

## DENGUE ANTIGENS AND ANTIBODIES

Meridian Life Science, Inc. (MLS) is an industry leader in the commercial production of critical raw materials for the diagnostic market. MLS is pleased to introduce a new Dengue virus product line for diagnostic applications.

Approximately 2.5 billion people, 40% of the world's population, live in areas where there is a risk of dengue transmission. Dengue is endemic in at least 100 countries in Asia, the Americas, Africa and the Caribbean.

### YEARLY ESTIMATES INCLUDE:

50 – 100 million infections | 500,000 Dengue Hemorrhagic Fever cases | 22,000 deaths, mostly in children

### DENGUE NEWS BITES...

Dengue vectors that are responsible for the transmission of Dengue to humans, and are found worldwide, are the mosquito species:



*Aedes aegypti* | *Aedes albopictus*

Originating in monkeys, the four dengue viruses jumped to humans in Africa or Southeast Asia between 100 and 800 years ago. Dengue remained a relatively minor geographically restricted disease until the middle of the 20th century. It is thought that the transport of cargo containers with *Aedes* mosquitoes during World War II resulted in the dissemination of the viruses.

Transmission occurs when the mosquito feeds on an infected human during a 5-day period when large amounts of virus are in the blood. This 5-day period is prior to the evidence of clinical symptoms. Once the mosquito becomes infected, the virus will require 8 to 12 days to incubate before it can be transmitted to another human. The mosquito will continue to transmit the virus for the remainder of its life – a few days to a few weeks.

### IMMUNOLOGICAL RESPONSE ...

A primary dengue infection is characterized by the presence of virus during the acute phase - first 5 to 7 days post-onset of clinical symptoms. IgM appears first at about day 5 and IgG is detectable at low titer at the end of the first week of illness and slowly increases.

In contrast, during a secondary dengue infection, high levels of IgG are detectable in the acute phase and rise quickly over the next two weeks. IgM response is low.<sup>2</sup>

For more information about MLS product offerings including pricing and availability, please contact us at [info@meridianlifescience.com](mailto:info@meridianlifescience.com).

<sup>1</sup> <http://www.cdc.gov/dengue/epidemiology/index.html>

<sup>2</sup> <http://www.cdc.gov/dengue/clinicalLab/laboratory.html>

In rare cases, Dengue is also transmitted through:

Organ transplants | Blood transfusion  
Placenta to fetus in utero

In many parts of the tropics and subtropics dengue is endemic, usually when rainfall is optimal for the breeding of the *Aedes* mosquito. These areas are also at risk for epidemics.

The Dengue virus is a small single-stranded RNA virus comprising of four distinct viruses also referred to as serotypes:

Dengue Type 1 | Type 2 | Type 3 | Type 4

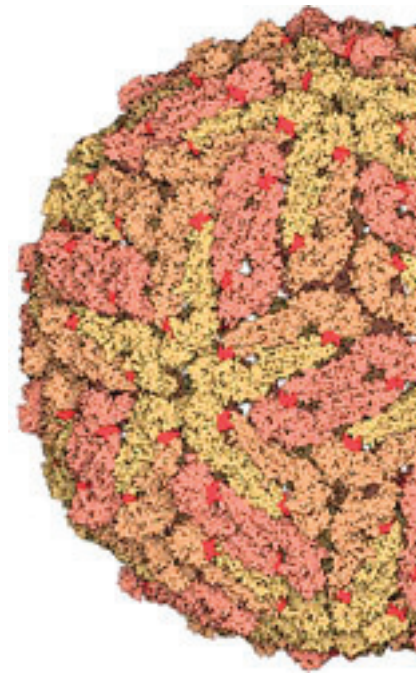
These closely related serotypes of the dengue virus belong to the genus *Flavivirus*, family *Flaviviridae*. The virus consists of 7 Nonstructural (NS) proteins and 3 structural proteins:

Capsid (C) | Envelope (E)  
prM, Precursor of Membrane (M) protein

Infection with one serotype does not protect against the others.<sup>1</sup>

**RECOMBINANT DENGUE ANTIGENS:**

MLS CATALOG #	SPECIFICITY	TESTED APPLICATIONS
R01442	Type 1, Envelope (E) Domain III (12 kDa)	EIA
R01445	Type 2, Envelope (E) Domain III (12 kDa)	EIA
R01449	Type 3, Envelope (E) Domain III (12 kDa)	EIA
R01452	Type 4, Envelope (E) Domain III (12 kDa)	EIA
R01441	Type 1, Envelope (E) (22 kDa)	EIA
R01470	Type 1, Envelope (E) (32 kDa)	EIA, LF
R01471	Type 1, Envelope (E) (43 kDa)	EIA, LF
R01444	Type 2, Envelope (E) (22 kDa)	EIA
R01472	Type 2, Envelope (E) (32 kDa)	EIA, LF
R01473	Type 2, Envelope (E) (43 kDa)	EIA, LF
R01431	Type 2, Envelope (E) N-terminal	-
R01448	Type 3, Envelope (E) (22 kDa)	EIA
R01474	Type 3, Envelope (E) (32 kDa)	EIA, LF
R01475	Type 3, Envelope (E) (43 kDa)	EIA, LF
R01451	Type 4, Envelope (E) (22 kDa)	EIA
R01476	Type 4, Envelope (E) (32 kDa)	EIA, LF
R01477	Type 4, Envelope (E) (43 kDa)	EIA, LF
R01443	Type 1, NS1 Protein	-
R01447	Type 2, NS1	-
R01432	Type 2, NS1 Protein	-
R01446	Type 2, N-terminus of NS1 (NS1n)	-
R01450	Type 3, NS1 Protein	-
R01453	Type 4, NS1 Protein	-

**NATIVE DENGUE ANTIGEN:**

MLS CATALOG #	SPECIFICITY	TESTED APPLICATIONS
R02220	Type 2 (Strain 16681)	EIA

**DENGUE MONOCLONAL ANTIBODIES:**

MLS CATALOG #	SPECIFICITY	TESTED APPLICATIONS
C01551M	Type 2, Envelope	-
C03045M	Types 1,2,3,4	DB, EIA, IFA

**DENGUE POLYCLONAL ANTIBODIES:**

MLS CATALOG #	SPECIFICITY	TESTED APPLICATIONS
B03504R	Types 1,2,3,4	DB, EIA, IFA

DB - Dot Blot EIA - ELISA IFA - Immunofluorescence Assay LF - Lateral Flow