J. MITRA
& CO. PVT. LTD.

DENGUE

A Continuing Global Threat.....

Dengue can be Diagnosed & CONFIRMED by:

ELISA RANGE:

NS1 ANTIGEN ELISA Test
Dengue NS1 Ag Microlisa

MAC ELISA Test
Dengue IgM Microlisa

GAC ELISA Test
Dengue IgG Microlisa

Tests also Available:

RAPID RANGE:

NS1 Antigen and IgM & IgG antibody Rapid Test
Dengue DAY1 Test

NS1 Antigen Rapid Test
Advantage Dengue NS1 Ag Card

FLUORESCENCE BASED TEST:

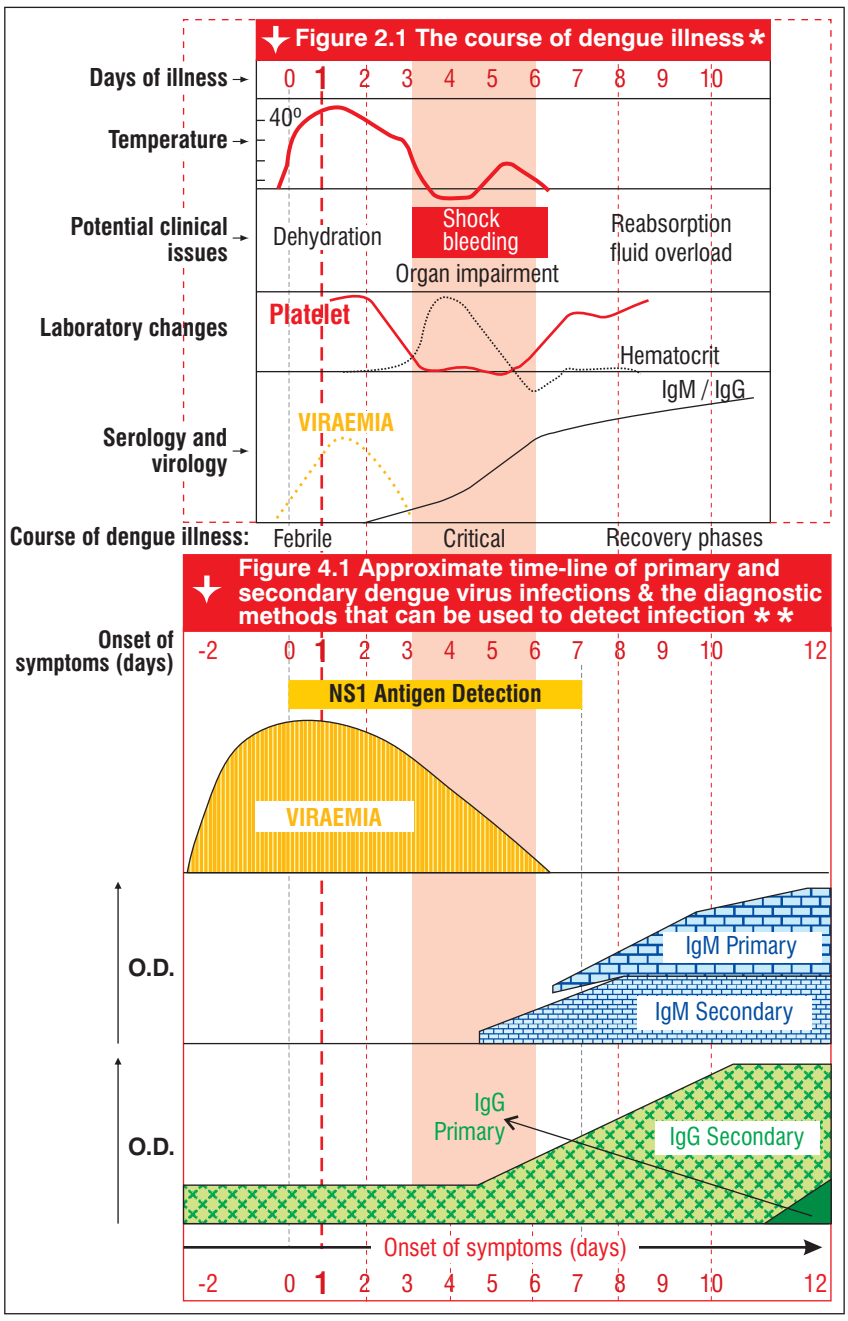
Dengue NS1 Antigen (FIA Test)
Dengue NS1 Ag Quanti Card

Dengue Antibody (FIA Test)
Dengue IgM Quanti Card
Dengue IgG Quanti Card

POCT TEST:

NS1 Antigen (FINGER PRICK) Test
Dengue NS1 Antigen FP

Dengue course of illness & approximate time-line of Primary and Secondary antibodies formation



Dengue is the most rapidly spreading mosquito-borne disease in the world. The key to handle dengue infection is its early recognition and understanding of the clinical problems during the different phases of the disease, leading to a rational approach to case management and good clinical outcome *(Figure 2.1)*.

Dengue infection is the systematic and dynamic disease. After the incubation period, the illness begins abruptly and is followed by the 3 phases - febrile, critical and recovery *(Figure 2.1)*.

NS1 ANTIGEN *(Figure 4.1)*

As can be observed from *Figure 4.1*, during early stage of disease, Antigen Detection can be used to diagnose the infection.

Detection of NS1 antigen is important for early and accurate diagnosis of dengue. NS1 Antigen can be detected from approximately Day 1 to Day 7 of fever setting in.

IgM ANTIBODIES *(Figure 4.1)*

Antibody response to infection differes according to the immune status of the host. In **primary infection**, IgM antibodies become detectable about 5-6 days after onset of disease. When the viremia declines, IgM level rises quickly to reach peak in about 2 weeks.

In **Secondary infection** IgM antibodies become detectable about 4-5 days and their levels are comparatively low.

IgG ANTIBODIES *(Figure 4.1)*

In **primary infection**, Antibody production of IgG will be at a lower level when compared to IgM. IgG antibodies are generally detectable at low levels in about 11-12 days and increase slowly and remain detectable after several months and probably even for life.

In **Secondary infection**, the IgG antibody level rises quickly reaching to peak in about 2 weeks after the onset of symptoms and may persists for years.

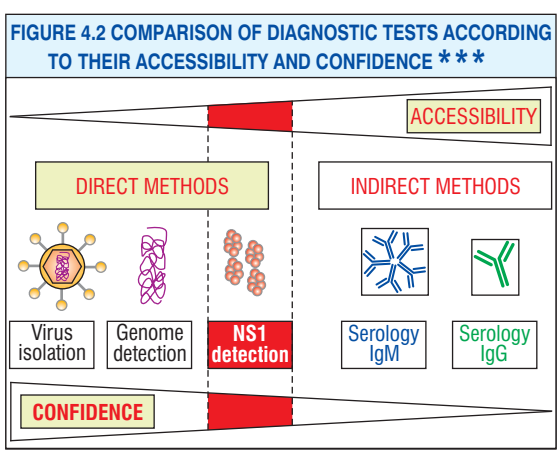
*source: Dengue Guidelines for Diagnosis, Treatment, Prevention & Control, New edition : 2009, WHO, Page No.: 25

**source: Dengue Guidelines for Diagnosis, Treatment, Prevention & Control, New edition : 2009, WHO, Page No.: 92
http://whqlibdoc.who.int/publications/2009/9789241547871_eng.pdf

NS1 Ag detection is the method of choice being the direct method and have a balance relationship, between the ease of use or accessibility of a diagnostic method and the confidence in the results of the test (Figure 4.2).

*** source: Dengue Guidelines for Diagnosis, Treatment, Prevention & Control, New edition: 2009, WHO, Page No.: 92
http://whqlibdoc.who.int/publications/2009/9789241547871_eng.pdf

For Educational Purpose only.



ELISA TEST

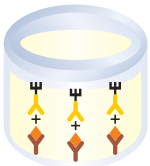
Dengue NS1 Ag Microlisa

Microwell ELISA Test for the Detection of
Dengue NS1 Antigen in Human Serum/ Plasma

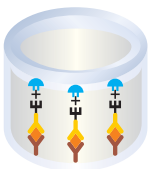
TEST PRINCIPLE

Microwells pre-coated with Anti-Dengue NS1 Antibodies

Binding of Dengue NS1 antigen with Anti-Dengue NS1 antibody



Addition of Anti-Dengue NS1 antibody linked to HRPO (Enzyme Conjugate)



Addition of Chromogenic Substrate

Addition of Stop Solution and final reading of results at 450 nm / 630 nm

anti-dengue NS1 antibody

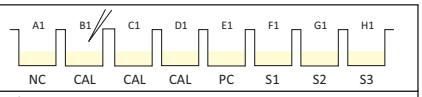
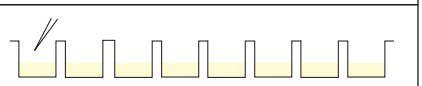
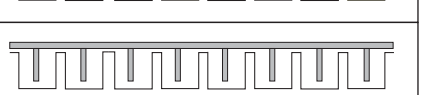
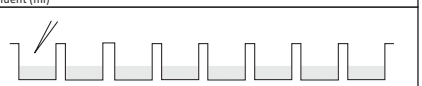
HRPO labelled anti-dengue Ns1 antibody

NS1 antigen in the sample

Chromogenic Substrate TMB

Stop Solution

TEST PROCEDURE

Add 50 µl diluent in each well. Add 50 µl NC in A1 well, 50µl calibrator in B1, C1 & D1well, add 50 µl PC in E1 well, and add 50 µl sample to F1 well onwards	
Prepare working conjugate solution	No. of strip 1 2 3 4 5 6 7 8 9 10 11 12 Enzyme Conjugate(µl) 20 40 60 80 100 120 140 160 180 200 220 240 Diluent (ml) 1 2 3 4 5 6 7 8 9 10 11 12
Add 100 µl working conjugate in each well	
Cover the plate and incubate for 90 min. at 37°C	
Wash 6 cycles	
Prepare working substrate solution	No. of strip 1 2 3 4 5 6 7 8 9 10 11 12 TMB Substrate (ml) 0.8 1.6 2.4 3.2 4.0 4.8 5.6 6.4 7.2 8.0 8.8 9.6 TMB Diluent (ml) 0.8 1.6 2.4 3.2 4.0 4.8 5.6 6.4 7.2 8.0 8.8 9.6
Add 150 µl working substrate in each well	
Incubate in dark for 30 min at room temperature. (20°C - 30°C)	
Add 100µl Stop Solution and read result at 450 nm/630 nm.	

- Direct test method for Detecting infection with Dengue NS1 Ag
- Excellent sensitivity against all the 4 serotypes of Dengue Virus Antigen
- Significant reduction of Window period
- Based on Direct Sandwich ELISA
- No sample dilution is required
- Long Shelf Life: 24 months at 2-8°C
- Color Coded reagent
- Convenient Packsize: 48 Tests & 96 Tests

Sensitivity: 99.5%

Specificity: 100%

Dengue IgM Microlisa

MAC ELISA (Capture Principle) Test for the Detection of Dengue IgM Antibodies in Human Serum/ Plasma

ELISA TEST

Dengue IgG Microlisa

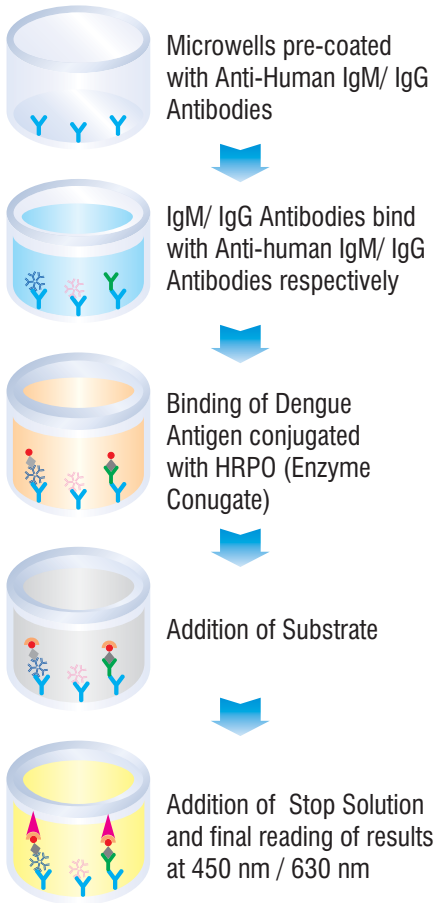
GAC ELISA (Capture Principle) Test for the Detection of Dengue IgG Antibodies in Human Serum/ Plasma

TEST PROCEDURE

Dilute sample (1:100) sample 10 µl + sample diluent 1000µl	
Add 100 µl control, calibrator & diluted sample in respective wells.	A1 B1 C1 D1 E1 F1 G1 H1 NC Cal Cal Cal PC S1 S2 S3
Cover the plate and incubate for 60 min. at 37°C	
Wash (5 cycles)	
Add 100 µl working conjugate in each well	
Cover the plate and incubate for 60 min. at 37°C	
Wash (5 cycles)	
Prepare working substrate solution	No. of strip 1 2 3 4 5 6 7 8 9 10 11 12 TMB 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 Substrate (ml). TMB 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 Diluent(ml).
Add 100 µl working substrate in each well	
Incubate in dark for 30 min at room temperature.	
Add 50 µl Stop Solution and read result at 450 nm/630 nm.	

*The Preparation of working substrate solution mentioned above in the table is suggestive only, however working substrate solution can be prepared in any amount proportionately as per requirement of tests to be performed (from 5 tests to 96 tests as 3 calibrator, 1 negative control and 1 positive control are to be included in each run).

TEST PRINCIPLE



Sensitivity: 99.13%

Specificity: 99.84%

- Principle : "**Advance Capture**" ELISA
- Enzyme Conjugate (Ready to use), liquid stable for 18 months, no wastage
- Excellent Sensitivity against all 4 serotypes of Dengue
- High signal to noise ratio
- Color Coded reagents to monitor procedural steps
- Long shelf Life: 18 months at 2-8^{0}C
- Unique Break-away wells
- Convenient Packsize: 48 Tests & 96 Tests

Sensitivity: 98.66%

Specificity: 99.93%

RAPID TEST

DENGUE DAY 1 TEST

Rapid visual test for the detection of Dengue NS1 Antigen and differential detection of IgM & IgG antibodies in Human Serum/ Plasma

- First-Line Testing Kit for Dengue diagnosis
- Rapid visual test for Dengue NS1 Antigen and IgM & IgG Antibodies detection
- Diagnosis of both Primary & Secondary Infection
- Detects all 4 serotypes of Dengue Virus
- Highly Sensitive & Highly Specific
- Long Shelf Life 24 months at 2-30°C
- Convenient Packsize: 10 Tests, 30 Tests & 50 Tests

Dengue NS1 Ag:
Sensitivity: 96% **Specificity: 98%**

Dengue IgM/IgG antibody:
Sensitivity: 95% **Specificity: 97%**

* Patented Device for Dengue NS1 Ag
** Patented Device for Dengue IgM & IgG Antibody Card

"Why Dengue DAY1 Test, Antigen & Antibody (Combi test) is more Reliable in Dengue Diagnosis"

Study highlights that **using dengue NS1 antigen detection in combination with IgM and IgG serology can significantly increase the sensitivity of acute dengue diagnosis** and extends the possible window of detection to include very early acute samples and enhances the clinical utility of rapid immunochromatographic testing for dengue.

Source : RESEARCH ARTICLE: The Diagnostic Sensitivity of Dengue Rapid Test Assays Is Significantly Enhanced by Using a Combined Antigen and Antibody Testing Approach
www.plosntds.org/article/info%3Adoi%2F10.1371%2Fjournal.pntd.0001199

POCT (Point of Care) TEST

DENGUE NS1 ANTIGEN FP

Finger Prick quick visual test for the detection of Dengue NS1 Antigen in Human Whole Blood/ Serum/ Plasma

Ideal test for
Physician's Clinic
&
Nursing Homes
for immediate results.

- **Point of Care Test (POCT)**
- Finger Prick quick visual test for detection of Dengue NS1 Antigen
- Results within 20 minutes
- From DAY1 of the fever, It detects all 4 serotypes of Dengue Virus
- Highly Sensitive & Highly Specific
- Individually pouched test device
- Longer Shelf Life: 24 Months At 2-30°C
- Patented Product: Patent No.: **262648**
- Prompt Service Backup
- Convenient Packsize: 10 Tests

FLUORESCENCE IMMUNOASSAY

iQuant Analyzer

Fluorescence Immunoassay (FIA)

Developed in partnership with HTIC, IIT Madras, India

Advanced Technology
Accurate Results
Affordable Price

DENGUE NS1 Ag
Quanti Card

Fluorescence immunoassay for qualitative detection of Dengue NS1 Antigen in Human Serum/ Plasma

- **Principle: Based on most advanced fluorescence immunoassay method**
- **Individually pouched test cartridge, each cartridge is precision engineered with embeded lot data.**
- **Results within 30 Minutes**
- **Sensitivity: 100%* & Specificity: 98.38%* (In comparison with ELISA Test)**
- **Long Shelf Life: 24 Months at 2-8°C**
- **Available Packsize: 24 & 48 Tests**

* Source: https://doi.org/10.20546/ijcmas.2017.611.061, Table-3, Page- 510

DENGUE IgM
Quanti Card

Fluorescence immunoassay for the qualitative measurement of Dengue IgM Antibodies in Human Serum/ Plasma

- **Principle: Based on most advanced fluorescence immunoassay method**
- **Individually pouched test cartridge, each cartridge is precision engineered with embeded lot data.**
- **Results within 40 Minutes**
- **Sensitivity: 96.72% & Specificity: 97.45% (In comparison with ELISA Test: Dengue IgM Microlisa)**
- **Long Shelf Life: 15 Months at 2-8°C**
- **Available Packsize: 24 & 48 Tests**

DENGUE IgG
Quanti Card

Fluorescence immunoassay for the qualitative measurement of Dengue IgG Antibodies in Human Serum/ Plasma

- **Principle: Based on most advanced fluorescence immunoassay method**
- **Individually pouched test cartridge, each cartridge is precision engineered with embeded lot data.**
- **Results within 40 Minutes**
- **Sensitivity: 97.23% & Specificity: 97.36% (In comparison with ELISA Test: Dengue IgG Microlisa)**
- **Long Shelf Life: 15 Months at 2-8°C**
- **Available Packsize: 24 & 48 Tests**

Also Connect with us on:

ISO 9001:2015 | ISO 13485:2016 ICMED 13485

For further enquiries, Please contact:
J. Mitra & Co. Pvt. Ltd.
A-180-181, Okhla Indl. Area, Phase-1, New Delhi - 110 020, INDIA
Tel: +91-11-47130300, 47130500
E-mail: jmitra@jmitra.co.in **Website :** www.jmitra.co.in

Specifications/ Designs are subjected to change without any obligation on the part of the Manufacturer

BR/DER/006 VER-02 R-00