contribute to reduced enzyme activity which leads to elevated levels of homocysteine.
- Homozygosity for 677C>T or compound heterozygosity for 677C>T / 1298A>C conveys a significantly higher risk for negative side-effects of methotrexate medication.
- Identification of relevant mutations in the MTHFR gene is crucial for allowing an adequate and safe methotrexate therapy!

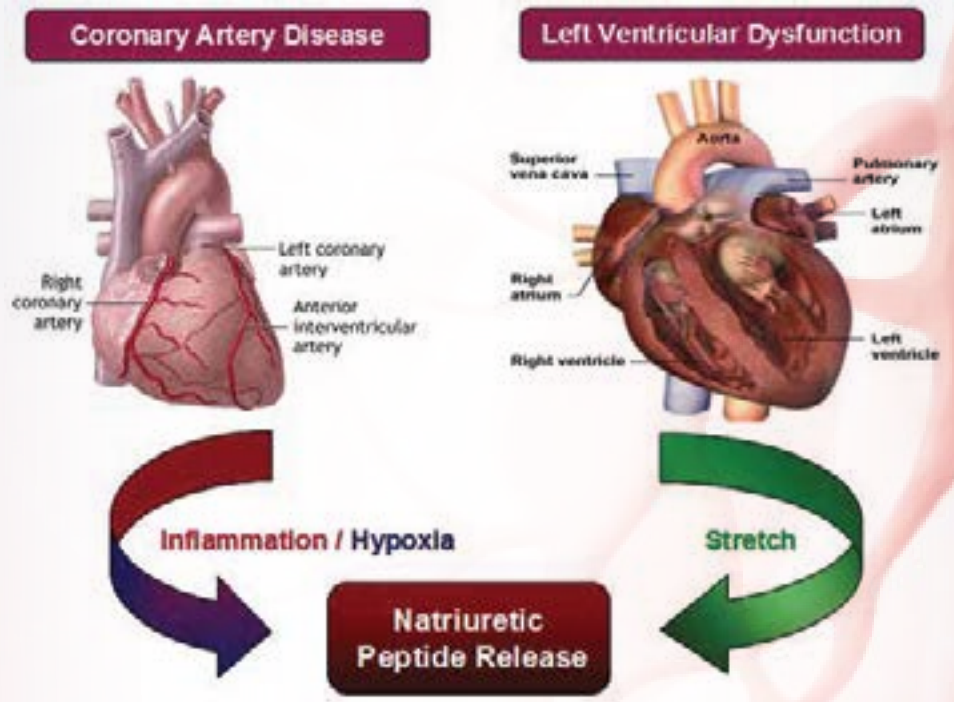
• Brain natriuretic peptide (proBNP)

How is it used ?

Either BNP or NT-proBNP may be used to help detect, diagnose, and evaluate the severity of heart failure.

BNP and NT-proBNP levelscan help doctors differentiate between heart failure and other problems, such as lung disease.

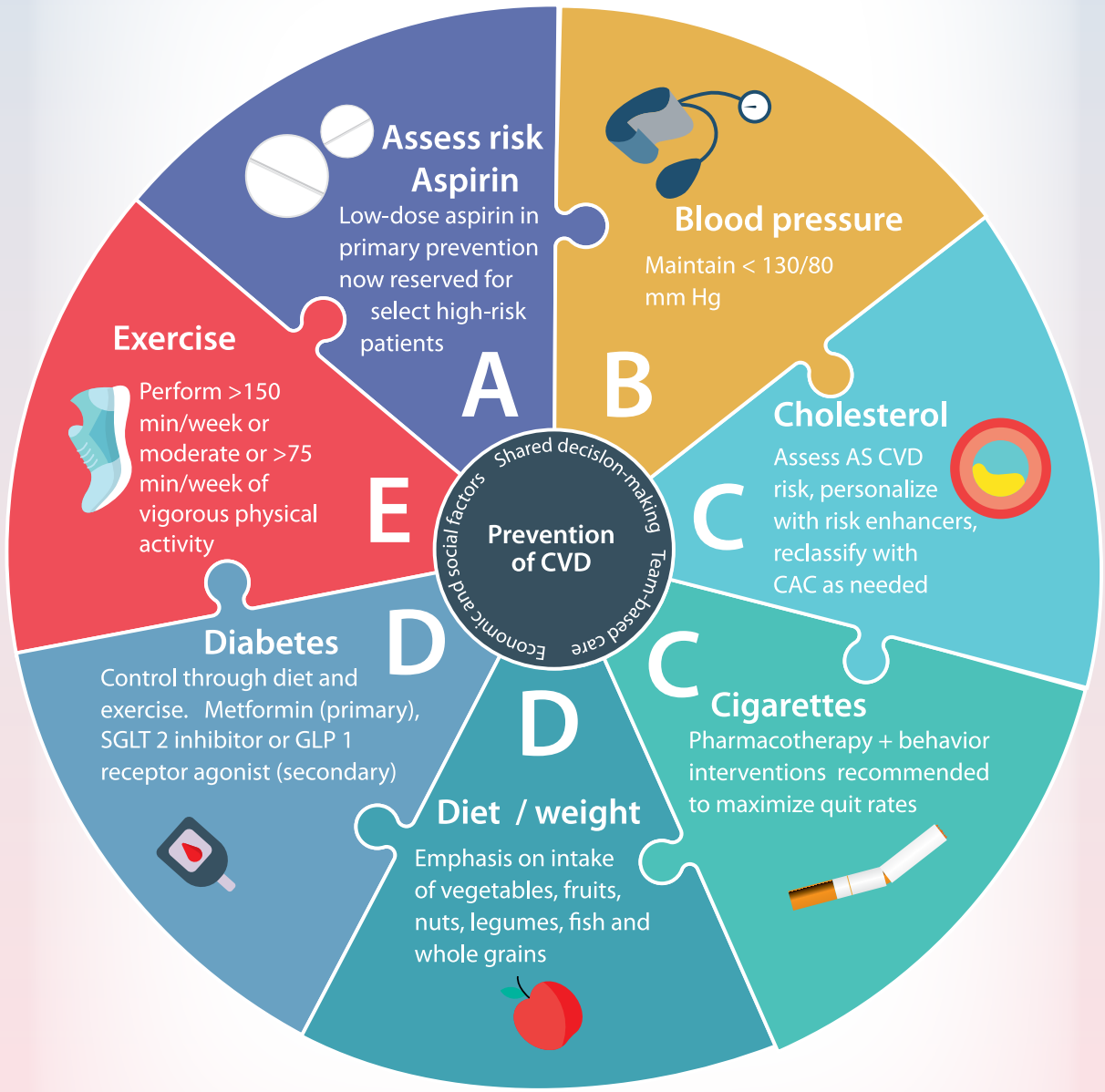
Higher levels of BNP or NT-proBNPare often associated with a worse outlook (prognosis) for the person



Clinical significance

The main clinical utility of either BNP or NT-proBNP is that a normal level rules out acute heart failure in the emergency setting. BNP or NT-proBNP is use to monitor the effects of therapy for heart failure.Either BNP or NT-proBNP can also be used for screening and prognosis of heart failureBoth are also typically increased in patients with left ventricular dysfunction, with or without symptoms (BNP accurately reflects current ventricular status, as its half-life is 20 minutes, as opposed to 2–1 hours for NT-proBNP)

A→B→C→D→E



BECKMAN COULTER

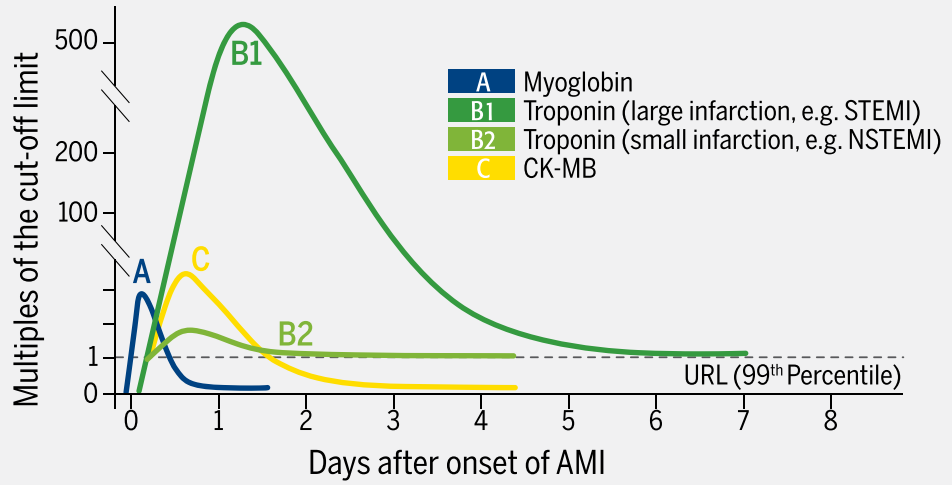
BECKMAN COULTER

Cardiac necrosis markers

Because recognition of acute MI is important for prognosis and therapy selection, measurement of cardiac necrosis markers is indicated in all patients with suspected ACS [14,15,16]:

- **Cardiac troponin is the preferred cardiac necrosis biomarker.**
- CK-MB is an acceptable alternative when cTn is not available.

Temporal profile of cardiac necrosis markers after acute myocardial infarction [13]



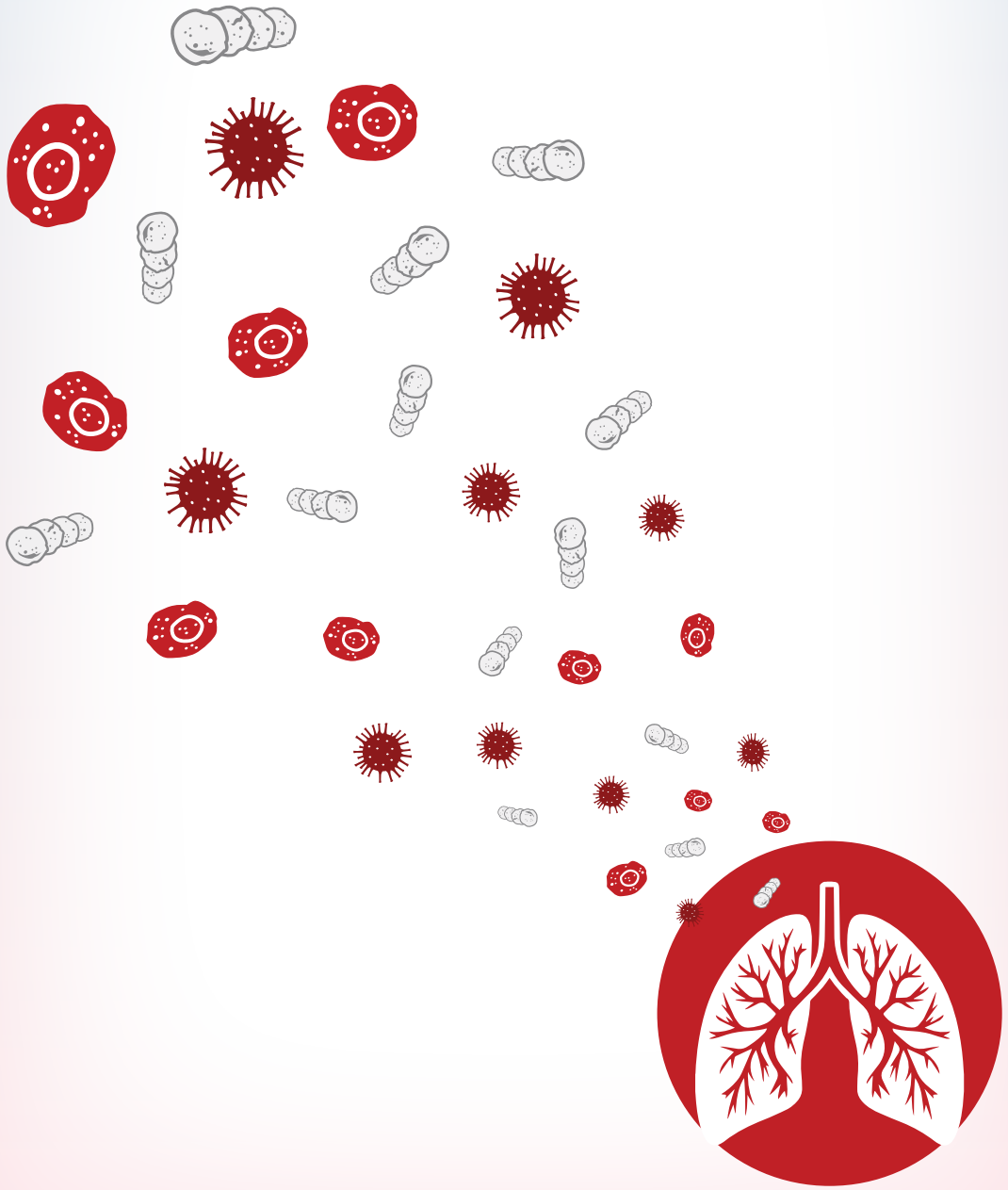
Properties of cardiac necrosis markers

	CARDIAC SPECIFICITY	TEMPORAL PROFILE			CLINICAL UTILITY	
		TIME TO FIRST DETECTION	MEAN TIME TO PEAK ELEVATION	DURATION OF ELEVATION	ADVANTAGE	DISADVANTAGE
Myoglobin	+	1-3 h	6-7 h	12-24 h	High sensitivity and NPV. **Early detection of MI** (early rule-out) and detection of **reperfusion**.	Low specificity in presence of skeletal muscle injury and renal insufficiency. Rapid clearance.
CK-MB	+++	3-4 h	24 h	24-36 h	Detection of **reinfarction**. Large clinical experience, previous "gold standard" for myocardial necrosis (best alternative if cTn assays are not available).	Reduced specificity in presence of skeletal muscle injury. Gender-specific cut-off values. Not an early marker of myocardial necrosis; serial testing needed when first result is normal.
cTnI	++++	3-6 h	24 h	5-10 days	Superior **sensitivity** and **specificity**. **Current biomarker of choice for detection of myocardial injury.**	Not an early marker of myocardial necrosis; serial testing needed when first result is normal.
cTnT	++++	3-6 h	24 h	5-14 days	Powerful tool for risk stratification and therapy selection. Detection of recent MI up to 2 weeks.	Reduced ability to discriminate reinfarction (serial testing needed).

CK-MB: creatine kinase MB fraction; cTn: cardiac troponin

Multiplex PCR

Rapid diagosis of Respiratory viral by Multiplex PCR



Multiplex PCR is the gateway to syndromic testing and better patient care

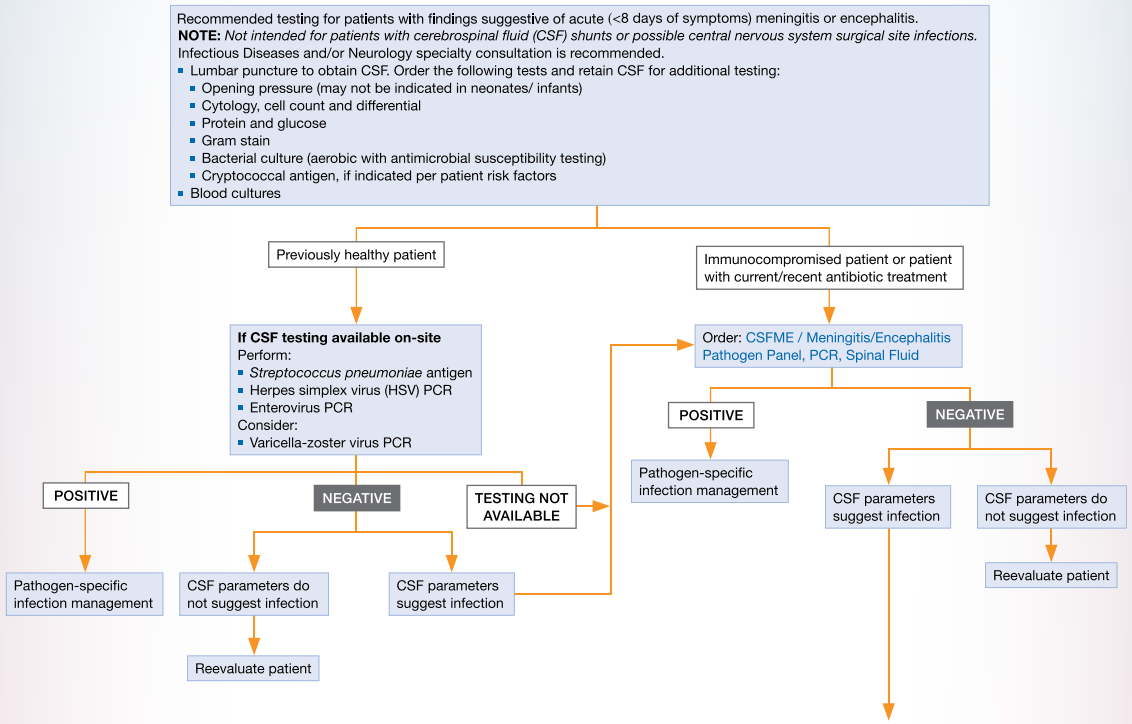
Respiratory pathogens 21 is an in vitro test for the qualitative detection of nucleic acid as a diagnostics tool in the evaluation of viral infections

Respiratory pathogens 21 plus

- enterovirus
- human adenovirus
- human bocavirus
- human coronavirus 229E
- human coronavirus HKU1
- human coronavirus NL63
- human coronavirus OC43
- human metapneumoviruses A/B
- human parainfluenza virus 1
- human parainfluenza virus 2
- human parainfluenza virus 3
- human parainfluenza virus 4
- human parechovirus
- human respiratory syncytial viruses A/B
- human rhinovirus
- influenza A virus
- influenza A(H1N1) virus (swine-lineage)
- influenza B virus
- *Mycoplasma pneumoniae*

Meningitis/Encephalitis Panel Algorithm

One PCR test → Most clinically Relevant Pathagens Causing meningitis



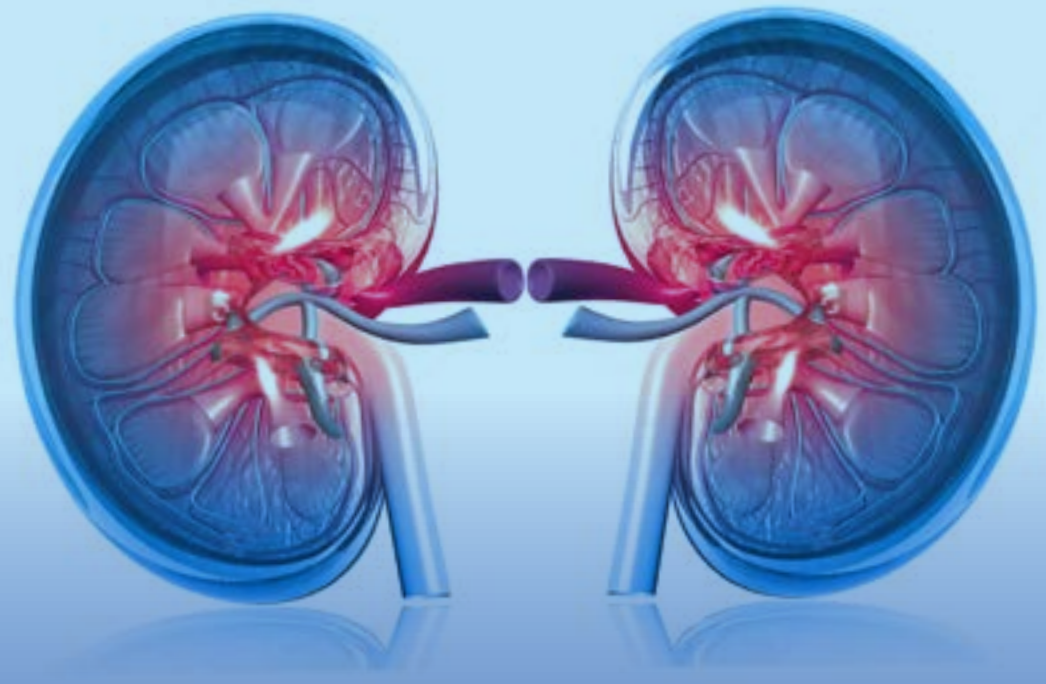
MENINGITIS Panel Bacterial & Viral Pathogens (PCR)

Bacterial meningitis has a rapid onset and is generally very serious, often with long term neurological effects. It can be treated with appropriate antibiotics that may also prevent spreading.

Viral meningitis is much more common and is less severe, usually recovering spontaneously.

Diagnosing the correct pathogen might be livesaving Meningitis Panel PCR test detecting.

- enterovirus
- Epstein-Barr virus
- Escherichia coli
- Haemophilus influenzae
- herpes simplex virus 1
- herpes simplex virus 2
- human adenovirus
- human cytomegalovirus
- human herpesvirus 6
- human herpesvirus 7
- human parechovirus
- human parvovirus B19
- Listeria monocytogenes
- mumps virus
- Neisseria meningitidis
- Streptococcus Group B
- Streptococcus pneumoniae
- varicella zoster virus



Organs Transplantation Tests (HLA)

Organs transplant is needed the specific test in the medical labs ,the recipients are tested when it is determined that they need an organ (Kidney , liver ,et) or bone marrow transplant, prior to seeking and selecting a suitable donor; potential donors are tested when they are being evaluated for compatibility with a specific recipient or are signing up with a national donor registry.

1- Cross match test
2- HLA Typing tests

Cross match test : is thought to be a miniature test transplant performed in the laboratory; Only those with a negative crossmatch can proceed with the donor evaluation. A negative reaction means that the recipient does not have antibodies against the donor HLA and a transplant can be performed. If the recipient serum kills off the donor cells, this is a positive crossmatch and a transplant would not survive.

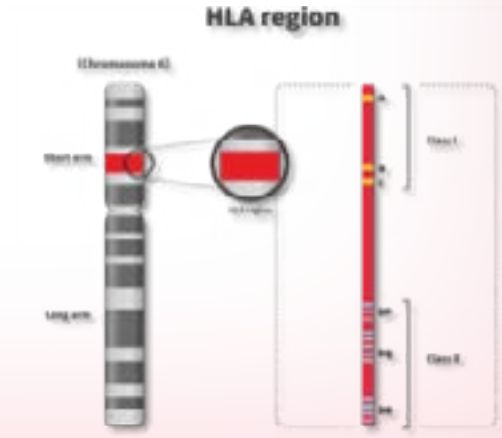
A- CDC (Complement - Dependent Cytotoxicity) test.
B - PRAs Class I & Class II tests.

HLA Typing tests by PCR :

HLA (Human Leukocyte Antigen) cross match is completed; typing is completed prior to the actual transplant surgery. They play a role in recognizing cells that are your own (self) from those that are foreign (non-self). Nearly 600 different HLA molecules have been identified.

-HLA Types tests of Organs transplantation :

A- HLA- A,
B- HLA-B.
C- HLA-C.
D- HLA- DR .
F- HLA- DQ

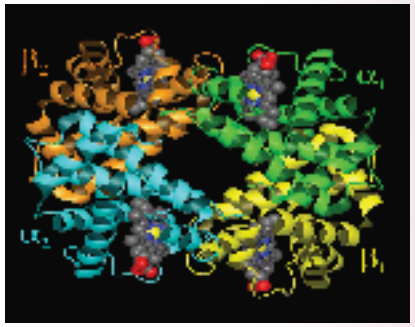


Thalassemia

The easy way to optimize thalassemia screening using established innovations in diagnostics

Thalassemia gene mutation

α-and β-thalassemia are severe forms of anemia caused by specific mutations in the globin genes of the haemoglobin molecule.



Thalassemia gene mutation assay optimized for regional prevalences, identify the most relevant mutations.

Identify the most relevant CFTR mutations and variants for newborn screening and confirmatory genotyping

Cystic Fibrosis (CF) is the most common lifelimiting autosomal recessive disorder in the Caucasian population. The disease incidence is estimated to be 1 in 2,500 to 4,000 live births.

Cystic Fibrosis Transmembrane Conductance Regulator (CFTR) represents an anion channel which is responsible for the salt-, fluid- and pH-balance in secretory and absorptive epithelial tissues.

Mutations in the CFTR gene lead to dysfunction of chloride transport across cell membranes.

Affected children commonly experience decreased pulmonary function along with persistent respiratory infections, pancreatic insufficiency and malnutrition.

CFTR genotyping enables early diagnosis in newborn screening and minimizes emotional stress for parents.

CAH Congenital adrenal hyperplasia

Minimize risks with early and reliable CAH diagnosis

- Congenital adrenal hyperplasia (CAH) is an inherited disorder of steroid hormone synthesis
- Severe forms of CAH cause life-threatening salt-wasting crisis and virilization in newborns
- Appropriate treatment demands early diagnosis
- Hormone testing has a high false positive rate

Now available: Accurate and earlier results for CAH

ViennaLab CAH StripAssay® detects common CYP21A2 mutations

- Confirm CAH earlier to minimize emotional stress for parents and economic burden

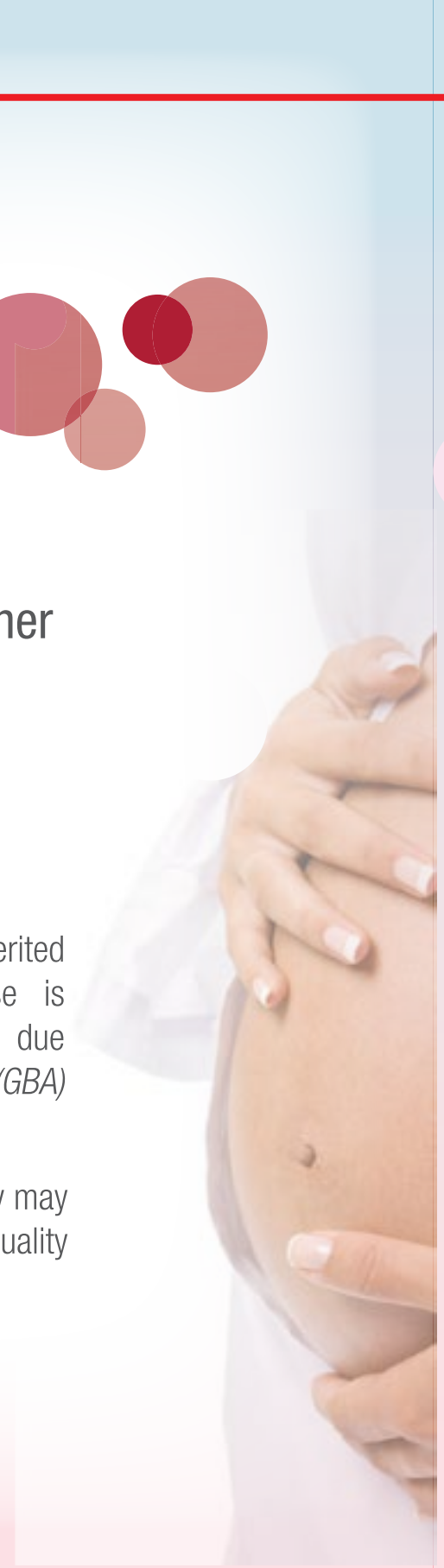
Gaucher Disease

The easy way to test for Gaucher Disease using established innovations in diagnostics

Gaucher Disease Assay.
Key to efficient therapy.

Gaucher Disease is the most common inherited lysosomal storage disorder. The disease is caused by glucocerebrosidase deficiency due to mutations in the glucocerebrosidase *(GBA)* gene.

Enzyme replacement therapy may offer clinical amelioration and an improved quality of life.



Sugar Intolerance (Lactose & Fructose)

Sugar Intolerance Assays.
Key to a personalized diet.

Mutations in the genes for metabolic enzymes or transporters can cause hereditary sugar intolerance. People who suffer from this intolerance may experience severe discomfort when eating lactose or fructose. Common symptoms include abdominal bloating and pain, vomiting, diarrhea, nausea, flatulence, and hypoglycemia. Fructose intolerance may ultimately cause death due to liver and kidney damage.

Familial Mediterranean Fever (FMF)

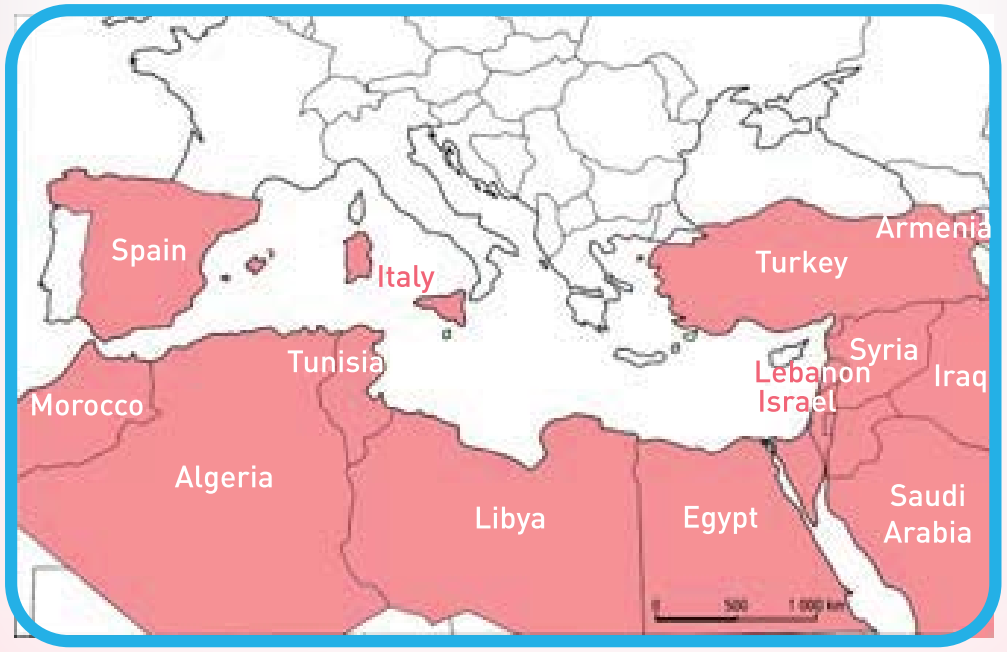
Familial Mediterranean Fever - MEFV gene (MEditerranean FeVer)

FMF: what is it?

Familial Mediterranean Fever (FMF) is a hereditary autoinflammatory disease characterized by recurrent attacks of fever and serositis resulting in abdominal, chest, joint and muscle pain. FMF is the most common familial relapsing fever. It mainly affects the populations of the Middle East and the Mediterranean basin, particularly Sephardic Jews, Armenians, Arabs and Turks, with a preva-lence ranging from 1/150 to 1/1000.

In 90% of cases, the first onset of the disease is before the age of twenty.

The main long-term complication is AA amyloidosis, a severe condition with a poor prognosis. Colchicine remains the therapy of choice in the prevention of crises and complications.
It is therefore crucial that the diagnosis of FMF is made, so that this treatment can be initiated.

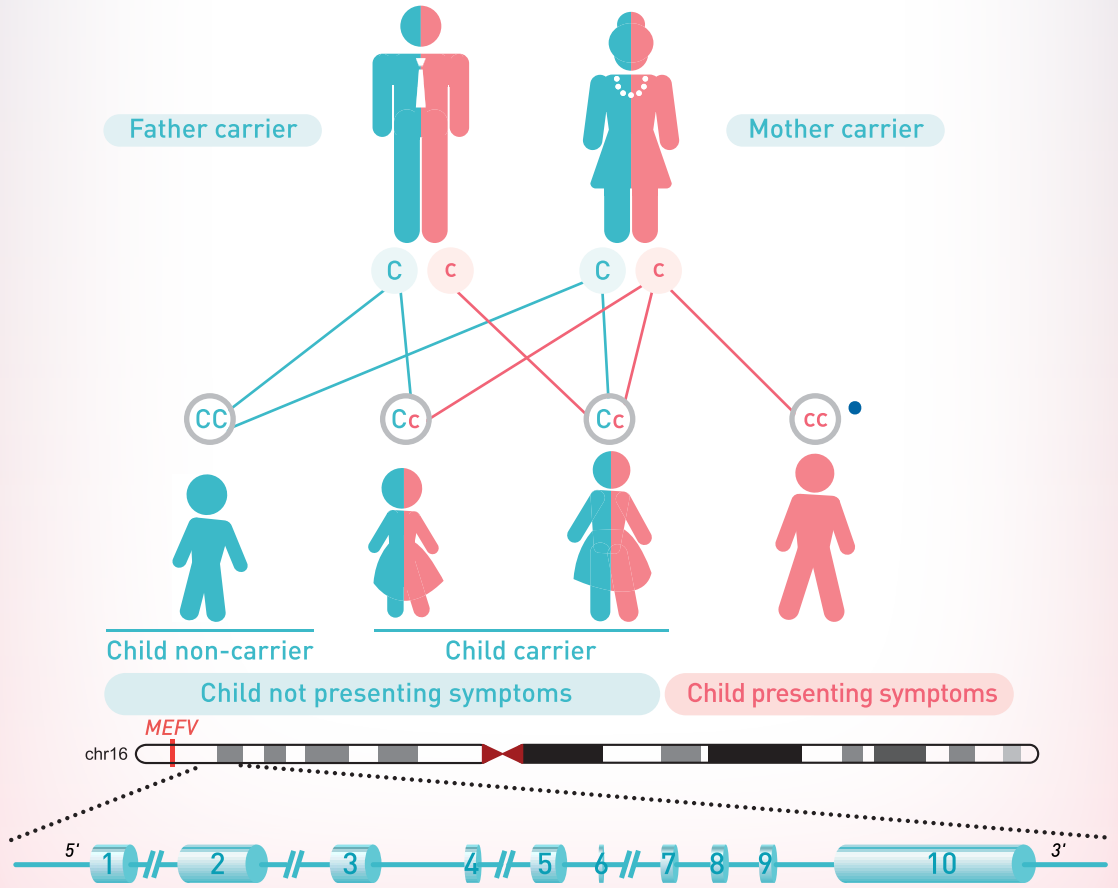


Familial Mediterranean Fever: an autosomal recessive disease

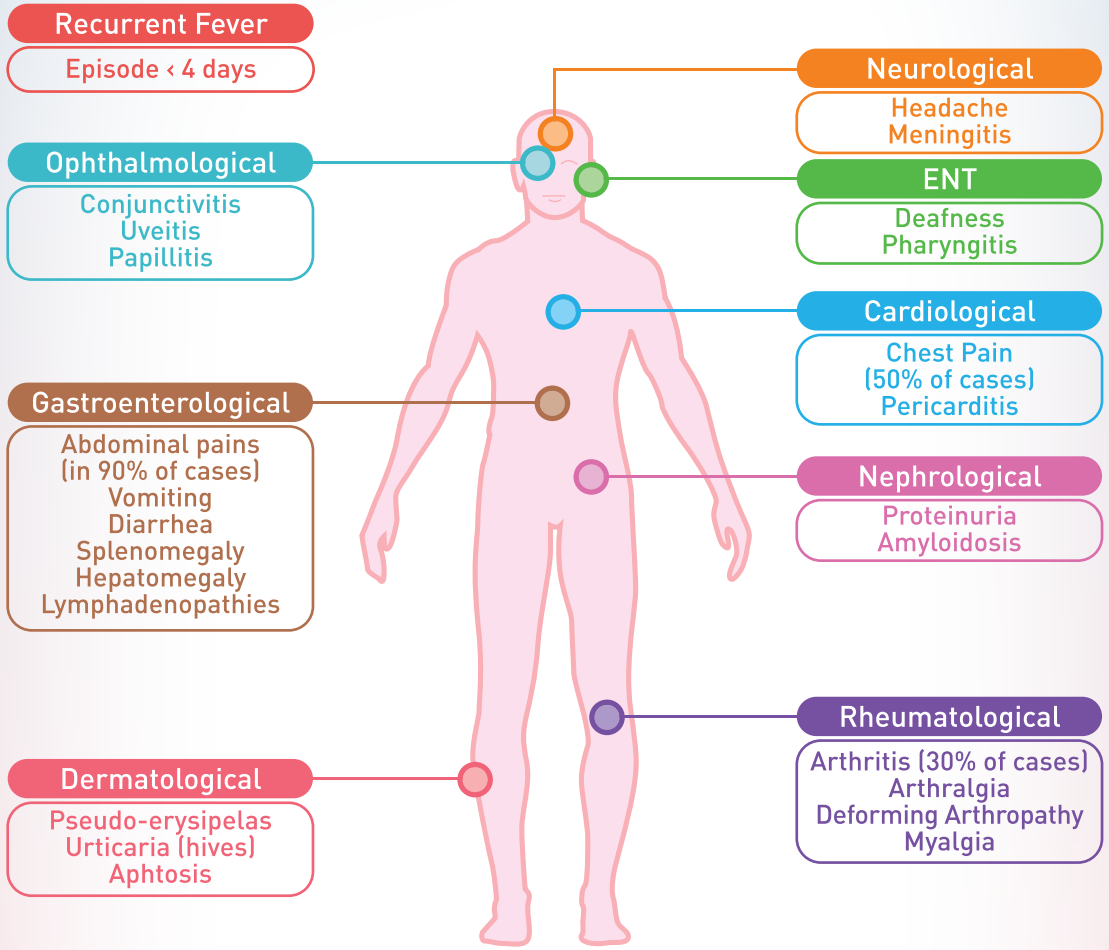
Clinical suspicion of FMF can be confirmed by studying the MEFV gene (MEditerranean FeVer), which consists of 10 exons and is located on the shortarm of chromosome 16. At Biomnis, we use New Generation Sequencing technology (NGS) to obtain a complete sequence of the 10 exons of this gene.

The presence of any pathogenic or probably pathogenic variation or a variation of unknown significance (VSI) is systematically confirmed by a secondtechnique (Sanger sequencing).

Clinical interpretation of the observed genotype is provided in the return report. The testing of the parents may also sometimes be proposed to clarify the genotype-phenotype correlation and for the purposes of genetic counselling.



Screening for the MEFV gene: what are the indications?



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Increased ESR*, CRP*, SAA* values during crises

Because of this wide variety of symptoms, the diagnosis of FMF is a real challenge.

*ESR: Erythrocyte Sedimentation Rate; CRP: C-Reactive Protein; SAA: Serum Amyloid A

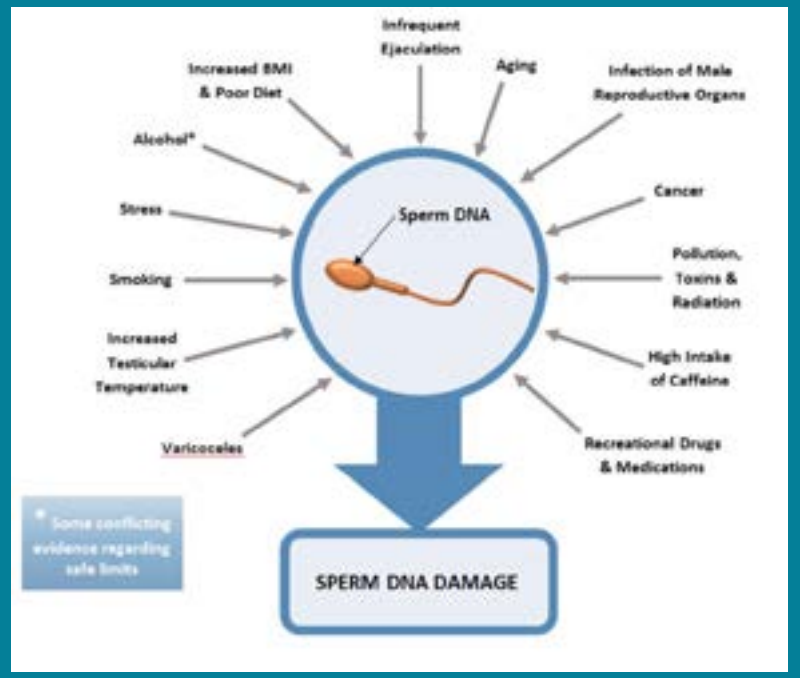
SPERM DNA FRAGMENTATION

SPERM DNA FRAGMENTATION

Term used to denote when the genetic material within the sperm is abnormal, which in turn may lead to male subfertility and IVF failure

SYMPTOMS

- Unexplained infertility
- Miscarriage / Missed Abortion



M2-PK + Hb

Colorectal cancer

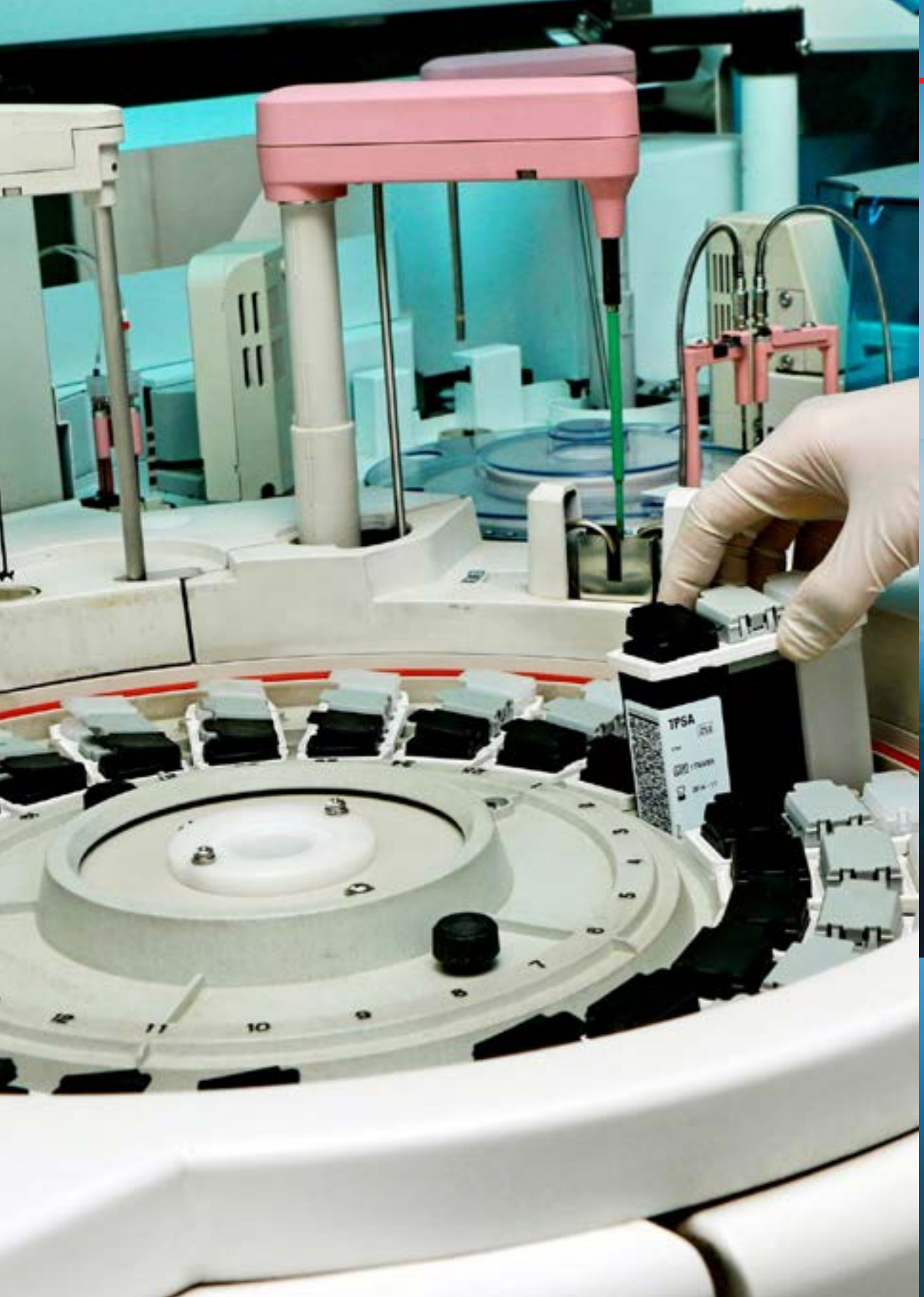
M2-PK + Hb

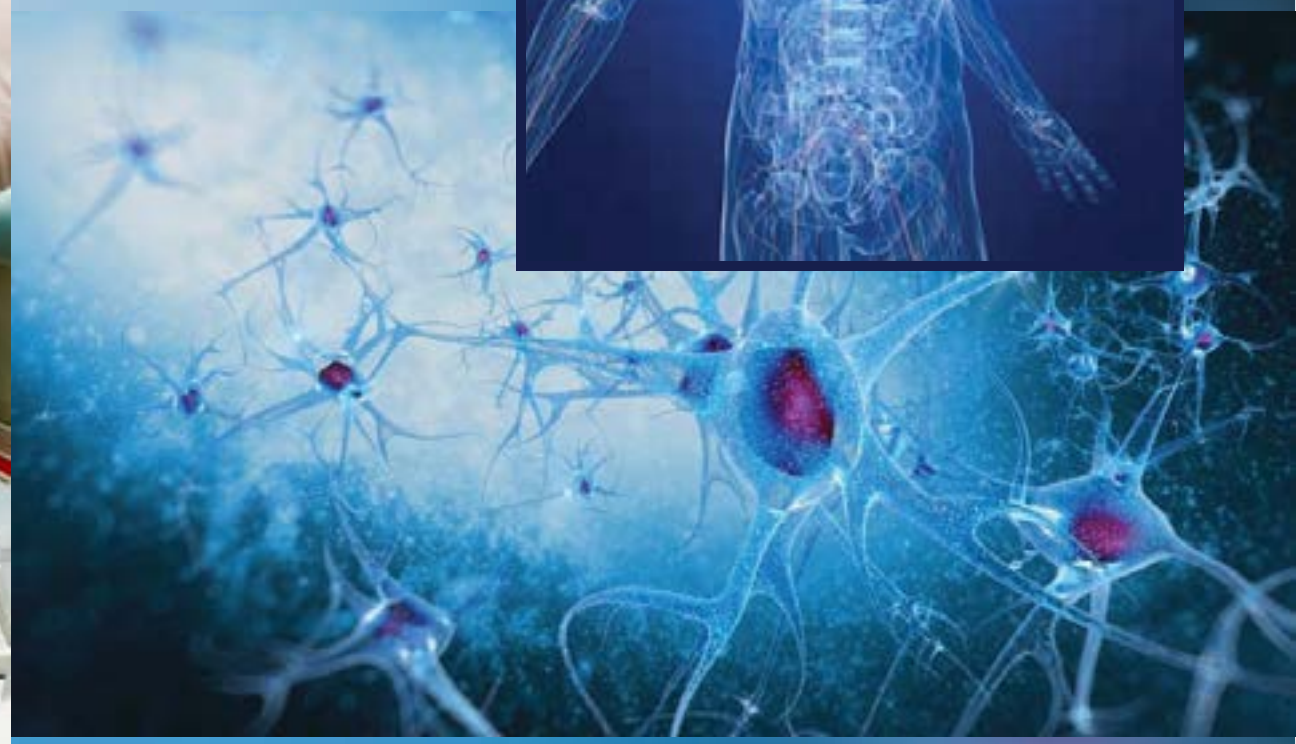
Modern biomarker for improved colorectal cancer screening .

The M2 –PK + Hb is the combined stool test which detects the oncoprotein M2 pyrovate kinase and immunological Fecal Occult Blood in stool .
Detects bleeding and non bleeding colorectal adenomas and cancers.

Advantages (M2-PK + Hb)

Combination of direct method (M2-PK) and indirect method (iFOBT)
M2 – PK is Key enzyme in colorectal cancer cells and polyps
No false positive results due to hemorrhoids or blood from other source
No special diet required
No false positives due to antioxidants
No false positives due to foodstuffs





Autoantibodies in Neurological Diseases

Autoantibodies in Neurological Diseases

Antibodies (synonym)	Syndrome	Most frequent Tumours
Antibodies in diseases of the central nervous system		
Anti-Hu (ANNA-1)	Encephalomyelitis, sensory neuropathy	SCLC, neuroblastoma
Anti-Ri (ANNA-2)	Opsoclonus myoclonus syndrome	Breast carcinoma, SCLC
Anti-Yo (PCA-1)	Cerebellar degeneration	Ovarian, breast and uterine carcinoma
PCA-2	Encephalitis neuropathy	SCLC
Anti-PNMA1 (Ma1)	Rhombencephalitis (brain stem), limbic encephalitis	Breast carcinoma, various tumors
Anti-PNMA2 (Ma2/Ta)	Rhombencephalitis (brain stem), limbic encephalitis	Testicular carcinoma
Anti-Tr (DNER)	Cerebellar degeneration	Hodgkin's lymphoma
Anti-ITPR1 (Anti-Sj)	Cerebellar atexia	NSCLC in an unpublished case
Anti-CARP	Paraneoplastic cerebellar degeneration, Cerebellar atexia	Melanoma, ovarian carcinoma
Anti-amphiphysin	Stiff-person syndrome	Breast carcinoma, SCLC
Anti-CV2	Limbic encephalitis	SCLC, thymoma
Anti-SOX1	LEMS, cerebellar degeneration, sensory neuropathy	SCLC
Anti-ZIC4	Cerebellar degeneration	SCLC
Anti-recoverin	Retinopathy	SCLC
Anti-GAD	Stiff-person syndrome	Breast carcinoma, SCLC, colon carcinoma
Anti-Glia nuclear antibodies(AGNA)	LEMS, cerebellar degeneration	SCLC
Anti-AQP-4 (NMO IgG)	Neuromyelitis optica (NMO),LETM, rec. ON	--
Anti-MOG	NMO / NMOSD, ADEM, CIS, MS	--
Anti-NMDA receptors	Anti-glutamate receptor (typeNMDA) encephalitis	Teratoma (ovary, testis)

Antibodies (synonym)	Syndrome	Most frequent Tumours
Anti-AMPA receptors	Limbic encephalitis	Breast carcinoma, thymoma, lung carcinoma
Anti-mGLuR1	Cerebellar degeneration	Hodgkin's lymphoma
Anti-mGLuR2	Ophelia syndrome	Hodgkin's lymphoma
Anti-GABA B receptors	Limbic encephalitis	SCLC
Anti-LGI1	Limbic encephalitis	SCLC, ovarian teratoma, thymoma, various tumours
Anti-CASPR2	Limbic encephalitis, neuromyotonia,Morvan's syndrome	Thymoma, uterine carcinoma
Anti-DPPX	Encephaltis, encephalomyelitis	--
Anti-IgLON5	Parasomnia, tauopathy	--
Anti-GlyR	PERM, stiff-person syndrome, hyperekplexia	Thymoma, Hodgkin's lymphoma
Antibodies in diseases of the peripheral nervous system		
Anti-GQ1b	Miller-Fisher syndrome	--
Anti-GM1	Multifocal motor neuropathy, GuillainBarré syndrome	--
Anti-myelin	Diagnostic value controversial	--
Anti-MAG	Guillain-Barrē syndrome	--
Antibodies in neuromuscular diseases		
Anti-AChR	Myasthenia gravis	Thymoma
Anti-titin	Myasthenia gravis	Thymoma
Anti-MusK	Myasthenia gravis	Thymoma

*Ovarian cancer in the world**

225,000 new cases
of ovarian cancer

Accounting for around 4%
of all cancers diagnosed in women

Incidence rates vary considerably across the world, with World age-standardised rates in more developed countries being **nearly twice as high as** those in less developed countries

The estimated World age-standardised incidence rate for the more developed regions of the world was **9 per 100,000,** and 5 per 100,000 for the less developed countries.

Numerous women are involved in a suspected case of ovarian cancer.

The symptoms are non-specific and are of late-onset in this type of cancer.

AIMS

- Establish an early diagnosis
- Determine the stage of the disease
- Screen for the risk factors

Provide multidisciplinary and rapid care

Source: Cancer Research UK (2008 data)

The diagnosis

The diagnosis relies on the medical background, the clinical examination and medical imaging (ultrasound and MRI).

The definitive diagnosis of cancer is made through anatomical pathology investigations and requires a histology sample to be taken.

When confronted with a diagnosis of epithelial ovarian cancer, screening for the BRCA1 or 2 mutation is strongly advised*.

Medical background

Screening for risk factors, notably a personal and familial history of cancer and comorbidities.

Risk increases

- Age
- Caucasian population
- Late menopause
- BRCA gene mutations: BRCA1 (risk increases by 60-fold), BRCA2 (30-fold)
- Nulliparity, infertility, endometriosis

Risk decreases

- History of hysterectomy
- Oral contraception
- Multiparity

Source : NCCN Guidelines Version 4.2013. Hereditary Breast and/or Ovarian Cancer Syndrome

Clinical and complementary investigations

Pelvic mass
Abdominal distension
etc.

No specific or early symptoms:
abdominal pain, fatigue etc.

↓

- Family history
- Abdominal examinations / pelvic examinations
- CA125 + HE4
- Ultrasound scan
- CT scan
- Radiography
- Gastro-intestinal investigation
- Full blood count
- Biochemistry

↓

Transvaginal ultrasound:
Confirmation of the ovarian origin

↓

Exploratory surgery
Histology

↙ Malignant

↘ Benign

The initial pre-treatment dose for the CA125 marker is recommended.

The assays for markers CA 19-9 and CAE are only performed if clinically or radiologically indicative of an ovarian mucinous tumour or suggestive of a differential diagnosis of a digestive tumour.

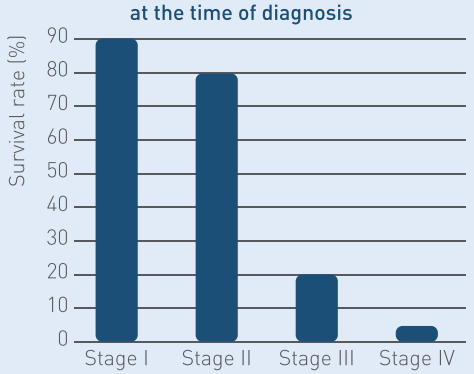
The prognosis

It is essential to determine the disease stage at the time of diagnosis.

Survival at 5 years of ovarian cancer:

75 - 95% if the cancer is located in the ovaries
10 - 17% if metastasis has occurred
30% all stages grouped together

The survival rate relative to the stage at the time of diagnosis



Other factors influencing the prognosis:
age, comorbidities, histology results, the grade and presence of a residual tumour following surgery.

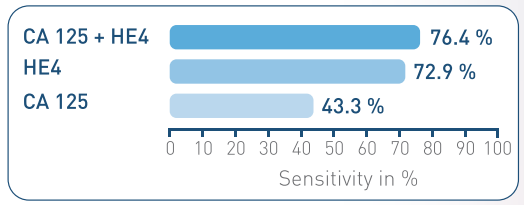
Relapses
The risk of a relapse at 5 years is 80%.
The majority of relapses appear in the first three years of treatment.
Early onset relapses have a poor prognosis.

Early diagnosis and the detection of relapses is the only way to improve the short-term prognosis.

HE4 : Human Epididymis-specific protein 4

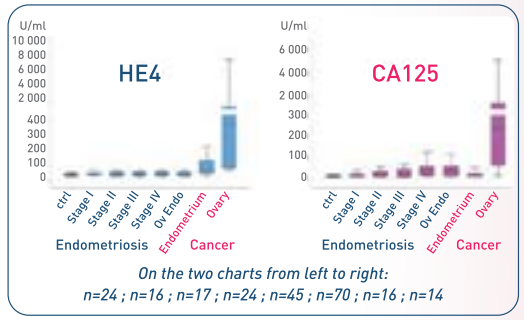
HE4 is an epididymis protein known since 1991. Since 1999, over expression was identified in patients suffering from first stages of ovarian cancer (stages I and II) and mainly found in cases of serous cancers. Its expression is independent of CA125 and it is effective in 50% of cancers which do not express CA125.

The HE4 protein offers better sensitivity and specificity than CA125.
Its combination with serum markers improves the sensitivity and specificity of ovarian cancer detection in the early stages as well as in cases of relapse.



Sensitivity for the detection of ovarian cancers in patients with a pelvic mass (95% specificity; pre and post menopausal combined)

HE4 is more specific than CA125 and permits the differential diagnosis of endometriosis to be made.



Differential diagnosis of endometriosis

The HE4 protein marker is not totally specific to ovarian tissue, or ovarian cancer: it is over-expressed in thyroid cancers, pulmonary adenocarcinomas, mammary adenocarcinomas and mesotheliomas.

ROMA: Risk of Ovarian Malignancy Algorithm

The ROMA algorithm assesses the risk of malignancy by combining the serum HE4 result, the CA125 result and the menopausal status.

It allows patients to be classed according to their risk of malignancy level, i.e. low or high.

Interpretation*

In pre-menopausal women:
- ROMA ≥ 11.4 = high risk of ovarian cancer
- ROMA < 11.4 = low risk of ovarian cancer

In post-menopausal women:
- ROMA ≥ 29.9 = high risk of ovarian cancer
- ROMA < 29.9 = low risk of ovarian cancer

In a multicentric study that included 457 women presenting with a pelvic mass, the ROMA algorithm allowed an ovarian epithelial cancer to be distinguished from a benign tumour in 94.3% of patients, and notably to identify 85.3% of stage I and stage II cases**.

Method used ECL Roche: the ROMA risk can only be calculated by combining CA125 and HE4 in the same technological method.

***Moore RG, Jabre-Raughley M, Brown AK, et al. Comparison of a novel multiple marker assay vs. the Risk of Malignancy Index for the prediction of epithelial ovarian cancer in patients with a pelvic mass. Am J Obstet Gynecol 2010;203:208.e1-6.*

Clinical interest of the HE4 marker and ROMA

Assistance in the early diagnosis of epithelial ovarian cancer (stages I and II) and the detection of relapses
- The implementation of treatment as quickly as possible and at an early stage
- Increased survival rate

Better risk staging in patients with a pelvic mass or an ovarian cyst
- Exclusion of a malignant tumour or rapid orientation towards a multidisciplinary and specialised team
- Reduction of unnecessary surgical interventions

In practice

Test request

HE4* + CA125 *+ score ROMA
The ROMA malignancy risk calculation integrates the HE4 result, CA125 result and the menopausal status of the patient.

Please indicate: whether the patient is pre-menopausal or menopausal.

**HE4 and CA125 are measured using the same technology, which does not authorise the integration of a transferred CA125 result*

Sample
- 1mL of serum
- Minimum quantity: 600 µL
- The serum must be separated from the blood cells then frozen at -20°C.

To find out more about this subject

Find all the necessary details at:
www.biomnis.com › Test Menu › Test guide or use the Biomnis mobile application
BIOMNIS group code: HE4

References

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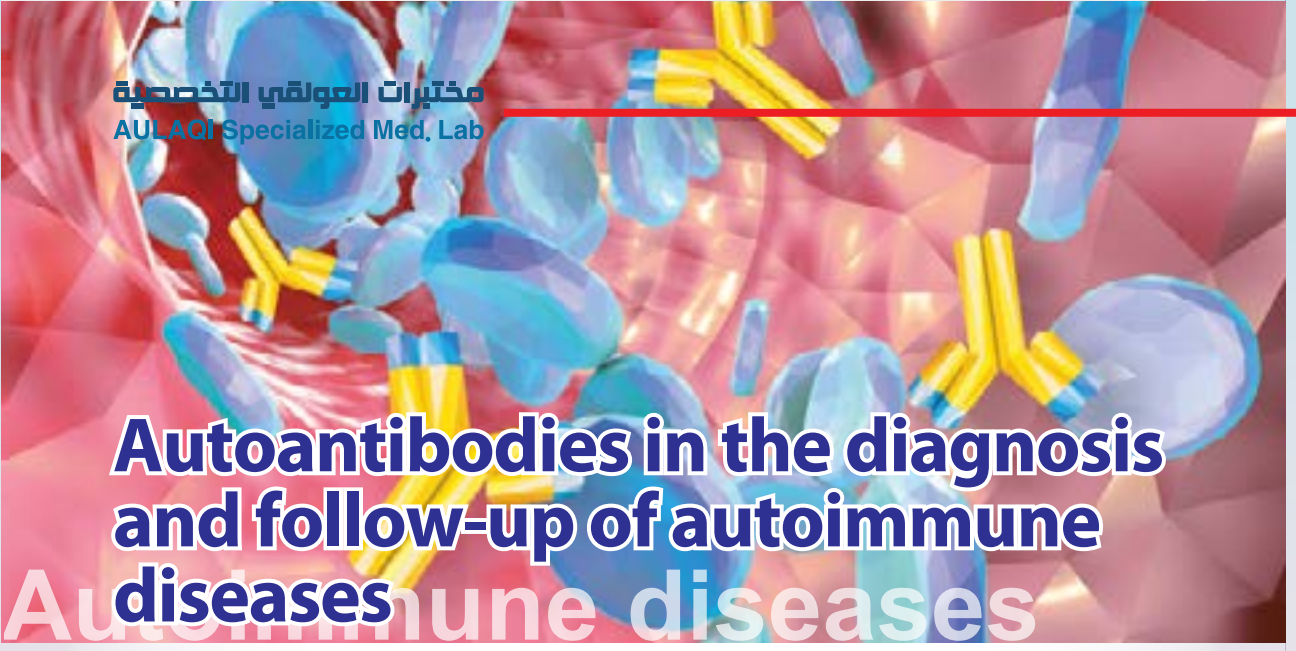


Autoantibodies in the diagnosis and follow-up of autoimmune diseases

Autoimmune diseases

Auto-immune disorders affect over 7% of the population. They are the 3rd largest cause of morbidity in industrialised countries (after cardiovascular diseases and cancer) and can affect people of any age.

Auto-immune disorders are due to malfunctions of the immune system which result in the manufacture of antibodies, and in some cases, lymphocytes, that act against the body's own cells. As a result, each and every organ can be affected. There are multiple factors accounting for the origin of auto-immune disorders with the involvement of genetic, endogenetic and environmental factors.

Diagnosis of auto-immune disorders

Diagnosis of an auto-immune disorder is based mainly on: clinical symptoms, immunological diagnosis and in some cases, genetic diagnosis. These debilitating disorders are often severe and at times life-threatening. Often affecting young subjects, hence the importance of correctly screening for auto-antibodies that are vital for diagnosis in the presence of relevant clinical signs.

The auto-immunity serology tests performed by Eurofins Biomnis can assist you in making a quick and reliable diagnosis to improve the treatment of your patients.

Key

Auto-antibodies with a high diagnostic value are shown **in blue.**

HLA genotyping can be a diagnostic support for several auto-immune diseases (for any additional information, please consult our website **www.biomnis.com**).

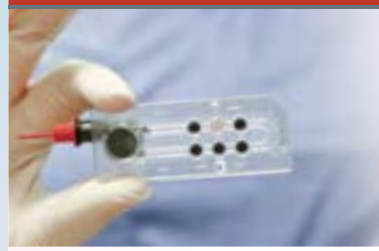
Pathology ▼	Antibody ▼
Systemic disorders	
Disseminated erythematous lupus (DEL)	Anti-nuclear antibodies **Naive anti-DNA Ab** Anti-nucleosome Ab Anti-ENA Ab (Sm, RNP, SSA) Anti-ribosomes Ab Anti-PCNA Ab Anti-C1q Ab Circulating immune complexes
Drug-induced lupus	Anti-nuclear antibodies Anti-histones Ab
Gougerot-Sjögren Syndrome	Anti-nuclear antibodies Anti-SSA/Ro 60, SSB Ab Anti-SSA/Ro 52 Ab = anti-TRIM 21
Mixed connectivity	Anti-nuclear antibodies Anti-RNP Ab
Myositis, Anti-synthetase syndrome	Anti-Jo1 Ab Anti-PL7 Ab, PL12, Ku, Mi2 Anti-SRP Ab Anti-Pm-Scl Ab Anti-OJ Ab, EJ, TIF/p155/140, MDA-5/CADM 140, NXP2, SAE, HMG-coA reductase
Exclusion diagnosis	DFS 70
Diffuse systemic scleroderma	Anti-nucleolar Ab **Anti-Scl70 Ab** = topo isomerase Anti-fibrillarin Ab Anti-RNA polymerase III Ab
Overlapping syndrome	Anti-Pm-Scl Ab Anti-Ku Ab
Limited systemic scleroderma (formerly CREST syndrome)	**Anti-centromere Ab (A/B)** Anti-Th/To Ab Anti-NOR Ab
Antiphospholipid syndrome	**Anti-β2 glycoprotein 1 IgG/IgM Ab** **Anti-cardiolipin IgG/IgM** **Lupus anticoagulant** Anti-phosphatidylethanolamine IgG/IgM Ab Anti-phosphatidylserine IgG Ab Anti-prothrombin IgG Ab Anti-annexin V IgG Ab
Rheumatoid polyarthritis	**Anti-cyclic citrullinated peptide Ab (anti-CCP)** Rheumatoid factors IgM Rheumatoid factors IgA

Pathology	Antibody
Liver	
Primary biliary cirrhosis	**Anti-mitochondrial type 2 Ab, pyruvate deshydrogenase complex = PDH** Anti-gp210 Ab (nuclear pores) Anti-SP100 Ab (nuclear dots)
Type 1 auto-immune hepatitis	**Anti-smooth muscle Ab, type anti-actin** Anti-soluble liver antigen Ab = SLA/LP
Type 2 auto-immune hepatitis	**Endoplasmic anti-reticulum Ab = liver and kidney anti-microsomes = anti-LKM 1) anti-cytochrome-like P450 II D6** **Anti-cytosol Ab = anti-LC1**
Primary sclerosing cholangitis	Anti-neutrophil cytoplasmic antibodies, type X or p-ANCA
Stomach	
Type A gastritic anaemia (Biermer's anaemia)	Intrinsic factor Ab Anti-parietal cell antibodies Anti H+K+ ATPase Ab
Pancreas	
Insulin-dependent diabetes	Anti-islets of Langerhans Ab Anti-glutamate-decarboxylase Ab = GAD Anti-tyrosine-phosphatase Ab = IA2 Anti-ZnT8 Ab Anti-Insulin Ab
Auto-immune pancreatitis	Anti-lactoferrin and carbonic anhydrase Ab
Intestines	
Coeliac disease = gluten intolerance	**Anti-transglutaminase IgA/IgG antibodies** Anti-endomysium IgA/IgG Ab Anti-gliadin IgA/IgG Ab
Crohn's disease	Anti-saccharomyces cerevisiae IgA/IgG Ab = ASCA Exocrine anti-pancreas Ab
Haemorrhagic rectocolitis	Anti-neutrophil cytoplasmic antibodies, type X or p-ANCA
Thyroid	
Graves' disease	**Anti-TSH receptor Ab = TSI = LATS = TRAK**
Hashimoto thyroiditis, primary myxoedema	Anti-thyroperoxydase Ab = TPO Anti-thyroglobulin Ab = Tg

Pathology	Antibody
Kidney/Lung	
Goodpasture syndrome	**Anti-glomerular basement membrane Ab** (not to be confused with anti-epidermal basement membrane and intracellular substance antibodies)
Granulomatosis with polyangitis (also known as Wegener's granulomatosis)	Anti-neutrophil cytoplasmic Ab (or ANCA), **type anti-proteinase 3 = PR3**
Eosinophilic granulomatous, microscopic polyangiitis with polyangiitis (formerly Churg and Strauss diseases), extra-capillary glomerulonephritis, etc.	Anti-neutrophil cytoplasmic antibody (or ANCA), type anti-myeloperoxydase = MPO
Idiopathic extra-membranous glomerulonephritis	Anti-PLA2R Ab
Adrenal/Ovaries/Testicles	
Addison's disease	Anti-adrenal gland antibodies **Anti-21 hydroxylase Ab**
Early menopause Hypofertility	Anti-ovarian Ab Anti-testicular Ab
Nervous system	
Myasthenia	**Acetylcholine anti-receptor antibodies** **Anti-MuSK Ab** Anti-striated muscles Ab Anti-titin Ab
Lambert-Eaton myasthenic syndrome	**Anti-Voltage Gated Calcium Channel (VGCC) antibodies**
Isaacs' syndrome	**Anti-potassium channel Ab (VGKC), Lgi1 and Caspr2**
Stiff-man syndrome	**Anti-glutamate-decarboxylase Ab = GAD** **Anti-amphiphysin Ab**
Peripheral neuropathies	Anti-myelin Ab Anti-MAG Ab Anti-gangliosides IgG/IgM Ab (GM1, GM2, GD1a, GD1b, GD3, GT1b, GQ1b, etc.)
Devic's disease	**Anti-optic neuromyelitis Ab = aquaporin 4**
Multiple sclerosis	**Anti-MOG Ab**
Paraneoplastic syndromes	**Anti-neurones Ab: Hu, Ri, Yo, amphiphysin, CV2, Ma2, SOX1, zic4, Tr**
Limbic encephalitis	**anti-NMDAr Ab, AMPAr, VGKC, GAD, neurones**

Pathology ▼	Antibody ▼
Skin	
Pemphigus	Anti-intracellular substance antibodies = desmosomes Anti-desmoglein Ab 1 and 3
Bullous pemphigoid Gestational pemphigoid	Anti-epidermal basement membrane and intracellular substance antibodies (not to be confused with anti-glomerular basement membrane Ab) Anti-BP 180 Ab Anti-BP 230 Ab
Bullous epidermolysis	Anti-dermal basement membrane antibodies Anti-collagen VII Ab
Paraneoplastic pemphigus	Anti-envoplakin antibodies
Herpetiform dermatitis	Anti-transglutaminase IgA/IgG antibodies Anti-endomysium IgA/IgG Ab
Subacute cutaneous lupus	Anti-SSA/Ro 60 Ab
Parathyroidism	
Hypoparathyroidism	Anti-calcium sensing receptor (CaSR) Ab
Eye	
Retinopathies	Anti-retin Ab, recoverin
ear/cartilage	
Cogan syndrome	Anti-cochlear Ab
Meniere's disease	Type 2 anti-collagen Ab
Atrophic polychondritis	Type 2 anti-collagen Ab

Blood Gases



Available test configurations

	B-G0	B	E	E-Cl	E-Ca	E-Glu	E-BUN	B-Lac
pH	X	X	X	X	X	X	X	X
pCO_2	X	X	X	X	X	X	X	X*
pO_2	X	X	X	X	X	X	X	X
tHb		X	X	X	X	X	X	X
sO_2		X	X	X	X	X	X	X
Na^+			X	X	X	X	X	
K^+			X	X	X	X	X	
Cl^-				X				
Ca^{++}					X			
Glucose						X		
BUN (Urea)							X	
Lactate								X

*Pending FDA 510k clearance

OPTIMedical

i·sens

i·SmartCare 10

Blood Gas Analyzer

One-Touch Care


Core Unit
• Loading capacity of 150 samples in two trays of 75
• Load 5-position racks via dedicated STAT port with rerun buffer or by tray
• Simple operation with continuous loading and unloading
cobas c 501 module
Clinical chemistry, ISE (K, Na, Cl), over 100 Homogeneous immunoassays, HbA1c (whole blood measurement)
• Throughput of up to 1,000 tests/hour
• 60 direct-access assays
• Automatic reagent loading during operation
• Specimen integrity via serum indices, clot and liquid level detection
• Contact-free ultrasonic mixing
cobas e 601 module
Heterogeneous immunoassays, including cardiac markers and over 60 assays for anemia, bone and tumor markers, hormones, and infectious diseases
• Throughput of up to 170 tests/hour
• 25 direct-access assays
• Carry-over free disposable tips
• Clot and liquid level detection
• 3 minute STAT applications for: NT proBNP, Troponin T high sensitive (5th gen.), Troponin I, CK-MB, Myoglobin, hCG, and PTH
Roche
HITACHI
cobas 6000
cobas c 501

Is it CSF or NOT

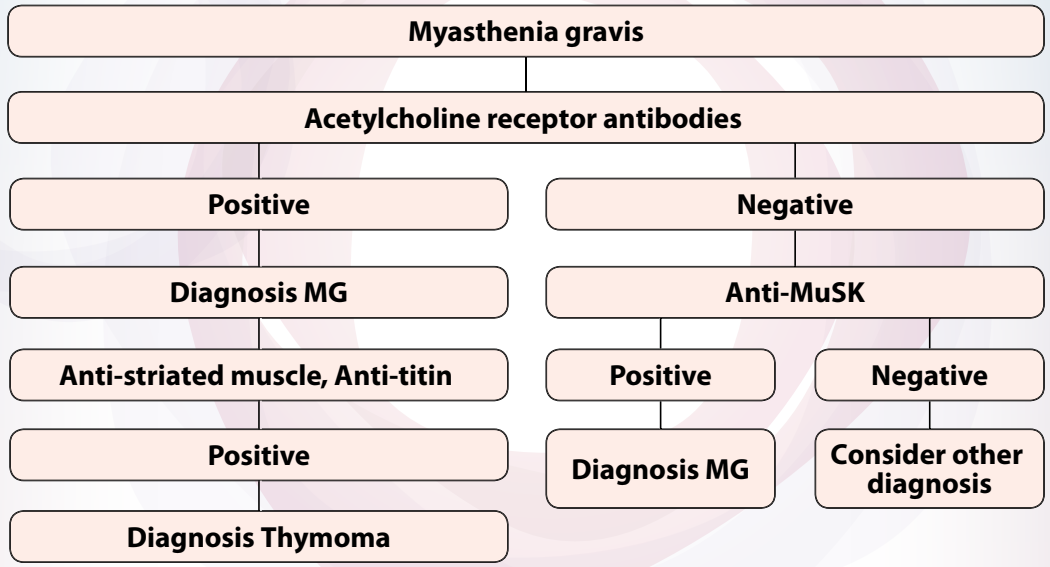
Beta-2- transferrin

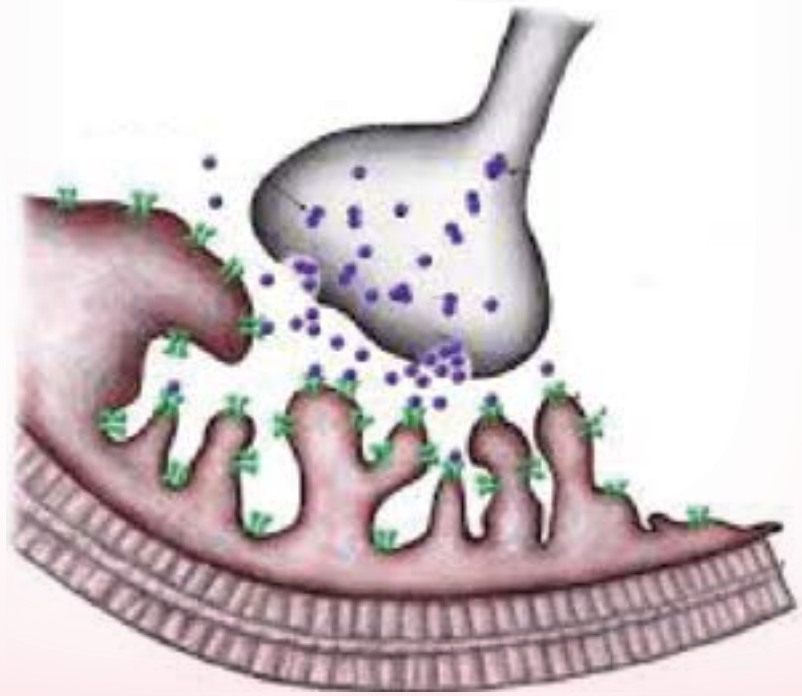
Beta-2-transferrin is a form of the protein transferrin that is present in CSF but not usually found in blood, nasal secretions or other body fluids

Why get tested?
To help identify cerebrospinal fluid (CSF) leaking from the skull.

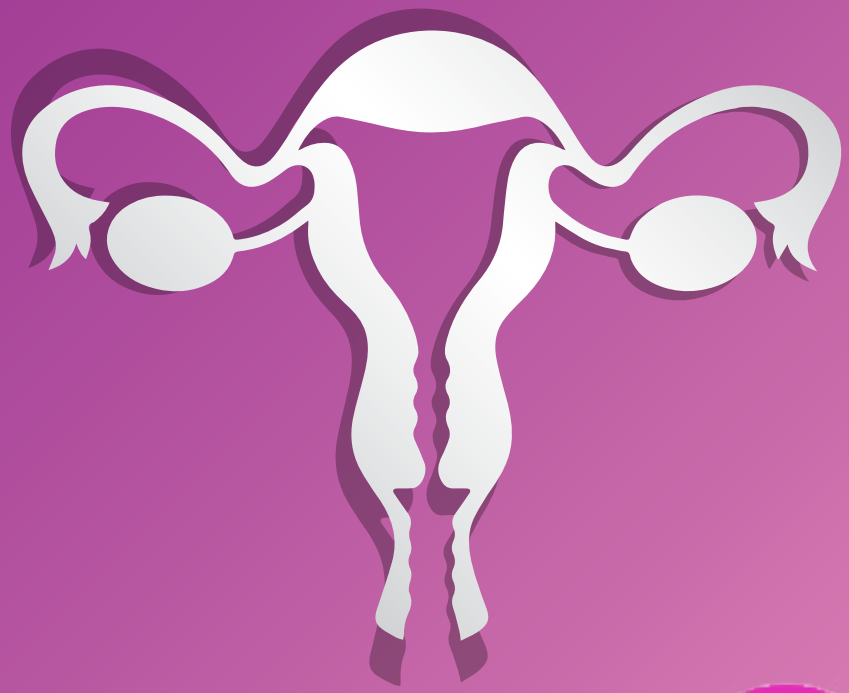
When to get tested?
If there is a watery discharge from your nose or ear (rhinorrhoea or otorrhoea) after you have suffered a skull fracture or after brain surgery.

Serological investigation of Myasthenia gravis.





Gynaecology New Tests in Aulaqi Labs.



Miscarriage(Spotaneous abortion)

Causes:

• 50-75% of cases of recurrent miscarriage are unexplained.

1-Thrombophilia
- Factor V Leiden mutation
- Prothrombin G 20210 A mutation
- Protein C
- Protein S

2-Anti-phospholipid syndrome
- Anti- cardiolipin Abs
- Anti- B2 Glycoprotein
- Anti-phospholipid Abs

3-Infection:
- TORCH(Toxolasmosis,Rubella, CMV, Herpes Simplex 1&2
- Listeriosis
- Measles
- Coxsacki virus
- Malaria
- Syphilis
- Brucellosis

4-Thyroid abs
- Anti TG
- Anti TPO
- Anti TSH receptor

5-Endocrine disorders
- Hypothyroidism
- Poorly treated D.M
- Polycystic Ovary Syndrome

6-Chromosomal disorders (karyotyping of partners)

7-Anatomical condition

8-Immune factors

9-Increased uterine NK cells

10-Parental HLA sharing

11-Male-specific minor histocompatibility

12-Ovarian Factors

13-Lifestyle Factors

14-Chronic Endometritis

New Test for diagnose TORCH (TORCH Avidity)

TORCH gG Avidity is a simple technique which enables weak avidity antibodies to be differentiated from high avidity antibodies. The detection of high avidity antibodies is a strong indication of a primary infection of more than 3 months, whereas the detection of weak avidity antibodies is a strong indication of a primary infection of less than 3 months.

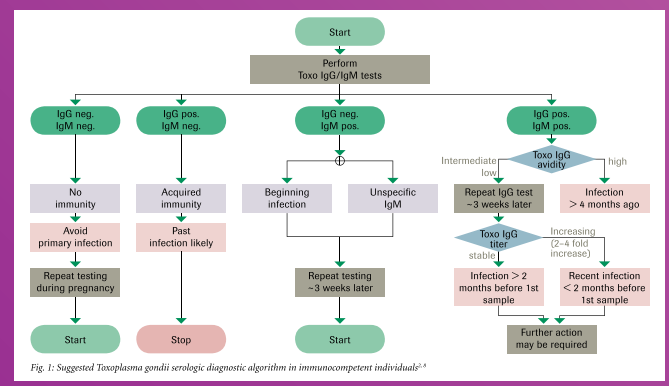


Fig. 1: Suggested Toxoplasma gondii serologic diagnostic algorithm in immunocompetent individuals[2-4]

Gynecologic Tumor Markers:

I - Epithelial ovarian cancer

- CA 125

- HE4 (Human Epididymis protien4):

Combination of CA 125 and HE4 is more helpful in diagnosing ovarian cancer than other test used alone.

- CA 72-4,CA19-9,CEA:to monitor the Mucinous subtype of epithelial ovarian cancer

II - Germ-cell tumor markers

- AFP - Beta hCG

III - Sex cord stromal tumor markers

- Estradiol - Inhibin A

IV- Breast cancer

- CEA

- CA 15.3

- Mamogram

Colorectal Cancer

ScheBo-Test:(Tumor Marker M2-pk)

Tumor marker to assist in diagnosis and follow up and monitor the response of therapy in colorectal cancer.

HPV detection of HPV and genotyping by PCR

Today, more than eighty types of Papillomaviruses that infect humans (HPV) have been identified. Of these, about one fifth are associated with a wide spectrum of pathological conditions of the genital tract.

Infections with HPV are the number one among sexually transmitted diseases in the world.

TheIARC(International Agency for Research on Cancer) has established a similar classification system (see table below).

HPV strain/genotype	IARC classification	Description
HPV 35 ,33 ,31 ,18 ,16, 59 ,58 ,56 ,52 ,51 ,45 ,39	GROUP 1 (carcinogenic to humans)	Recognized as being able to cause cervical cancer
HPV 68	GROUP 2A (Probably carcinogenic to humans)	Carcinogenicity has been proven. Little epidemiological data.
HPV 70 ,67 ,66 ,53 ,26, 82 ,73	GROUP 2B (Possibly carcinogenic to humans)	Possibly carcinogenic. Evidence is still limited.
HPV 11 ,6	GROUP 3 (not classifiable as carcinogenic to humans)	No evidence for association with cancer.
Wheeler CM et al. have calculated for different high-risk HPV genotypes the probability to develop CIN II and CIN III lesions (see Fig. 1).		

Down Syndrome

The goals of testing are to screen for Down syndrome during pregnancy.

Laboratory tests:

I - Prenatal screening tests

1- First trimester screen:

- PAPP-A (Pregnancy associated plasma protein A)

- Free beta hCG : usually performed

(10 - 13 weeks, 6 days of pregnancy)

- Nuchal translucency (ultrasound)

(Result are analysis and estimated the risk by Roche soft ware)

2- Second trimester screen

* Triple screen:

- AFP

- Beta hCG

- Unconjugated Estriol (UE3)

* Quad screen:

- AFP

- Beta hCG

- Unconjugated Estriol (UE3)

- Inhibin A

II - Prenatal Diagnosis

Chromosomal analysis (Karyotype):

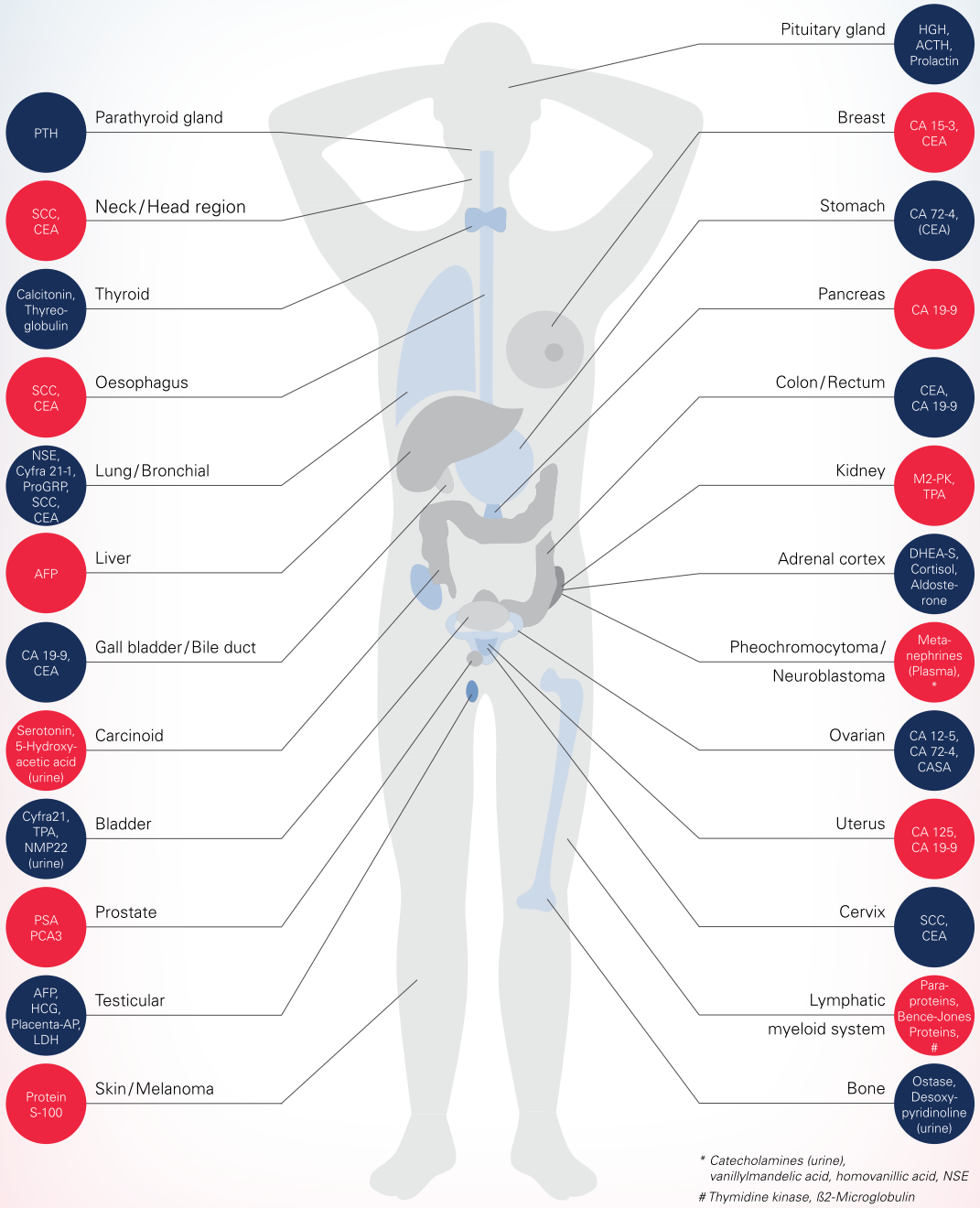
1- First Trimester Screen:

- Chorionic villus sampling (CNS)

2- Second Trimester:

- Aminocentesis (Aminotic fluid)

// TUMOR MARKERS



** Catecholamines (urine), vanillylmandelic acid, homovanillic acid, NSE*

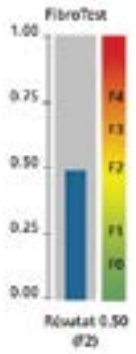
 # Thymidine kinase, ß2-Microglobulin

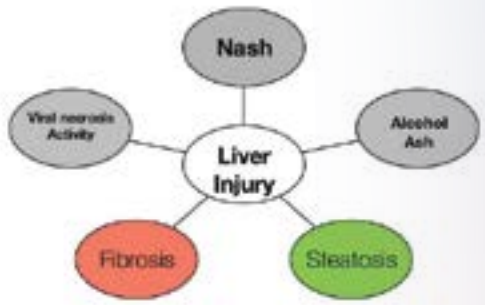
TUMOR	TURMOR MARKER OR TYPICAL METABOLITE	TUMOR MARKER 2ND CHOICE
adrenal cortex	DHEA-S, Cortisol, Aldosterone	
bile duct/gall bladder	CA 19-9, CEA	
bladder cancer	Cyfra 21-1, TPA, NMP22 in urine	
breast cancer	CEA, CA 15-3 HER-2/new (serum, tissue) uPA/PAI-1 (tissue) ER and PR (tissue)	
bronchial carcinoma oat cell carcinoma squamous cell carcinoma adenocarcinoma magnocellular carcinoma	 NSE, ProGRP SCC, Cyfra 21-1, CEA Cyfra 21-1, CEA Cyfra 21-1, CEA	 ACTH, Calcitonin, Cyfra 21-1 TPA
carcinoid	Serotonin, 5-hydroxyindolacetic acid in urine	
cervix cancer	SCC, CEA	
chorio carcinoma (Cystic mole)	ß-hCG	
colo-rectal carcinoma	CEA	CA 19-9
gastric carcinoma	CA 72-4	CEA, CA 19-9, CA 50
hepatocellular carcinoma	AFP	
hypophyseal tumor	HGH, ACTH, Prolactin	FSH, LH, TSH
lymphatic and myeloid leukemias	Paraproteins, ß2-Microglobulin, Thymidine kinase, Neopterin	
malignant tumors in the head and neck region	SCC, CEA	Cyfra 21-1
melanoma	Protein S-100	
nephrocarcinoma (hypernephroma)	M2-PK, TPA	CEA
neuroendocrine tumor (APUD cell tumor)	NSE, Chromogranin A	
oesophageal carcinoma	SCC, CEA	
osteosarcoma, bone metastases	Ostase, (Desoxy-)Pyridinolin in urine	
ovarian cancer epithelial mucin	 CA 125, CASA CA 125, CA 72-4	
pancreatic cancer	CA 19-9	CA 125, CA 50, CEA
pheochromocytoma/ paraganglioma	Metanephrines in plasma, Metanephrines in urine	catecholamines in urine and plasma, vanillylmandelic acid in urine, Chromogranin A
prostatic cancer	PSA, free PSA, PCA3 in urine	
testicular cancer germinal tumor seminoma	 AFP, ß-hCG, LDH Placenta-AP, AFP, ß-hCG, LDH	 NSE
thyroid cancer papillary, follicular medullary (C cell carcinoma)	 Thyreoglobulin Calcitonin, CEA	
uterus carcinoma	CA 125, CA 19-9	TPA, CEA
Zollinger-Ellison-syndrome (Gastrinoma)	Gastrin	

Fibro Test

Fibro Test is the test that assesses the scarring of the liver (fibrosis)

F0 : no fibrosis
F1 : minimal fibrosis
F2 : moderate fibrosis
F3 : advanced fibrosis
F4 : severe





- Fibro Test has the same diagnostic value as a 25 mm biopsy, while being noninvasive and easily repeatable.
- Fibro Test has not only been validated for the initial diagnosis of fibrosis, but also for monitoring of patiente.

Fibro Test Derivatives (Fibromax)

Four other tests derive from FibroTest, and are part of the FibroMax package of tests:

ActiTest: diagnostic of necrotico-inflammatory for hepatitis;

SteaoTest: diagnostic for liver steatosis;

NashTest: diagnostic for NASH (Non-alcoholic fatty liver disease) inflammation

AshTest: diagnostic for Alcoholic liver disease inflammation.

Fibro tests and its derivatives measure the hepatic disorders with blood tests

Procalcitonin (PCT)

Procalcitonin (PCT), The new promising marker elevated in sepsis.

PCT has been proposed as a pertinent marker in the rapid diagnosis of bacterial infection, especially for use in hospital emergency departments and intensive care units.

A test to determine PCT levels has been available in Europe for several years and recently was approved by the FDA for use in the United States.

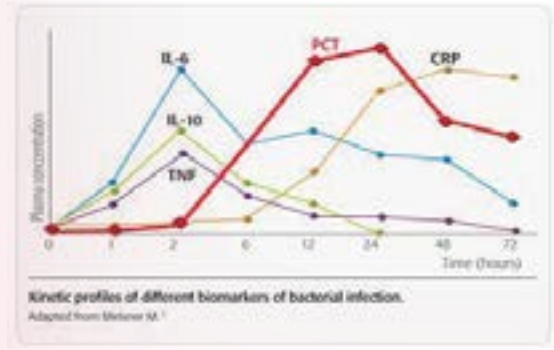
When is it ordered?

-1 To distinguishing bacterial from viral infections, including meningitis.

-2 To diagnosis of systemic secondary infection after surgery and in severe trauma, burns, and multi organ failure.

-3 To monitor therapeutic response to antibacterial therapy and reduce antibiotic exposure.

-4 Procalcitonin may sometimes be ordered in children with a fever of unknown origin.



Kinetic profiles of different biomarkers of bacterial infection.

Procalcitonin (PCT) is detected in the blood stream within 3 to 6 hours after an infectious challenge.

Haematology

- ☐ CBC ☐ ESR
- ☐ Iron ☐ TIBC
- ☐ Ferritin
- ☐ Reticulocytes
- ☐ Transferrin Saturation
- ☐ Transferrin
- ☐ Vitamin B12
- ☐ Folic acid
- ☐ Sickling test
- ☐ Hb Electrophoresis
- ☐ G6PD
- ☐ Malaria Blood film
- ☐ Malaria Ag
- ☐ Osmotic fragility test
- ☐ Direct Coomb's test
- ☐ Indirect Coomb's test
- ☐ Blood Group & Rh
- ☐ Haptoglobin
- ☐ Ham,s test
- ☐ Methemoglobin
- ☐ Carboxyhemoglobin
- ☐ Erythropoietin
- ☐ α-Thalassemia PCR
- ☐ β-Thalassemia PCR
- ☐ BONE MARROW ASPIRATION
- ☐ Blood gases
- ☐ Arterial ☐ Venous

Coagulation profile:

- ☐ CBC ☐ PLTS
- ☐ PT & INR ☐ APTT
- ☐ B.T ☐ C.T
- ☐ Factor VIII ☐ Factor IX
- ☐ Factor VII ☐ Factor X
- ☐ Factor V ☐ Factor XII
- ☐ VWF Ag
- ☐ VWF Activity
- ☐ Fibrinogen
- ☐ Thrombin Time
- ☐ D.Dimer

Thrombophilias

- ☐ Antithrombin III Activity
- ☐ Factor V (Leiden) Mutation
- ☐ Prothrombin II mutation
- ☐ Protein C deficiency
- ☐ Protein S deficiency
- ☐ MTHFR gene mutation
- ☐ Lupus anticoagulants
- ☐ Anti cardiolipin IgM , IgG
- ☐ B2 glycoprotein IgM, IgG
- ☐ Anti Phospholipid IgM - IgG

Diabetic Profile :

- ☐ FBS ☐ PPBS
- ☐ RBS ☐ HbA1c
- ☐ Microalbuminurea
- ☐ Fructosamine
- ☐ Insulin ☐ C.peptide
- ☐ Islet Cell Abs ☐ GAD Abs
- ☐ Insulin auto antibodies (IAA)
- ☐ IA2 Abs ☐ HOMA IR
- ☐ GTT ☐ ITT
- ☐ Gestational Diabetes GTT
- ☐ Vit D3 ☐ Vit B12
- ☐ Anion gap
- ☐ C Peptide/Creatinine Ratio
- ☐ Lipase ☐ Amylase
- ☐ Faecal Pancreatic Elestase

Cardiac Profile :

- ☐ CK ☐ CKMB
- ☐ Troponin T ☐ Troponin I
- ☐ LDH ☐ Myoglobin
- ☐ Lipid profile
- ☐ Cholesterol ☐ TG
- ☐ LDL ☐ HDL
- ☐ hs CRP ☐ Pro BNP
- ☐ Homocysteine
- ☐ Apolip. A ☐ Apolip. B
- ☐ Lipoprotein (a)
- ☐ CVD Genetic Risk Factors profile
- ☐ Digoxin Level

Infertility Tests:

Female Infertility

- ☐ Beta hCG
- ☐ FSH ☐ LH
- ☐ Prolactin ☐ AMH
- ☐ Progesterone ☐ Estradiol
- ☐ TSH
- ☐ T. Testosterone
- ☐ Free Testosterone
- ☐ DHEA-S
- ☐ Androstenedione
- ☐ SHBG
- ☐ 17 OH Progesterone
- ☐ Free Estriol E3
- ☐ Inhibin B
- ☐ Free Androgen Index (FAI)
- ☐ Anti Sperm Abs
- ☐ Ovarian Abs

Male Infertility

- ☐ FSH ☐ LH
- ☐ Prolactin
- ☐ Testosterone
- ☐ SHBG
- ☐ Free Androgen Index (FAI)
- ☐ Semen analysis
- ☐ Zinc in sperm
- ☐ Fructose in Semen
- ☐ Citrate in Semen
- ☐ DNA fragmentation test

Adrenal gland investigations

- ☐ VMA
- ☐ Catecholamines
- ☐ Metanephrine
- ☐ 17 Ketosteriod
- ☐ Aldosterone ☐ Renin
- ☐ Aldosterone/ Renin ratio
- ☐ ACE
- ☐ ACTH
- ☐ Cortisol ○AM○PM
- ☐ Adrenaline
- ☐ Noradrenaline
- ☐ ACTH stimulation test
- ☐ Dexamethasone Suppresion Test

Rheumatology

- ☐ CBC ESR ☐ Uric Acid
- ☐ CRP ☐ RF
- ☐ ASO
- ☐ Anti CCP
- ☐ ANA
- ☐ Anti ds DNA
- ☐ ENA profile
- ☐ HLA B27

Immunoglobulin

- ☐ Total IgA
- ☐ Total IgM
- ☐ Total IgG
- ☐ Total IgE

Renal Investigations:

- ☐ RFT
- ☐ Urea ☐ Creatinine
- ☐ Uric Acid ☐ Na+
- ☐ K+ ☐ Ca++
- ☐ Cl- ☐ PO4
- ☐ Mg++ ☐ eGFR
- ☐ Creatinine Clearance
- ☐ Protein / Creatinine ratio
- ☐ Cystatin C ☐ C3
- ☐ C4 ☐ C1q

Others

- ☐ CRP ☐ ASO
- ☐ Brucella ☐ Widal Test
- ☐ VDRL ☐ TPHA
- ☐ Urine analysis
- ☐ Stool Examination
- ☐ Urine Reducing Substance
- ☐ Stool Reducing Substance
- ☐ Pregnancy Test (urine)
- ☐ Ammonia ☐ Lactate
- ☐ Aldolase ☐ Total Amylase
- ☐ C1 esterase inhibitor
- ☐ CH50 ☐ Fecal fat
- ☐ Occult blood black ☐ Sudan
- ☐ Urine calcula (stones)
- ☐ Osmolality in Urine & plasma
- ☐ Porphyrin in Urine
- ☐ Prealbumin ☐ Gastrin
- ☐ Lactroferrin ☐ Zinc Level
- ☐ Chymotrypsin

HIV

- ☐ HIV Abs
- ☐ HIV Ag p24
- ☐ HIV westeren blot
- ☐ HIV RNA PCR

Thyroid Function Tests:

- ☐ FT3 ☐ FT4
- ☐ TSH ☐ Anti Tg
- ☐ Anti TPO ☐ T-uptake
- ☐ Anti TSH receptor
- ☐ Thyroglobulin (Tg)
- ☐ Calcitonin ☐ PTH
- ☐ Total T3 ☐ Total T4

Growth Hormone Tests:

- ☐ GH ☐ IGF-1
- ☐ IGF BP-3
- ☐ GH Stimulation Test
- ☐ GH suppression Test

Pheochromocytoma:

- ☐ Catecholamines
- ☐ Adrenaline
- ☐ Noradrenaline
- ☐ Metanephrine
- ☐ VMA

Allergies

- ☐ Total IgE
- ☐ Respiratory Allergies
- ☐ Food Allergies
- ☐ Pediatric Allergies
- ☐ Atopy Allergies
- ☐ Drugs Allergies
- ☐ Insect Allergies

Liver Investigations:

- ☐ LFT
- ☐ TB ☐ DB
- ☐ GPT ☐ GOT
- ☐ ALP ☐ GGT
- ☐ TP ☐ Alb
- ☐ PT-INR
- ☐ HBS Ag ☐ HBeAg
- ☐ HBc Ab IgM ☐ HBc Ab IgG
- ☐ HBeAb ☐ HBsAb
- ☐ HBV DNA (PCR)
- ☐ HCV Abs
- ☐ HCV RNA (PCR)
- ☐ HCV Genotyping
- ☐ HAV IgM ☐ HAV IgG
- ☐ ANA ☐ ASMA
- ☐ AMA ☐ AMA - M2
- ☐ LKm-1 Abs ☐ SLA Abs
- ☐ LC-1 ☐ LP
- ☐ ANCA ☐ Ammonia
- ☐ Schistosoma IgG
- ☐ Schistosoma Ag (Urine)
- ☐ Cryoglobulin
- ☐ Alpha 1-Antitrypsin
- ☐ Cholinesterase
- ☐ Copper
- ☐ 24 hrs urine copper
- ☐ Ceruloplasmin
- ☐ HEV IgM
- ☐ HDV IgM
- ☐ CMV IgM
- ☐ CMV DNA (PCR)
- ☐ Fibro / Acti Test
- ☐ NASH ☐ ASH
- ☐ Steato Test ☐ Fibro Max
- ☐ Na+ ☐ K+
- ☐ Cl- ☐ Ca++
- ☐ PO4 ☐ Mg++
- ☐ Ca Ionized
- ☐ ☐ Bicarbonate

Miscarriage (Spotaneous abortion):

TORCH :

- ☐ Toxoplasma IgM
- ☐ Toxoplasma IgG
- ☐ Toxo IgG Avidity test
- ☐ CMV IgM ☐ CMV IgG
- ☐ CMV IgG Avidity test
- ☐ Rubella IgM
- ☐ Rubella IgG
- ☐ Rubella IgG Avidity test
- ☐ Herpes Simplex 1&2 IgM
- ☐ Herpes Simplex 1&2 IgG

Phospholipid syndrome

- ☐ Anti- cardiolipin IgM
- ☐ Anti- cardiolipin IgG
- ☐ Anti- B2 Glycoprotein
- ☐ Anti-phospholipid IgM
- ☐ Anti-phospholipid IgG
- ☐ Factor V Leiden gene mutation

- ☐ Prothrombin Gene 20210 A mutation
- ☐ MTHFR gene mutation
- ☐ Protein C
- ☐ Protein S
- ☐ Lupus Anticoagulant

Chromosomal disorders

- ☐ Karyotyping Tests

Infections and inflammtion

- ☐ Infectious Mononeuclosis
- ☐ EBV (VCA) ○ IgM ○ IgG
- ☐ EBV PCR
- ☐ Brucella ○ IgM ○ IgG
- ☐ Dengue ○ IgM ○ IgG ○ Ag
- ☐ Echinococcus Abs (Hydated test)
- ☐ Filariasis Abs IgG
- ☐ H.pylori (urea breath tests)
- ☐ H Pylori ○ IgA ○ IgG
- ☐ H.pylori stool Ag
- ☐ Herpes Zoster ○ IgM ○ IgG
- ☐ Leishmania IgG
- ☐ Measles ○ IgM ○ IgG
- ☐ Mumps ○ IgM ○ IgG
- ☐ Mycoplasma Pneumoniae IgM
- ☐ Mycoplasma Pneumoniae IgG
- ☐ Schistosoma IgG
- ☐ Schistosoma Ag (Urine)
- ☐ Yellow Fever ○IgG ○IgM
- ☐ Leisteria ○IgM ○IgG
- ☐ Amoebiasis Abs
- ☐ Chlamydia Antibodies
- ☐ Rotavirus (Stool Antigen)
- ☐ Adenovirus (Stool Antigen)
- ☐ Clostridium Difficile toxic Ag
- ☐ Chickugunya Abs

Autoimmune Diseases

- ☐ ANA
- ☐ Anti ds DNA
- ☐ ENA profile 6 Ag
- ☐ ANA profile 18 Ag
- ☐ Anti Sm ☐ Scl-70
- ☐ SSA/Ro60 ☐ SSB/La
- ☐ Jo-1 ☐ Anti nRNP
- ☐ PM/Scl ☐ Anti C1q
- ☐ Anti centromere Abs
- ☐ Anti histone
- ☐ C-ANCA ☐ P-ANCA
- ☐ PR3 ☐ MPO
- ☐ Anti GBM ☐ PLA2

Coeliac disease

- ☐ Total IgA
- ☐ Anti-tTG Abs ○ IgA ○ IgG
- ☐ Anti Endomysial Abs
- ☐ Anti gliadin (DGP) Abs ○IgA ○IgG

Inflammatory Bowel disease

- ☐ P-ANCA & Atypical ANCA
- ☐ ASCA ○ IgM ○ IgG
- ☐ Fecal Calprotectin

Pernicious Anemia

- ☐ Anti Parietal Cell Abs
- ☐ Intrinsic Factor Abs
- ☐ Vit B12

Myasthenia Gravis

- ☐ Anti acetylcholine receptor Abs
- ☐ Anti striated muscle Abs
- ☐ Anti Musk Abs Guil-lain-Barre Syndrome
- ☐ Anti gangliosides Abs

Neuromyelitis Optica (NMO)

- ☐ Anti aquaporin 4

Paraneoplastic neurological diseases

- ☐ Anti Hu ☐ Anti Ri
- ☐ Anti Yo ☐ Anti Tr
- ☐ Anti Ri
- ☐ Anti amphiphysin

Multiple Sclerosis

- ☐ CSF protein electrophoresis
- ☐ IgG index

Sarcoidosis

- ☐ ACE

Kidney / Liver Transplantation

- ☐ Cross matching
- ☐ HLA A ☐ HLA B
- ☐ HLA DR ☐ PRA

Bone marrow Transplantation

- ☐ HLA A ☐ HLA B
- ☐ HLA C ☐ HLA DR
- ☐ HLA DQ

PCR and Molecular Genetics Tests:

- ☐ HCV RNA Quantitative PCR
- ☐ HCV RNA Genotyping PCR
- ☐ HBV DNA Quantitative PCR
- ☐ HIV RNA Quantitative PCR
- ☐ TB PCR Qualitative
- ☐ Prothrombin II mutation PCR
- ☐ Factor V Leiden mutation PCR
- ☐ MTHFR Gene mutation PCR
- ☐ BCR-ABL 1 Gene mutation PCR
- ☐ BCR –ABL T315 I imatinib resistant
- ☐ PML RARA
- ☐ JAK2 - Gene mutation PCR
- ☐ Cardio Vascular Disease Risk Factors PCR
- ☐ Cystic Fibrosis CFTR Mutations PCR
- ☐ CAH PCR
- ☐ FMF PCR
- ☐ Lactose Intolerance PCR
- ☐ HLA B27 PCR
- ☐ HLA B5 PCR
- ☐ α-Globin Gene, α-Thalassemia PCR
- ☐ β-Globin Gene, β-Thalassemia PCR
- ☐ Meningitis pathogens multiplex panel PCR
- ☐ Respiratory pathogens multiplex panel PCR
- ☐ H1N1 Influenza Virus RNA PCR
- ☐ Herpes Simplex Virus I &II DNA PCR
- ☐ Human Papilloma Virus DNA Genotyping HR PCR
- ☐ Gaucher disease PCR

Tumor Markers:

- ☐ AFP ☐ CEA
- ☐ CA 15.3 ☐ CA 72.4
- ☐ CA 125 ☐ HE4
- ☐ CA 19.9 ☐ Beta hCG
- ☐ Inhibin A ☐ Estradiol

- ☐ Total PSA ☐ Free PSA
- ☐ Acid Phosphatase
- ☐ SCC ☐ Cyfra 21-1
- ☐ NSE ☐ S-100
- ☐ M2-PK
- ☐ Thyroglobulin
- ☐ Calcitonin
- ☐ Chromogranin A
- ☐ Protein electrophoresis Serum
- ☐ Protein electrophoresis Urine
- ☐ Bence Jonce Protein
- ☐ ß2-Microglobulin
- ☐ Gastrin
- ☐ Metanephrines in urine
- ☐ Catecholamines in urine
- ☐ VMA in urine
- ☐ Serotonin
- ☐ 5- HIAA in urine
- ☐ Stool for occult blood & M2-pk (Shebo test)

Therapeutic Drug monitoring

- ☐ Acetamineophen
- ☐ Carbamazepin
- ☐ Cyclosporine
- ☐ Digoxin
- ☐ Everolamus
- ☐ Keppra (Levetiracetam Assay)
- ☐ Lamictal
- ☐ Lithium
- ☐ Methotrexate
- ☐ Phenobarbital
- ☐ Phenytoin
- ☐ Salicylate
- ☐ Sirolamus
- ☐ Tacrolamus II (Prograf)
- ☐ Theophylline
- ☐ Topamax
- ☐ Valporic Acid

Drugs Abuse

- ☐ Amphetamines
- ☐ Barbiturates
- ☐ Benzodiazepines
- ☐ Cannabis
- ☐ Clonazepam
- ☐ Cocaine
- ☐ Ethanol (Alcohol)
- ☐ Heroin
- ☐ Marijuana Test
- ☐ Methadone
- ☐ Methamphetamine
- ☐ Methaqualone
- ☐ Morphine
- ☐ Opiate
- ☐ Tramadol

Microbiology

- ☐ Procalcitonin ☐ Blood C/S
- ☐ Gram Stain ☐ AFB Smear
- ☐ Albert stain for diphtheria
- ☐ Ascitic fluid C/S
- ☐ Aspirates / Discharge C/S
- ☐ Ear Swab C/S
- ☐ Endocervical Swab C/S
- ☐ Eye Swab C/S
- ☐ HVS C/S
- ☐ Pus / Abscess C/S
- ☐ Nasal Swab C/S
- ☐ Pleural Fluid C/S
- ☐ Semen C/S
- ☐ Skin Scrapping For Fungus
- ☐ Skin Scrapping C/S
- ☐ Sputum C/S
- ☐ Stool C/S
- ☐ Synovial Fluid C/S
- ☐ Throat Swab C/S
- ☐ Urethral Smear
- ☐ Urine C/S

Body fluid

- ☐ CSF ☐ Pleural
- ☐ Ascitic ☐ pericardial
- ☐ Synovial
- ☐ B Transferin for CSF
- ☐ Cell count with diff.
- ☐ Suger ☐ protein
- ☐ LDH ☐ Gram stain
- ☐ AFB ☐ Cytology
- ☐ Culture and sensitivity

Tuberculosis

Specimen: .....

- ☐ Acid Fast Bacillia (AFB)
- ☐ Adenosine Deaminase Assay
- ☐ Tuberculin Test
- ☐ Quanteferone Gold plus
- ☐ TB by PCRProfiles
- ☐ Cardio Vascular Disease Risk Factors PCR
- ☐ Respiratory infection viral panel 21 pathogens PCR
- ☐ Meningitis (Neurological virus) panel PCR
- ☐ Miscarrage (Spotaneous abortion) Screening profile
- ☐ TORCH Panel
- ☐ Thrombophilias profile
- ☐ Anti phospholipid syn-drome Profile
- ☐ Liver AIH profile
- ☐ Coeliac disease profile
- ☐ Neonatal screening tests (Tandom mass)
- ☐ Prenatal Screening
- ☐ Impotence profile
- ☐ Androgens profile
- ☐ Amenorrhoea profile
- ☐ Hirsutism profile
- ☐ Short Structure
- ☐ Polycystic Ovary
- ☐ Osteoporosis Screen
- ☐ Pre-marital
- ☐ Hair loss
- ☐ Renal Stone profile

CERTIFICATE

TÜV AUSTRIA

ZERTIFIKAT | CERTIFICATE | CERTIFICAT | CERTIFICADO | СЕРТИФИКАТ | شهادة | 证书 | 인증서

Management system as per
EN ISO 9001:2015

In accordance with TÜV AUSTRIA CERT procedures, it is hereby certified that

مختبرات العقيقي التخصصية
AULAQI Specialized Med. Lab

AULAQI Specialized Med. Labs
Al- Zubairi Street Sana'a city
Republic of Yemen

applies a management system in line with the above standard for the following scope

Provision of all medical laboratory tests competently through following of total quality management and international standards for all over the diagnostic departments of medical laboratories.

Certificate Registration No. 20100213010421/00 Valid until 2022-01-20

Certification Body
at TÜV AUSTRIA CERT GMBH

Vienna, 2021-01-21

This certification was conducted in accordance with TÜV AUSTRIA CERT auditing and certification procedures and is subject to regular surveillance audits.The certificate period is 3 years.
TÜV AUSTRIA CERT GMBH Deutschstraße 10 A-1230 Wien www.tuv.at

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CERTIFIED
EN ISO 9001
Certificate No. 20100213010421
TÜV AUSTRIA CERT GMBH

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AULAQI Specialized Med. Lab
التَمَـيُّـزُ ... سِـرُّ النجاح

وفر مشوارك
نتيجتك على جـــوالك

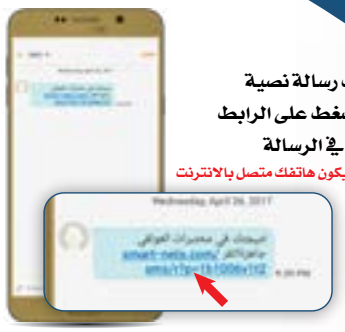
عملاءنا الأعزاء

بإمكانكم إستلام نتائج الفحوصات
الخاصة بكـم عبر جوالك

لحفظ الملف في جوالك
اضغط على رمز الطابعة
وسيتم تنزيل ملف PDF

يتم فتح نتيجة
الفحوصات
الخاصة بك

في حال لديك
أكثر من فحص
يمكنك التنقل
بينهم



ستصلك رسالة نصية
قم بالضغط على الرابط
الموجود في الرسالة
* يجب أن يكون هاتفك متصل بالانترنت

لتفعيل الخـــدمـة :

- سـجل رقـم الهـاتف الخـاص بك
- تسـديد مـبلغ الفحـوصات كاملاً
- يجب توفر خدمة الأنترنت على هاتفك

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AULAQI Specialized Med. Lab
التَمَـيُّـزُ ... سِـرُّ النجاح

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