

Malaria LBL front & back open size: A3

Advantages of Digital Cytometry method for Malaria diagnosis

- High sensitivity and specificity (over 97%)
- Detects low parasitemia (5 parasites/ μ l)
- Accurate speciation (over 95% of all species including mixed infections)
- Exact parasite count and species identification
- Reporting of Gametocyte percentage

Comparitive performance analysis on diagnostic techniques available

| | Smear Microscopy | Rapid Card Tests (RDT) | Fluorescence (QBC) | Malaria PCR | Digital Cytometry |
|----------------------------------|------------------|--|---|-------------|--|
| Sensitivity (parasites/ μ l) | 50 | >100 | <50 | 5-10 | 5-10 –Highest sensitivity at Low parasitemia level |
| Specificity | All species | <i>P. falciparum</i> and <i>P. vivax</i> good, <i>P. ovale</i> and <i>P. malariae</i> only with pLDH | <i>P. falciparum</i> good others difficult. | All species | All species |
| Parasite density | Yes | No | No | No | Yes |
| Cost/test | Low | Moderate/Low | Moderate/high | High | Same price as of Malaria RDT tests |

Test range available

Test Code : H249

Test Name : **Malaria Parasite Identification Test**

Report : Daily



 **Dr Lal PathLabs**

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*Conditions apply

The direction needs to be absolutely right so that you don't **deviate** from the correct path.

And so, for the first time in India, Dr. Lal PathLabs introduces the latest **Digital Cytometry test** which acts as a lighthouse to guide you to diagnose Malaria accurately at the same price.

 **Dr Lal PathLabs**

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Malaria LBL inside open size: A3

INTRODUCTION: THE MALARIAL PARASITE

This parasite belongs to the genus *Plasmodium*. There are more than 100 species of *Plasmodium*, which can infect many animal species such as reptiles, birds, and various mammals. Four species of *Plasmodium* that infect humans are *P. vivax*, *P. falciparum*, *P. ovale* and *P. malariae*.

In addition, there is one specie *P. knowlesi* that naturally infects macaques, which has recently been recognized to be a cause of zoonotic malaria in humans.

What does a clinician expect from a lab test for Malaria?

• Is it Malaria?

It differentiates from other types of fever and an appropriate treatment should be started quickly.

• If yes, what type of Malaria?

It depends on the choice of drugs, duration of treatment and species like Falciparum, which can be deadly and Vivax, which may recur after a month.

• What is the severity?

The number of parasites seen under the microscope (parasitic index) will indicate the severity of malaria and the effectiveness of treatment.

Current Diagnostic Trends in Malaria



Diagnosis by Peripheral Smear: Issues

Advantages

Time consuming

- Ideal scan time is of 20-30 mins

Sensitivity will be compromised if

- Quality of stains poor
- Technical expertise poor
- Low levels of parasitemia

Are the Rapid Card Tests good enough?

- **Provides partial diagnosis only**
Only qualitative results, not valid to gauge severity of infection
- **Sensitivity drops significantly at low parasitaemia levels**
<100 -150 parasites per μL may give false negative results
- **False negative results in hyper-parasitaemia**
Due to prozone effect (high doses-hook phenomenon)
- **Not a good prognostic marker**
Since enzymes / proteins persist way beyond clearance of infection

A test which is need of the hour

- Detects malarial parasites at a low parasitaemia
- Accurately speciates the malarial parasites
- Reports actual counts of malarial parasites
- Removes subjectivity of a microscopist
- Uses standardized specimen preparation
- Gives additional info on blood indices, e.g. Platelets

INTRODUCING A NEW REVOLUTION IN MALARIA DIAGNOSIS

Malaria parasite antigen test based on Digital Cytometry method



Digital Cytometry: Overcomes issues with microscopy

Time consuming

Bright Field Microscopy

- Ideally scan for 20-30 mins. or entire smear

Sensitivity will be compromised if

- Quality of stains poor
- Technical expertise poor
- Low levels of parasitaemia

Fluorescence Microscopy

Less time consuming

- Scan fluorescing signals faster

Yet, sensitivity compromised

- Fluorochromes not specific for Malarial parasite
- Background staining of all nuclear material at same intensity, difficult to differentiate malaria
- Also depends on technical skills of microscopist