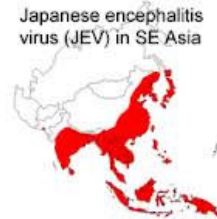
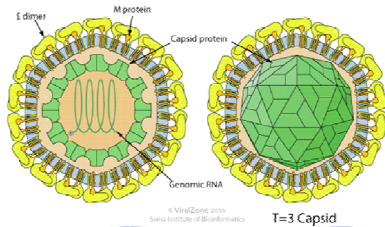


Japanese Encephalitis Virus (JEV) Vaccines: Antibody ELISA Kits, Recombinant Proteins, and Antibodies

Japanese encephalitis—previously known as Japanese B encephalitis to distinguish it from von Economo's A encephalitis—is a disease caused by the mosquito-borne Japanese encephalitis virus. The Japanese encephalitis virus is a virus from the family Flaviviridae. Domestic pigs and wild birds are reservoirs of the virus; transmission to humans may cause severe symptoms. One of the most important vectors of this disease is the mosquito *Culex tritaeniorhynchus*. This disease is most prevalent in Southeast Asia and the Far East. Japanese encephalitis has an incubation period of 5 to 15 days and the vast majority of infections are asymptomatic: only 1 in 250 infections develop into encephalitis. Severe rigors mark the onset of this disease in humans. Fever, headache and malaise are other non-specific symptoms of this disease which may last for a period of between 1 and 6 days. Signs which develop during the acute encephalitic stage include neck rigidity, cachexia, hemiparesis, convulsions and a raised body temperature between 38 and 41 degrees Celsius. Mental retardation developed from this disease usually leads to coma. Mortality of this disease varies but is generally much higher in children. The causative agent Japanese encephalitis virus is an enveloped virus of the genus flavivirus; it is closely related to the West Nile virus and St. Louis encephalitis virus. Positive sense single stranded RNA genome is packaged in the capsid, formed by the capsid protein. The outer envelope is formed by envelope (E) protein and is the protective antigen. Japanese Encephalitis is diagnosed by detection of antibodies in serum and CSF (cerebrospinal fluid) by ELISA.



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protective antigen. It aids in entry of the virus to the inside of the cell. The genome also encodes several nonstructural proteins also (NS1, NS2a, NS2b, NS3, NS4a, NS4b, NS5). NS1 is produced as secretory form also. NS3 is a putative helicase, and NS5 is the viral polymerase. It has been noted that the Japanese encephalitis virus (JEV) infects the lumen of the endoplasmic reticulum (ER) and rapidly accumulates substantial amounts of viral proteins for the JEV. Japanese Encephalitis is diagnosed by detection of antibodies in serum and CSF (cerebrospinal fluid) by IgM capture ELISA. Viral antigen can also be shown in tissues by indirect fluorescent antibody staining.

Infection with JEV confers life-long immunity. All current vaccines are based on the genotype III virus. Two kinds of JEV vaccines were made available. One of them was an inactivated mouse brain-derived vaccine (the Nakayama and/or Beijing-1 strain), made by BIKEN and marketed by Sanofi Pasteur as JE-VAX, until production ceased in 2005. The other was an inactivated vaccine cultivated on primary hamster kidney cells (the Beijing-3 strain). The Beijing-3 strain was the main variant of the vaccine used in the People's Republic of China from 1968 until 2005. Three **second-generation vaccines** have entered markets since then: SA14-14-2, IC51 and ChimeriVax-JE. The live-attenuated SA14-14-2 strain was introduced in China in 1988. It is much cheaper than alternative vaccines, and is administered to 20 million Chinese children each year. A purified, formalin-inactivated, whole virus vaccine known as IC51 (marketed in Australia and New Zealand as JESPECT and elsewhere as **IXIARO**) was licensed for use in the United States, Australia, and Europe during the spring of 2009. It is based on a SA14-14-2 strain and cultivated in Vero cells. Another vaccine, a live-attenuated yellow fever-Japanese encephalitis chimeric vaccine known as **ChimeriVax-JE** (marketed as **IMOJEV**) was licensed for use in Australia in August 2010. China licensed a live attenuated vaccine in 1988 and more than 200 million doses have been given; this vaccine is available in Nepal, Sri Lanka, South Korea and India. There is also a new chimeric vaccine based on the yellow fever 17D vaccine that is currently under development. Recombinant envelop protein-based vaccines are also being developed.

ADI's JEV vaccine ELISA utilizes highly purified recombinant JEV virus glycoprotein as the antigen to capture anti-JEV Ig's. This kit is designed to detect anti-JEV Ig's (IgG, IgM or other isotypes). It remains to be determined if any of the current JEV vaccines induced antibodies to the JEV glycoprotein paving the way to produce new generation of recombinant vaccines. These kits will also help determine the efficacy of various existing vaccines and test new vaccines. ADI is further expanding the antibody ELISAs to measure IgG (and IgG1, IgG2a, IgG3, IgG4) and IgM classes.

JEV Vaccine Related ELISA kits

Items Description	Species	Antibody Type Ig's (G+A+M) Cat#	Antibody Type IgG Cat#	Antibody Type IgM Cat#
JEV Vaccine (Nucleoprotein) Antibody ELISA kits	Human		910-160-JEM	910-170-JEM
	Mouse	910-100-JEM	910-1-120-JEM	540-120-JEM
	Rabbit		910-140-JEM	910-150-JEM

JEV Vaccine Related Antibodies kits

Item	Catalog#	Product Description	Product Type
JEV proteins and antibodies	JEV15-R-10	Recombinant Japanese Encephalitis Virus (JEV) envelop protein E (full length)	Pure protein
	RP-1435	Recombinant Japanese Encephalitis Virus (JEV) gE immunodominant regions	Pure protein

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