

# VIDAS

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• Dr. A. T. Miskin

## Description / Aim :

**VIDAS** is a compact automated multiparametric immunanalyzer including :

- the **VIDAS** analytical module divided into five independent sections each containing six assays with compatible protocols,
- the **VIDAS** PC software allowing up to two **VIDAS** modules to be operated,
- the reagents presented in kits of 60, 30 or 10 unit tests including :
  - the SPR<sup>®</sup>s and reagent strips,
  - the additional consumables required : standard, control (s), solvent,
  - the factory calibration data provided in the form of a bar code (MLE card),
  - the package insert.

The basic **VIDAS** workflow steps consist of :

- \* creating predefined sections,
- \* performing calibrations and controls,
- \* running assays.

**VIDAS** offers routine batch or random access (mixed) testing for :

- serology,
- immunochemistry,
- antigen detection
- industrial microbiology,
- immunoheamostasis.

The combination of two original concepts, sectioned architecture and single-dose reagents (SPR/Reagent Strip), offers :

- reliable results,
- ease-of-use,
- rapid analysis results.

**VIDAS** stands for :

*Vitek<sup>®</sup> Immuno Diagnostic Assay System.*

The technology used, which is adaptable to a wide range of assays, combines the EIA method with a final fluorescence reading : this technology is known as ELFA (Enzyme Linked Fluorescent Assay).

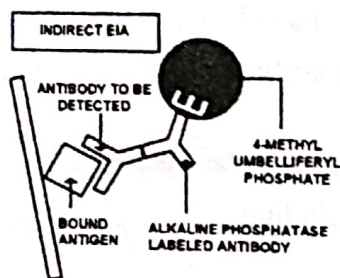
The enzyme used in the VIDAS range is alkaline phosphatase.

The substrate is 4-methyl umbelliferyl phosphate (4-MUP) hydrolyzed into 4-methyl umbelliferone.

Umbelliferone fluoresces at 450 nm after excitation at 370 nm.

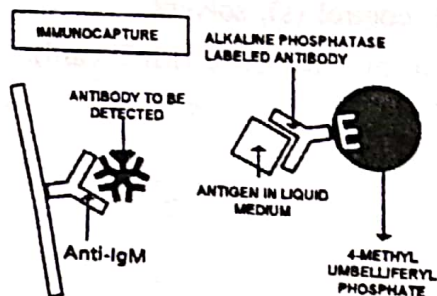
## Operating principles

### Immunoassay methods :



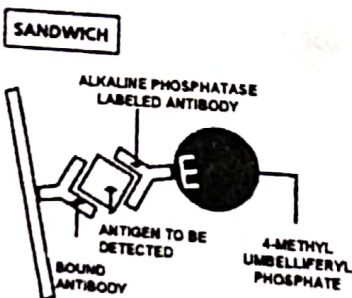
#### Detection of antibody

The antigen is coated on the interior walls of the SPR<sup>®</sup>. If the sample contains the antibody to be detected, the 4-methyl umbelliferyl phosphate is hydrolyzed to umbelliferone.



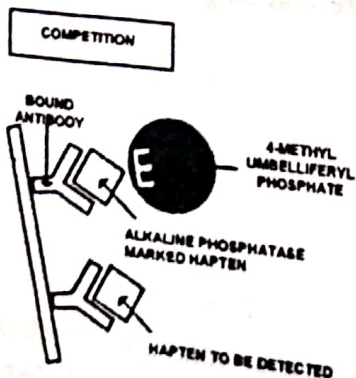
#### Detection of immunoglobulins M

The IgM to be detected is captured by the anti-IgM coated on the interior walls of the SPR. The presence of the IgM is detected by the Ag stabilized in liquid medium.



#### Detection of antigens (bacterial, viral, protein,...)

The interior wall of the SPR is coated with antibody. In the above three methods, the fluorescence levels measured are directly proportional to the quantity of antibody or antigen present in the sample.

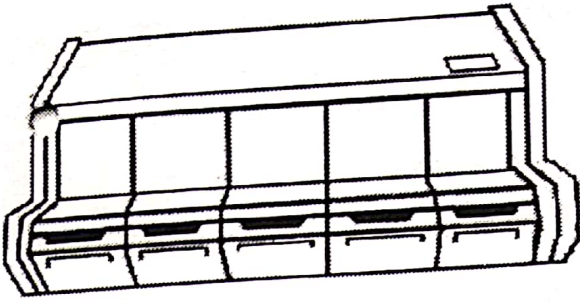


#### Detection of haptens (hormones,...)

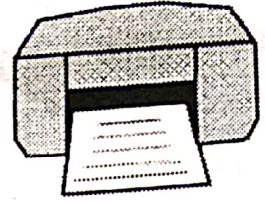
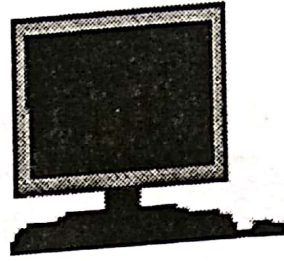
The interior wall of the SPR is coated with a limited quantity of antibody.

The hapten to be detected competes with the labeled hapten. The fluorescence level measured is inversely proportional to the quantity of haptens present in the sample.

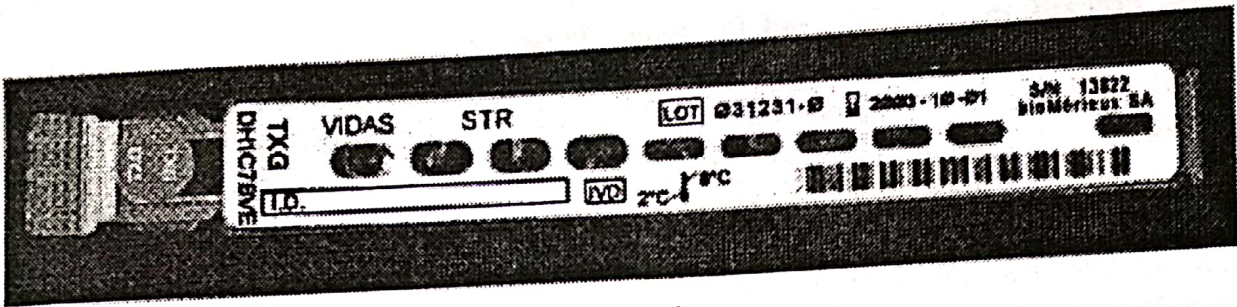




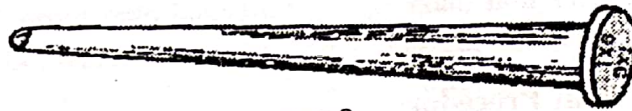
Analytical module (example)



Computer module (example)



Reagent strip



SPR®  
VIDAS configuration

The following tests are done by VIDAS in MISKIN LAB, Bagalkot -

- |                     |              |               |
|---------------------|--------------|---------------|
| 1. T3               | 2. T4        | 3. TSH        |
| 4. FT3              | 5. FT4       | 6. FSH        |
| 7. LH               | 8. Prolactin | 9.            |
| Toxoplasma antibody |              |               |
| 10. HBsAg Ultra     | 11. HBeAg    | 12. A n t i - |
| HBcAg IgM           |              |               |
| 13. TPISA           | 14. B-hCG    | 15. AFP       |

The results of all the above tests are ready in just 3 hours.

Why send these tests to Mumbai and wait for 3 days, when accurate reports of these tests are available at MISKIN LAB in 3 hours !

# Precautions for Health and Safety

• Dr. Shivakumar S. Solabannavar



Universal precautions for health and safety are measures that are designed to protect against the possible transmission of blood borne pathogens from patients to medical personnel, health care workers and medical and health support personnel.

## Universal Precautions are Followed for Every Patient :

Universal precautions for health and safety are measures that are designed to protect against the possible transmission of blood borne pathogens from patients to medical personnel, health care workers and medical and health support personnel.

Under the guidelines published by the Center for Disease Control, known as the CDC, the same universal precaution procedures are followed for all patients as each one is considered a possible carrier of an infection. The precaution techniques are used minimize the possibility of an infectious condition being transmitted to a health care worker. Possible infections include HIV and Hepatitis B, as well as other pathogens.

All medical personnel in hospitals, nursing homes and medical laboratories follow the techniques and safety measures that make up the universal precaution guidelines. They are also in place in certain situations involving childcare settings, schools and industrial settings.

## A Brief History of Universal Procedures :

These precautionary techniques of universal precautions are the result of the outbreak of AIDS, or acquired immunodeficiency syndrome, that took place in the 1980s. In the summer of 1987, following the news that three workers from a clinical laboratory were infected with HIV, the universal precautions, or UP, were put into effect. This was followed in 1991 by the publication of universal standards of health and safety by the Occupational Safety and Health Administration, or OSHA.

The regulations and procedures are updated as often as the CDC and OSHA feel necessary to further safeguard health field and laboratory workers. In 1996, the Center for Disease Control updated the guidelines to include Standard Precaution, mostly for use in hospitals, to include isolation precautions.

## What bodily fluids are included under Universal Precaution Measures ?

Universal precaution procedures include the following bodily fluids and tissues from the included areas.

- \* Blood
- \* Vaginal secretions
- \* Semen
- \* Amniotic fluid



- \* Synovial fluid
- \* Pericardial fluid
- \* Cerebrospinal fluid
- \* Plural fluid
- \* Peritoneal fluid
- \* Saliva - in a dental setting as it is generally mixed with blood and may be contaminated.

### **Universal Precautions for Health and Safety :**

Precautions and techniques that help ensure the safety of health care workers from the transmission of infectious conditions include barrier precautions, hand washing and the careful handling and disposal of sharp medical instruments.

### **Barrier Precautions :**

The use of Protective barriers is a very important aspect of universal precautions. These barriers, called Personal protective equipment, include wearing the following items.

- \* Gloves
- \* Gowns
- \* Lab coats
- \* Shoe covers
- \* Aprons
- \* Masks
- \* Protective eye wear such as goggles or glasses that have protective side shields.

Wearing these items protects the workers and reduces their risk to possible exposure of their skin and mucus membranes from infectious conditions.

### **Hand Washing :**

Universal precautions also instruct individuals to wash their hands immediately after removing their gloves. Hand washing is a very effective technique for preventing the spread of infections.

### **Proper Handling and Disposal of Medical Instruments :**

Proper handling and disposal of sharp medical instruments that can transmit infection to a health care worker are outlined in the universal procedures measures. Hypodermic needles and scalpels are two of the items that pose the most danger. Careful handling and cleaning of medical instruments and disposal of needles in a special puncture resistant containers are essential.

### **Pregnant Health Care Workers :**

While all health care workers need to follow universal precautions for their own safety pregnant workers need to be extra careful. It is known that they stand a greater risk of contracting an HIV infection than workers that are not pregnant. If this occurs the baby is at risk of developing the infection through perinatal transmission.

### **Conclusion :**

Following universal precautions for health and safety are steps that minimize the risk of becoming exposed to infectious conditions.

# INVESTIGATION IN INFERTILITY



Collected By : • Dr. Archana V. Daddenavar

## BLOOD TYPE & RH :

Rh factor and antibody screening is recommended if not known. As anti Rh antibody can cause infertility and repeated abortions.

## RUBELLA :

All women trying to become pregnant should be tested. When negative, vaccine should be given and not to conceive during next 3 months.

## SERUM PROGESTERONE :

Ovulation problems are present in 15% of infertile couples. Level  $> 3$  ng/ml gives evidence of ovulation.

## T3 T4 TSH :

Women with thyroid problem some times don't have any symptoms. Testing with T3 T4 TSH can help to know problem. These are easily treatable causes of infertility.

## BLOOD GLUCOSE LEVEL :

Women with increased blood glucose may be at risk of spontaneous miscarriages treatment with antidiabetic medicine completely improve the condition.

## LH LEVELS :

Increased levels of LH causes hyper androgenism and PCOS. This can be treated effectively with metformin.

## FSH LEVELS :

Levels are low in women with short luteal phase.

This can be easily corrected with treatment.



### **LUPUS ANTICOAGULANT AND ANTICARDIO LIPINE ANTIBODY :**

These are immunological conditions usually causing recurrent pregnancy loss. If the diagnosis is established these can be connected with treatment.

### **COMPLETE BLOOD COUNT :**

#### **HB-**

Most of the women in our country are anaemic improving Hb will improve general condition of patient and fertility outcome.

#### **WBC-**

Presence of acute and chronic infections need to be treated.

### **ESR :**

When it is increased suggests chronic illness usually tuberculosis ATT has to be started. Women with tuberculosis of genital tract have poor prognosis for fertility.

### **HIV & Hbs Ag :**

Routine screening of both partners is recommended for the protection of medical and laboratory staff and prevention of transmission of the disease to the fetus.