

DENGUE

A Continuing Global Threat



Dengue can be diagnosed and confirmed by:



ELISA RANGE

- Dengue NS1 ANTIGEN ELISA Test
Dengue NS1 Ag Microlisa
- MAC ELISA Test
Dengue IgM Microlisa
- GAC ELISA Test
Dengue IgG Microlisa



RAPID RANGE

- Dengue NS1 Antigen and IgM & IgG antibody Rapid Test
Dengue DAY1 Test
- Dengue NS1 Antigen Rapid Test
Advantage Dengue NS1 Ag Card
- Dengue IgM & IgG Antibody Test
Diagnos Dengue Card



POCT TEST

- NS1 Antigen (FINGER PRICK) Test
Dengue NS1 Antigen Self Test



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



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Since 1969

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 differs 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.

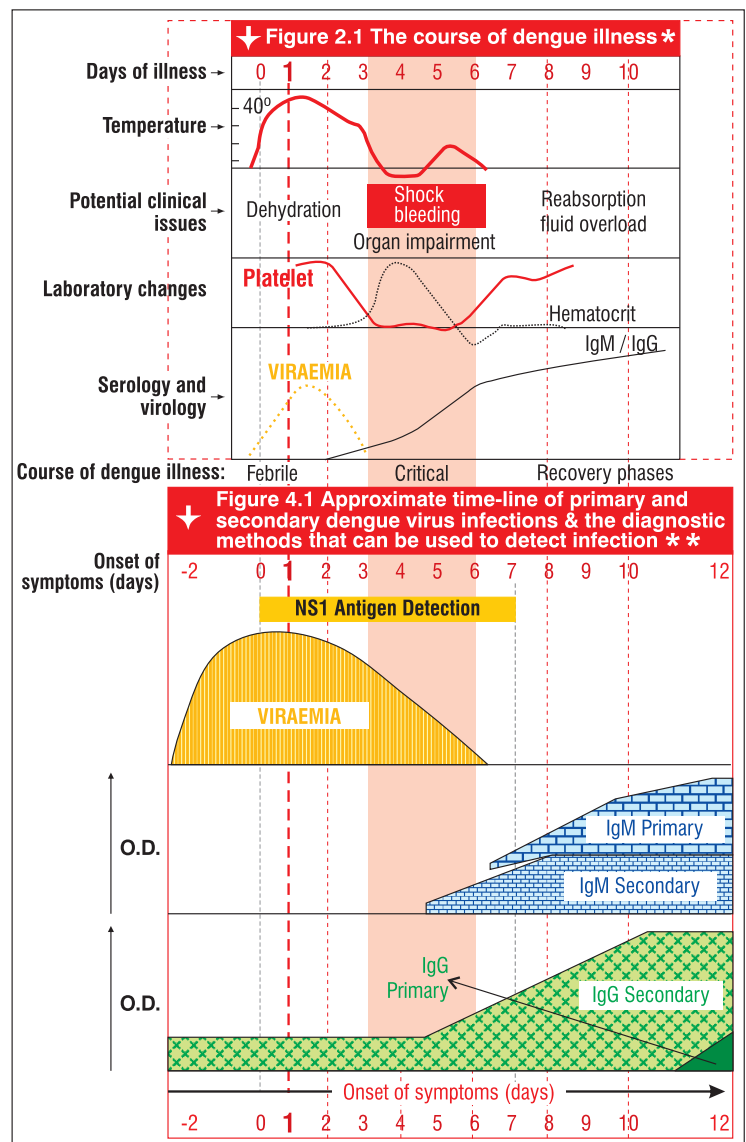
In Secondary infection IgM antibodies become detectable about 4-5 days and their levels are comparatively low.

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.

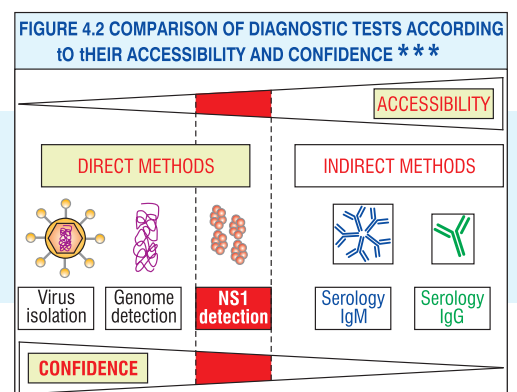
NS1 Ag detection is the method of choice being the direct method & have a balance relationship, between the ease of use or accessibility of a diagnostic method & the confidence in the results of the test (Figure 4.2).



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



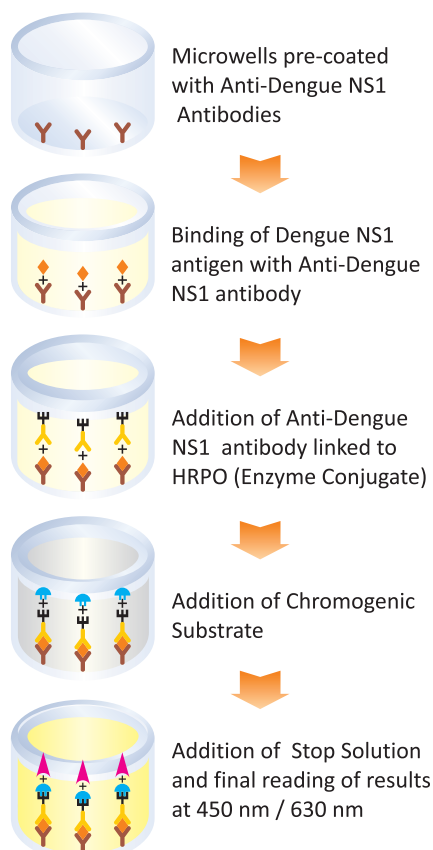
*** source: Dengue Guidelines for Diagnosis, Treatment, Prevention & Control, New edition: 2009, WHO, Page No.: 92 http://whqlibdoc.who.int/publications/2009/9789241547871_eng.pdf

For Educational Purpose only

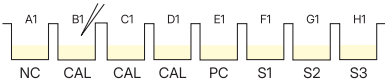
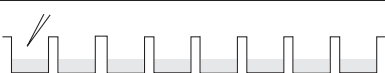
Dengue NS1 Ag Microlisa

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

TEST PRINCIPLE



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 enzyme conjugate solution (1:50)	<table><tr><td>No. of strip</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td></tr><tr><td>Enzyme</td><td>20</td><td>40</td><td>60</td><td>80</td><td>100</td><td>120</td><td>140</td><td>160</td><td>180</td><td>200</td><td>220</td><td>240</td></tr><tr><td>Conjugate(µl)</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Diluent (ml)</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td></tr></table>	No. of strip	1	2	3	4	5	6	7	8	9	10	11	12	Enzyme	20	40	60	80	100	120	140	160	180	200	220	240	Conjugate(µl)													Diluent (ml)	1	2	3	4	5	6	7	8	9	10	11	12													
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Wash 6 cycles																																																																		
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Diluent (ml)																																																																		
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.																																																																		

SALIENT FEATURES

- 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: 96 Tests



- Sensitivity: **99.5%**
- Specificity: **100%**



ELISA TEST

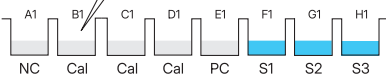
Dengue IgM Microlisa

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

Dengue IgG Microlisa

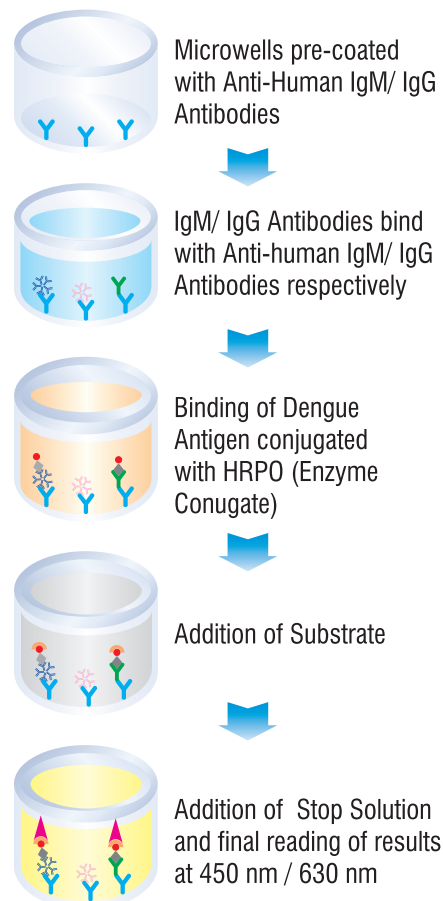
GAC ELISA (Capture Principle) Test for the Detection of Dengue IgG Antibodies in Human Serum/ Plasma

TEST PROCEDURE

Dilute sample (1:100) sample 10 μl + sample diluent 1000μl																																																																		
Add 100 μl control, calibrator & diluted sample in respective wells.																																																																		
Cover the plate and incubate for 60 min. at 37°C																																																																		
Wash (5 cycles)																																																																		
Add 100 μl Enzyme Conjugate (Ready to use) in each well																																																																		
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Prepare working substrate solution	<table><tr><td>No. of strip</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td></tr><tr><td>TMB</td><td>0.5</td><td>1.0</td><td>1.5</td><td>2.0</td><td>2.5</td><td>3.0</td><td>3.5</td><td>4.0</td><td>4.5</td><td>5.0</td><td>5.5</td><td>6.0</td></tr><tr><td>Substrate (ml).</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>TMB</td><td>0.5</td><td>1.0</td><td>1.5</td><td>2.0</td><td>2.5</td><td>3.0</td><td>3.5</td><td>4.0</td><td>4.5</td><td>5.0</td><td>5.5</td><td>6.0</td></tr><tr><td>Diluent(ml).</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>	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).												
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* 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



SALIENT FEATURES

- 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°C
- Unique Break-away wells
- Convenient Packsize: 96 Tests



Sensitivity: 99.13%

Specificity: 99.84%



Sensitivity: 98.66%

Specificity: 99.93%

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



Dengue NS1 Ag:

Sensitivity: 96% & Specificity: 98%

Dengue IgM/IgG antibody:

Sensitivity: 95% & Specificity: 97%

- 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 30 months at 2-30°C
- Convenient Packsize: 10 Tests, 30 Tests & 50 Tests

* 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.

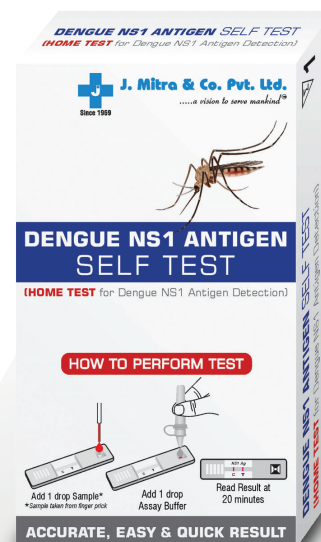
Source: RESEARCH ARTICLE: The Diagnostic Sensitivity of Dengue Rapid Test Assays Is Significantly Enhanced by Using a Combined Antigen and Antibody Testing Approach
www.plosntds.org/article/info%3Adoi%2F10.1371%2Fjournal.pntd.0001199

POCT (Point of Care) TEST

DENGUE NS1 ANTIGEN SELF TEST

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

- Rapid, Visual, Home test for qualitative detection of Dengue NS1 antigen detection in human whole blood/serum/plasma.
- Finger prick sample can be used.
- Single test pack.
- All material to perform the test & its disposal are provided with the kit.
- Based on Sandwich principle.
- Detection of Dengue in Seronegative stage i.e. from Day 1 of fever.
- Detection of all 4 serotypes of dengue virus.
- Reliable diagnosis of both primary and secondary infection.
- Excellent Sensitivity & Specificity: 100% NIMR evaluated.
- Shelf life: 30 months at 2-30 °C.



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 embedded 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 Tests

*Source: <https://doi.org/10.20546/ljcmas.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 embedded lot data.
- **Results:** Within 40 Minutes
- **Sensitivity:** 96.72% & **Specificity:** 97.45% (In comparison with ELISA Test: Dengue IgM Microlisa)
- **Long Shelf Life:** 24 Months at 2-8°C
- **Available Packsize:** 24 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 embedded lot data.
- **Results:** Within 40 Minutes
- **Sensitivity:** 97.23% & **Specificity:** 97.36% (In comparison with ELISA Test: Dengue IgG Microlisa)
- **Long Shelf Life:** 24 Months at 2-8°C
- **Available Packsize:** 24 Tests



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