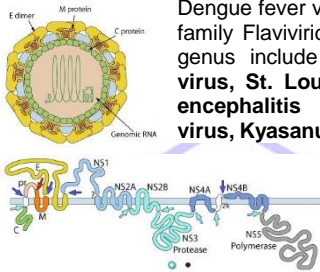


**Dengue Virus Vaccines Antibody ELISA Kits, Recombinant Proteins, Peptides and Antibodies**

**Dengue fever**, also known as **break bone fever**, is an infectious tropical disease caused by the dengue virus. Dengue symptoms include fever, headache, muscle and joint pains, and a characteristic skin rash that is similar to measles. Dengue is transmitted by several species of **mosquito** within the genus *Aedes*, principally *A. aegypti*. The virus has four different but related types (**DENV1-4**); infection with one type usually gives lifelong immunity to that type, but only short-term immunity to the others. Subsequent infection with a different type increases the risk of severe complications. There are up to **100 million cases of dengue fever worldwide** every year; the most common occurrences are in urban parts of subtropical and tropical areas, such as Central and South America, parts of Africa, parts of Asia, the Caribbean and the Pacific.

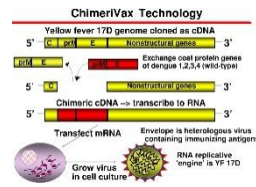


Dengue fever virus (**DENV**) is an RNA virus of the family *Flaviviridae*. Other members of the same genus include **yellow fever virus, West Nile virus, St. Louis encephalitis virus, Japanese encephalitis virus, tick-borne encephalitis virus, Kyasanur forest disease virus, and Omsk hemorrhagic fever virus**. The dengue virus genome code for the three structural proteins (**C, prM and E**) that form the virus particle and seven nonstructural proteins (NS1-NS5) that are

only found in infected host cells and are required for replication of the virus. The **diagnosis** of dengue is typically made clinically, on the basis of reported symptoms and physical examination; this applies especially in endemic areas. Additional lab tests include cell culture, **PCR**, and antibody detection by **ELISA**.

**Anima models for dengue research-** Humans, some NHP, and mosquitoes are the only natural hosts. DENV replicates in NHP but does not cause disease. Immunodeficient mouse models (AG129, IFN $\alpha/\beta$  and IFN $\gamma$  receptor deficient) exist but do not fully replicate human disease.

**Dengue Vaccines:** Approximately, **~400 million dengue infection** are reported every year. Vaccine development has been difficult due to the presence multiple dengue serotypes (DV1-4). Ideally, Dengue vaccine should provide protection from all serotypes. Several vaccine candidates are in development including **live attenuated, inactivated, DNA and subunit vaccines**. Live attenuated vaccine candidates are the furthest along in development. **Dengvaxia** (Sanofi), approved in 2015 (ChimeriVax, CYD-TDV) is a live attenuated tetravalent chimeric vaccine made using recombinant DNA



technology by replacing the **PrM (pre-membrane) and E (envelope)** structural genes of the yellow fever attenuated 17D strain vaccine with those from four of the five dengue serotypes. It incorporates nonstructural genes of yellow fever virus. Vaccine efficacy varied by serotypes (50-80%).

**Dengue Vaccines in clinical trials:** **DENVax** is a tetravalent, live-attenuated and recombinant vaccine candidate, combining nonstructural genes of serotype 2 with structural genes of serotypes 1, 3 and 4. **TetraVax-DV** is a tetravalent admixture of monovalent vaccines that were tested separately for safety and immunogenicity. **TDEN PIV** is a tetravalent vaccine is inactivated and purified, so that the genes of each serotype are not altered like V180, making it easier to produce. **V180** is a tetravalent recombinant subunit vaccine (Wild typed prM and truncated envelope protein) expressed in *Drosophila* cells. **DIME100** is recombinant subunit vaccines expressing Prm and envelope proteins of DENV1 under control of the human cytomegalovirus promoter/ enhancer of the plasmid vector VR1012. **TV003/TV005:** The NIH construct includes full-length wild type DENV-1, DENV-3 and DENV-4 viruses that are attenuated by 30 nucleotide deletions in the 3' untranslated region, except DENV-3 which has an additional 31 nucleotide deletion in this region. The DENV-2 component of the vaccine is a chimeric virus with the prM and E proteins of wild type DENV-2 replacing those of DENV-4 in the DEN4 30 background.

**About ADI's Dengue virus antibody ELISA kits-** ADI has made recombinant dengue virus proteins (Capsid, Env, prM, and NS1), raised antibodies, and develop various ELISA kits to monitor the efficacy of various dengue vaccines. Most of the dengue vaccines are targeting the structural proteins (**prM and Env**), whereas others also have non-structural proteins as the active vaccine component. Therefore, it is necessary to pay attention to the vaccine design to determine how to determine the efficacy of the vaccines. For example, **Dengvaxia** vaccine efficacy should be tested by measuring the antibody titer of dengue prM and Env proteins in naïve and vaccinated individuals. Dengvaxia vaccine utilizes the YFV backbone. Therefore, it may help to determine the basal level of YFV antibodies to prM and Env and the non-structural protein NS1. High levels of YFV or other flaviviruses antibodies in naturally infected or vaccinated individuals may reduce the DengVaxia efficacy. The presence of Dengue NS1 antibodies in an individual may serve to distinguish naturally infected from the vaccinated ones (DIVA test).

**Dengues Vaccine Related ELISA kits**

(See Details at the website) [http://4adi.com/commerce/catalog/spcategory.jsp?category\\_id=2742](http://4adi.com/commerce/catalog/spcategory.jsp?category_id=2742)

Virus	Target Antigens	ELISA Type	Ab Type	Human	Mouse	Monkey
Dengue	Whole virus	Ab	IgG	540-010-DHG		
			IgM	540-015-DHM		
	DV1/Env	Ab	IgG	540-100-ENG	540-110-ENG	540-120-ENG
	DV2/Env	Ab	IgG	540-200-ENG	540-210-ENG	540-220-ENG
	DV3/Env	Ab	IgG	540-300-ENG	540-310-ENG	540-320-ENG
	DV4/Env	Ab	IgG	540-400-ENG	540-410-ENG	540-420-ENG
	DV1/Prm	Ab	IgG	540-160-PRG	540-170-PRG	540-180-PRG
	DV2/Prm	Ab	IgG	540-260-PRG	540-270-PRG	540-280-PRG
	DV3/Prm	Ab	IgG	540-360-PRG	540-370-PRG	540-380-PRG
	DV1/Prm	Ab	IgG	540-460-PRG	540-470-PRG	540-480-PRG
	DV1+2+3+4 (Combo) Env	Ab	IgG	540-500-CEN	540-510-CEN	540-520-CEN
DV1+2+3+4 (Combo) Prm	Ab	IgG	540-560-CPR	540-570- CPR	540-580- CPR	

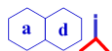
**Dengues Vaccine Related ELISA kits**

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Type#	Catalog#	Product Description	Product Type
Dengue Type 1 (DV1)	DV1P15-P-100	Dengue Virus Type 1 prM synthetic peptide (>95%, no tag) for ELISA	Synthetic Protein
	DV1NS11-A	Dengue Virus Type 1 NS1 protein IgG, Aff pure	Antibodies
	DV1E31-M	Mouse Monoclonal Anti-Dengue Virus Type 1 ED3 (domain III) protein IgG	Antibodies
	DV1NS12-M	Mouse Monoclonal Anti-Dengue Virus Type 1 NS1 protein IgG	Antibodies
	DV1P11-A	Dengue Virus Type 1 prM IgG, Aff pure	Antibodies
	RP-1594	Recomb (E. coli) Dengue Type 1 E Antigen (DENV-E), (>95% 45 kda, no tag)	Recomb. Protein
	RP-1601	Recomb (insect cells) Dengue NS1 Type 1 protein (>95%, his-tag, ~45 kda)	Recomb. Protein
	RP-1602	Recomb (E.Coli) Dengue Type 1 envelop (domain I + II) protein (>95%, his-tag, ~32 kda)	Recomb. Protein
	RP-1605	Recomb (E.Coli) Dengue Virus Type 1 envelop protein (D-III) (>95%, ~15 kda, his-tag)	Recomb. Protein
	RP-1608	Recomb (E.Coli) Dengue Type 1 envelop N-terminus immunodominant regions (>95%, ~22 kda, his-tag)	Recomb. Protein
Dengue Type 2 (DV2)	RP-344	Recomb Dengue Virus Type 1 NS3 protein (29-79 aa)	Recomb. Protein
	AB-14310	Mouse Anti-Dengue Virus Type 2 envelop IgG, aff pure	Antibodies
	AB-21123	Monoclonal Anti-Dengue Virus Type 2, NS1 IgG	Antibodies
	DV2C11-A	Anti-Dengue Virus Type 2, capsid protein IgG	Antibodies
	DV2C15-R-10	Recomb (E.coli) Dengue type 2 Capsid Protein (New Guinea C, 1-118 aa, ~14 kda, his-tag)	Rec. Protein
	DV1P25-P-100	Dengue Virus Type 2 prM synthetic protein (>95%, no tag) for ELISA	Synthetic Protein
	DV2E21-M	Mouse Monoclonal Anti-Dengue Virus Type 2 Envelop protein IgG	Antibodies
	DV2NS21-A	Dengue Virus Type 2 NS1 protein IgG, Aff pure	Antibodies
	DV2NS22-M	Mouse Monoclonal Anti-Dengue Virus Type 2 NS1 protein IgG	Antibodies
	DV2P21-A	Dengue Virus Type 2 prM IgG, Aff pure	Antibodies
	DV2P22-A	Dengue Virus Type 2 prM peptide (1-91aa) IgG, Aff pure	Antibodies
	RP-1607	Recomb (E. Coli) Dengue Type 2 NS1 protein (>95%, ~45 kda, his-tag)	Recomb. Protein
	RP-1595	Recomb (E. coli) Dengue Type 2 Env Antigen (CT DIII, 15 kda) (>95%, his-tag)	Recomb. Protein
	RP-1598	Recomb. (E. coli) Dengue Type 2 (and epitopes for type 1, and 3) E Antigen (DENV E) (23 kda, >95% pure)	Recomb. Protein
	RP-1620	Recomb. (E. coli) Dengue Virus Type 2 NS1 protein (>95%, his-tag)	Recomb. Protein
	RP-1639	Recomb. (E. coli) Dengue Virus Type 2 prM protein (>95%, 18 kda, his-tag)	Recomb. Protein
	RP-1641	Recomb. (E. coli) Dengue Virus Type 2 envelop protein (>95%, 43-413aa, ~45 kda, his-tag)	Recomb. Protein
	RP-1644	Recomb. (E.Coli) Dengue Type 2 envelop (domain I + II) protein (>95%, his-tag, ~32 kda)	Recomb. Protein
	RP-1647	Recomb. (sf9) Dengue type 2 Envelope Protein (New Guinea ECD 247-675aa, ~50 kda, his-tag, low endotoxin)	Recomb. Protein
	RP-345	Recomb. (E.Coli) Dengue Virus 2 NS1 c-end (>95%, C-terminal regions ~122 aa, his-tag)	Recomb. Protein
RP-346	Recomb. (E. Coli) Dengue Virus 2 NS1 protein (>95%, N-terminal regions, his-tag)	Recomb. Protein	
SP-100796-1	2A/2B Dengue Protease Substrate [Ac-Arg-Thr-Ser-Lys-Lys-Arg- pNA; MW: 937.08]	Pure Peptide	
SP-100797-1	2B/3, Dengue Protease Substrate [Ac-Glu-Val-Lys-Lys-Gln-Arg- pNA; MW: 949.09]	Pure Peptide	
Dengue Type 3 (DV3)	DV1P35-P-100	Dengue Virus Type 3 prM synthetic peptide (>95%, no tag) for ELISA	Synthetic Protein
	DV3P31-A	Dengue Virus Type 3 prM IgG, Aff pure	Antibodies
	DV3NS31-A	Dengue Virus Type 3 NS1 protein IgG, Aff pure	Antibodies
	DV3NS32-M	Mouse Monoclonal Anti-Dengue Virus Type 3 NS1 protein IgG	Antibodies
	DV4P41-A	Dengue Virus Type 4 prM IgG, Aff pure	Antibodies
	RP-1596	Recomb. (E. coli) Dengue Type 3 E Antigen (DENV-E), antigen grade (>95%, 15 kda, no tag)	Recomb. Protein
	RP-1600	Recomb. (E. Coli, his-tag) Dengue Type 3 NS1 protein (>95%, his-tag, ~45 kda)	Recomb. Protein
	RP-1642	Recomb. (E. coli) Dengue Virus Type 3 envelop protein (>95%, ~45 kda, his-tag)	Recomb. Protein
	RP-1645	Recomb. (E.Coli) Dengue Type 3 envelop (domain I + II) protein (>95%, his-tag, ~32 kda)	Recomb. Protein
	RP-1646	Recomb. (E.Coli) Dengue Type 3 envelop (domain I + II) protein (>95%, his-tag, ~32 kda)	Recomb. Protein
	SP-100800-1	3/4A, Dengue Protease Substrate [Ac-Phe-Ala-Ala-Gly-Arg-Lys- pNA; MW: 810.9]	Pure Peptide
	RP-1603	Recomb. (E.Coli) Dengue Virus Type 3 envelop protein (D-III) (>95%, ~15 kda, his-tag)	Recomb. Protein
Dengue Type 4 (DV4)	DV1P45-P-100	Dengue Virus Type 4 prM synthetic peptide (>95%, no tag) for ELISA	Synthetic Protein
	DV4NS41-A	Dengue Virus Type 4 NS1 protein IgG, Aff pure	Antibodies
	DV4NS42-M	Mouse Monoclonal Anti-Dengue Virus Type 4 NS1 protein IgG	Antibodies
	RP-1597	Recomb. (E. coli) Dengue Type 4 E Antigen (DENV-E) (>95%, 15 kda, no tag)	Recomb. Protein
	RP-1599	Recomb. (E. Coli, his-tag) Dengue Type 4 NS1 protein (>95%, his-tag, ~45 kda)	Recomb. Protein
	RP-1604	Recomb. (E.Coli) Dengue Virus Type 4 envelop protein (D-III) (>95%, ~15 kda, his-tag)	Recomb. Protein
	RP-1606	Recomb. (E.Coli) Dengue Type 1+2+3+4 Envelop immunodominant regions (>95%, ~22 kda, his-tag)	Recomb. Protein
RP-1643	Recomb. (E. coli) Dengue Virus Type 4 envelop protein (>95%, ~45 kda, his-tag)	Recomb. Protein	
DV1-4	AB-21120	Anti-Dengue Type 1-4 viruses antisera	Antibodies
	AB-21121	Monoclonal Anti-Dengue Virus Type 1-4 (pan, E antigen) IgG, culture medium	Recomb. Protein
	AB-21122-1	Monoclonal Anti-Dengue Virus Type 1-4 (pan, NS1) IgG	Antibodies
	AB-21122-2	Monoclonal Anti-Dengue Virus Type 1-4 (pan, NS1) IgG, clone 2 (pairs with clone 1)	Antibodies

Dengue\_Vaccine\_Flr

Rev. 160621A



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