

*AI-Powered Digital Malaria Microscopy*

# miLab™ MAL

## Cartridge

## MALARIA

'The most advanced digital microscopes are fully integrated benchtop platforms from noul', introduced in UNITAID's report in 2022



noul

# miLab™ Cartridge MAL

Is your malaria diagnostic process

Too complicated and time-consuming?

Having difficulty maintaining consistency and quality?

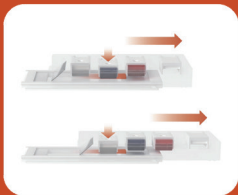
Effective in various environments?

## Efficient and Streamlined Workflow

(Total Test Time: Avg. 15 mins)



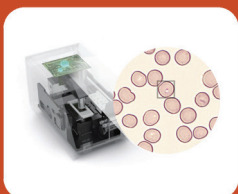
**01**  
Sample Loading



**02**  
Smear, Fix, Stain



**03**  
Digital Optical  
imaging



**04**  
Embedded AI  
Analysis



**05**  
Result on Screen

Slide  
Preparation



AI Analysis



Remote  
Diagnostics

### Automated

Staining method	Romanowsky
Sample type	Venous or finger-prick blood
Sample volume	5µl
Smear method	Automated thin smear

### On-device AI

Focusing	Multi-focus images acquired (5 z-stack layers)
Imaging	50x magnification Acquired max. of up to 300,000 RBCs
Species suggestions	<i>Plasmodium falciparum (P.f)</i> <i>Plasmodium vivax (P.v)</i> Positive results are suggested for other <i>Plasmodium</i> species upon infection.
Count	Suspected RBC, Total RBC
Parasiteria level	% Suspected RBC/ul
Stages suggestions	Ring/Trophozoite, Gametocyte, Schizont

### Convenient

Viewing Functions (miLab and miLab Viewer)	<ul style="list-style-type: none"> <li>• User Result Confirmation</li> <li>• Cell View (Species and Stages Classification and images download)</li> <li>• Field View</li> <li>• Cell Reclassification (Available from miLab Viewer)</li> <li>• Report (Available from miLab Viewer in PDF and Print-out)</li> </ul>
---	---

**With miLab™ Cartridge MAL, you can streamline your diagnostics process, ensure consistent and high-quality results, and achieve effective performance across diverse environments.**

Point-of-care diagnostic solution for malaria  
with the detection of malaria parasites  
using AI-based digital microscopy technology

1

Result  
Screen

Test result

Field images

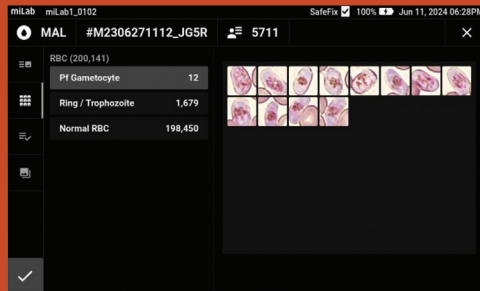
Parasiteria level

Slide ID

RBC images

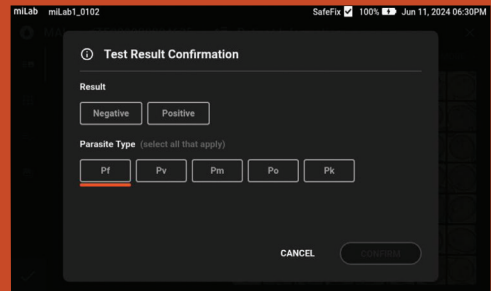
2

Cell Information



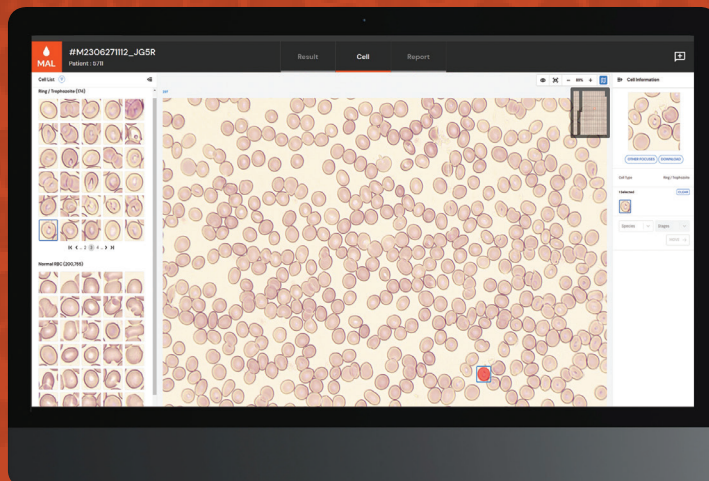
3

Parasite  
Type



4

Viewer  
Application  
Review



# miLab™ MAL

Cartridge

## MALARIA



## miLab™ Cartridge MAL: High-Accuracy Research Results

### A digital microscope for the diagnosis of *Plasmodium falciparum* and *Plasmodium vivax*, including *P. falciparum* with *hrp2/hrp3* deletion

[Ref: Ewnetu, Y., et al. (2024). PLOS Global Public Health]

#### Methods

- ✓ Tested on **659 suspected malaria patients in Ethiopia** and **991 in Ghana**.
- ✓ Performance compared with **local microscopy, expert microscopy, RDT, and qPCR**.

#### Results

- ✓ **Sensitivity:** 94.3% for *P. falciparum*, 97.0% for *P. vivax*
- ✓ **Specificity:** 94% for *P. falciparum*, 97.6% for *P. vivax*
- ✓ **Accuracy with *hrp2* Deletions:** Diagnosed **98.1%** of *P. falciparum* infections with *hrp2/hrp3* deletions
- ✓ Crucial for **accurate diagnosis in regions with gene deletions**

### Diagnosis of *Plasmodium* infections using artificial intelligence techniques versus standard microscopy in a reference laboratory

[Ref: Sanjai N, et al. (2024) Journal of Clinical Microbiology]

#### Methods

- ✓ Tested on **409 blood samples** submitted for malaria diagnosis across **five U.S. regions** (NC, SC, VA, MD, DC)
- ✓ Performance compared with **expert microscopy**

#### Results

- ✓ **Sensitivity & Specificity:** 100%
- ✓ **Low Parasitemia Detection:** Detected a *P. falciparum* infection missed by expert microscopy due to **extremely low parasitemia (<0.1%)**

The results in these studies are based on miLab™ MAL version 1.1. Performance has been further enhanced in version 1.2 (released in August 2024) and is expected to improve further in version 1.3, scheduled for release in July 2025.

## Ordering Information

Product Name	Model Name
miLab™ Platform	DMLA
miLab™ Cartridge MAL	CMAA
SafeFix™	CSFA



Contact  
noul Team

#### Global Headquarters

noul Co., Ltd.  
Email: [marketing@noul.com](mailto:marketing@noul.com)  
Phone: +82 31 893 6311  
Website: [noul.com](http://noul.com)



**Disclaimer:** This leaflet provides general information about noul Co., Ltd.'s products and is not intended as legal or regulatory advice. All product names and technologies mentioned are applicable only for approved uses per respective regulations. No warranty is provided for unapproved uses. Users are responsible for ensuring compliance with local regulatory requirements, and noul Co., Ltd. disclaims any liability arising from the use of the information provided.