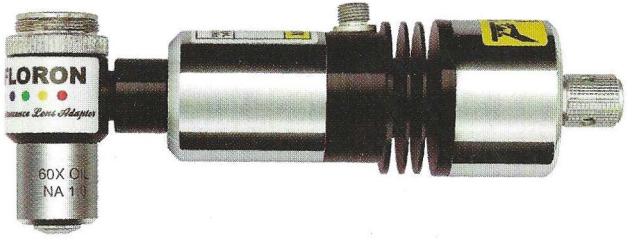
FLORON



Ultra Sensitive Diagnostic Essential in Malaria / Tuberculosis Detection

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Florotek Biosystems

Web : www.florotek.com
E-mail : florotek@gmail.com

Introducing Florotek Biosystems.....

Dear Doctor,

Congratulations! You have chosen an intelligent and smart option to quickly convert your conventional light microscope into a fluorescent microscope.

Fluorescence microscopy is far more sensitive and specific compared to conventional compound light microscopy. It is considered to be an extremely effective tool in detection of many diseases like malaria, tuberculosis, microfilaria etc. As a matter of fact, WHO recommends use of fluorescence microscopy for tuberculosis diagnosis.

***FLORON** can be attached to almost any microscope due to its standard RMS threading. It is a very compact attachment designed specifically to take advantage of the latest developments in fluorescence microscopy.*

***FLORON** is a very cost-effective option. There is no need to invest in a expensive fluorescent microscope for routine Malaria and TB diagnosis. **FLORON** with its dedicated 450~480nm wavelength works wonderfully with various fluorescent probes like acridine orange, acridine yellow, auramine O, FITC etc.*

Malaria and Tuberculosis Still remain a major Public health concern. Floron can assist in a great way to combat these life threatening diseases by providing ultra sensitive diagnosis.

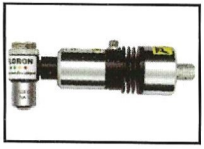
Lets create a Malaria /Tuberculosis Free World!!

For Florotek Biosystems

Avinash S. Deshmukh
Director

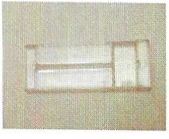
Florotek Biosystems

FLORON epi-fluorescence microscope system consisting of



LED Illuminator / Fluorescence adaptor with filter set and 60 X oil immersion objective lens.

Monocular / Binocular Microscope with Co-axial Stage (Optional)



Kapillery™ Holder (2 units)

Kapillery™ Centrifuge 12000 RPM. (optional)

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FLORON INSTALLATION

Electrical requirement : LED Illuminator
Input : 4-24 VCD, 0.7-2.5 Amps
Center Positive DC Power Connector

Power Pack
Input : 100-240 VAC, 47-63 Hz, 0.4 A
Output : 6 VDC 500-700 mA

Ensure proper assembly of Fluorescence lens adaptor with L.E.D. illuminator.

Fix the L.E.D. illuminator with fluorescence lens adaptor to microscope nose piece as shown in the picture.

Connect I.T.E. power supply box with L.E.D. illuminator as shown in picture plug in power chord and switch on the electrical connection.

Completely Installed FLORON Unit.

You can control the intensity of lamp with the help of potentiometer.

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FLORON: APPLICATIONS

Epi-fluorescence microscopy is a method of fluorescence microscopy that is widely used in life sciences. Instead of passing excitation light through specimen, it is passed through the objective and then onto the specimen. The fluorescence in the specimen gives rise to "emitted" light which is collected by the same objective that is used for the excitation. An emission filter between the objective and detecting microscope filters out the excitation light from fluorescent light. Since most of the excitation light is transmitted through the specimen, only reflecting excitation light reaches to objective together with emitted light. Emission filter, further filter out reflected excitation light providing very improved signal to noise ratio.

FLORON is a miniature epi-fluorescent microscope having excitation wavelength of 450 ~ 480 nm. Various fluorescent probes those gets excitated by this wavelength can be used. Especially Acridine Orange, Auramine O / Rhodamine B / FITC are of greater importance. FLORON is a great weapon against Malaria / Tuberculosis/ Microfilaria/ Trypanosomiasis etc.
It has been manufactured using latest advancement in " L.E.D." Technology.

USP OF L.E.D. TECHNOLOGY

Brighter Illumination:
Now with most modern technology of led lighting it is possible to provide equivalent or much more brighter illumination than conventional Quartz halogen lamp.

Ultra Long Lamp Life:
Compared to conventional Quartz halogen lamp, (Lamp life 1000 working Hrs.) L.E.D. Lamp provides for longer lamp life and it has been rated at 50,000 working hrs.

Low Power Consumption :
L.E.D.'s work with just 6X DC power supply. Which makes it possible to run even on car battery!!

L.E.D. Cool Operation:
Light source generates cool beam of light ensuring longer life for the optical components.

SmoothOperation:
L.E.D. light source is noise and vibration free. This makes it extremely user friendly & fatigue free.

Compact and Light in weight :
L.E.D. Light source equiped fluorescence lens adaptor is so compact and light in weight that it can be carried very easily any where for field operation.

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Using FLORON for the diagnosis of malaria with Kapillery

How it works ??

Kapillery tube is a high precision glass haematocrit tube internally precoated with acridine orange fluorescent stain. It is filled with approximately 65 microlitres of blood specimen from a finger puncture. Kapillery is then sealed using specially designed tube plug. A precision cylindrical suspender is then inserted inside the open end of the tube. The tube is then centrifuged at 12000 RPM for 5 minutes in a specially designed centrifuge machine. Components of the blood gets seperated according to their densities to form discreet bands.

• The Kapillery tube is then placed inside of Kapillery holder and examined using a fluorescent microscope. Malaria parasite if present in the specimen absorbs the acridine orange and fluores bright green with characteristic morphology. Parasites are usually observed at RBC/WBC interface.

Advantages :

a) Very high level of **sensitivity** due to large quantity of blood specimen concentration. (It has been reported to detect 1 parasite per 2 microlitre of blood)

b) **High specificity** : Kapillery technique can differentiate all four plasmodium species along with their sexual and asexual parasitemia.

c) Ease of use : Very easy to use and perform. Factory percolated Kapillery tubes provides consistent and uniform staining: providing predictable results every time.

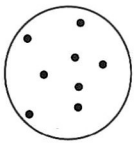
d) Requires 1 minutes for reporting positive and 3 to 5 minutes maximum for reporting of the negative specimen. (Parasites can be detected at predictable areas making detection easier).

e) Complete process from blood specimen collection to reporting can be achieved within 10 minutes.

f) Kapillery technology can be learnt in few days even by lab technicians.

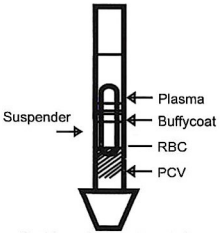
g) Chances of false positive are very less to nil.

h) Kapillery technology can detect microfilaria as well.



In absence of Suspender, concentration of parasites decreases.

Suspender occupies more than 90% of Interior lumen of glass tube and hence increases the parasite concentration; means higher sensitivity



Specific gravity of precision plastic suspender, suspends itself between Buffy coat / RBC layer

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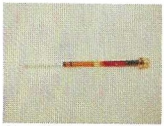
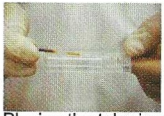
Processing the Kapillery™

Kapillery Package Insert.

Process the Kapillery as instructed by Kapillery package Insert.


Observing the centrifuged Kapillery blood Specimen

Due to centrifugation, plastic suspender, suspends itself in between RBC / WBC interface creating discreet bands.


Placing the tube in a Kapillery Holder.

Hold the Kapillery in hand from tube plug end. Place the tube in Kapillery tube holder as shown in the picture.

Focusing the Tube

Place the Kapillery holder on co-axial stage of Floron microscope and put a drop of Immersion oil (provided with Kapillery Kit) exactly at the interface of RBC/Buffy coat.

Align the centre of kapillery with the Floron objective and immerse the objective gently in oil drop.

Non Focus In Focus

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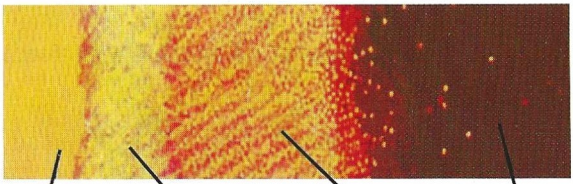
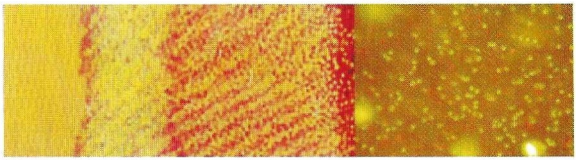
Observing the Negative specimen

Centrifuged Kapillery Showing various cell Layers of Blood specimen
Note the clear RBC area without any glowing parasites

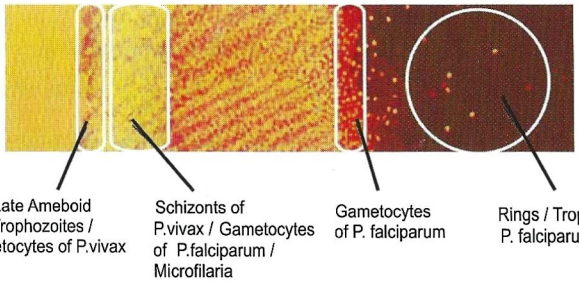


Observing the Positive specimen



Centrifuged Kapillery™ Showing P. falciparumTrophozoites In RBC Layer.

Upon Centrifugation parasites occupies pre-determined positions making detection easy and fast.
Please note various porbable positions to locate parasites.



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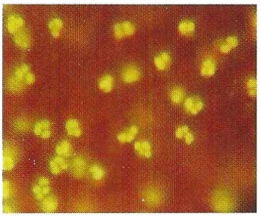
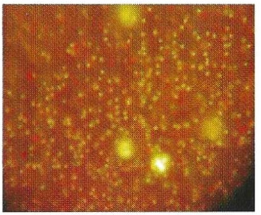
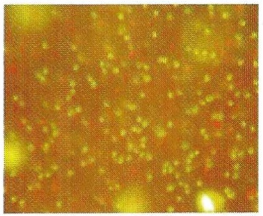
P.Falciparum



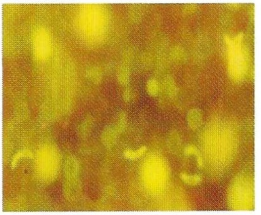
Negative specimen with
Granulocytes
overlap in RBC's
(Area of observation : RBC)



P. Falciparum Trophozoites.
Note bright green Nucleus
Orange cytoplasm
(Area of observation : RBC)



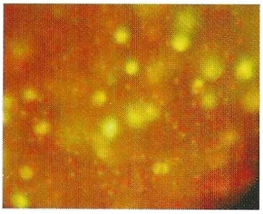
P. Falciparum Trophozoites.
(Area of observation : RBC).



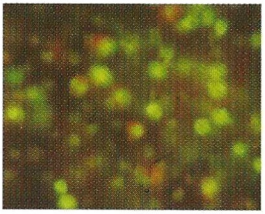
P. Falciparum Gametocytes
(Area of observation : RBC).

Negative specimen
(Area of observation : RBC)

P. vivax

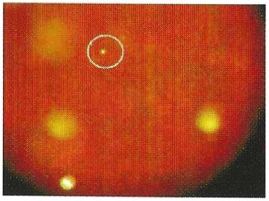


P. vivax Trophozytes showing irregular cytoplasm Please note Bright Green, Nucleus supported with orange cytoplasm
(Area of observation : RBC)



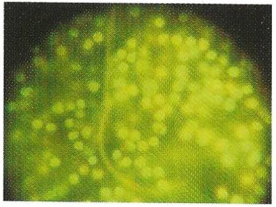
P.vivax schizonts showing black pigments (Area of observation Lymphocytes / Monocytes)

Artifact



Absence of specific morphology which unable the differentiation of nucleus from cytoplasm confirms it as an artifact. (area of observation : RBC)

Microfilaria



(Area of observation : Lymphocytes / Monocytes)

Refer reporting pattern given below

Patients name :
Investigation requested :

- Malaria ☐ Microfilaria ☐
- Result of Screening : Positive ☐ Negative ☐
- Species of Malaria : Plasmodium falciparum
- Plasmodium vivax ☐
- Morphological observation
  Trophozoites ☐ Schizonts ☐ Gametocytes ☐

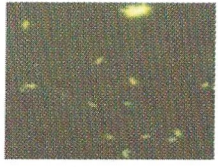
Parasite Index

- I+ = 1 to 10 parasites / Microscopic field.
- II+ = 10 to 50 parasites / Microscopic field.
- III+ = 50 to 100 parasites / Microscopic field.
- IV+ =More than 100 parasites / Microscopic field.

Diagnosis of Tuberculosis Bacilli with FLORON

Infection with mycobacterium Tuberculosis remains a major public health problem worldwide. Diagnosis of Tuberculosis is often made on the basis of clinical symtoms, chest X-ray and sputom AFB. Tests based on immunological principles have yet to overcome the problem of poor sensitivity and specificity.

Staining of Mycobacterium Tuberculosis with Flour-AFB and observing it under FLORON offers highly sensitive and specific diagnosis.



Tuberculosis Bacilli stained with Fluor-AFB and
observed under FLORON 60X oil immersion objective

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