

Virus Name: Ketapang		Abbreviation: KETV
Status Probable Arbovirus	Select Agent No	SALS Level 2
SALS Basis Results of SALS surveys and information from the Catalogue.		
Other Information		
Antigenic Group Bakau		

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation MM 2549	Accession Number	Original Date Submitted 1/25/1985
Family Bunyaviridae	Genus Bunyavirus-like	
Information From Elisberg/Buescher	Address Dept. of Virus Diseases, WRAIR, Washington, D.C. 20012	
Information Footnote Reviewed by editor		

Section II - Original Source

Isolated By (name) US Army Med. Res. Unit (1)	Isolated at Institute Kuala Lumpur, Malaya	
Host Genus Culex (Lophoceraomyca) spp.	Species	Host Age/Stage Adult
Sex Female		
<u>Isolated From</u>	<u>Isolation Details</u>	
Signs and Symptoms of Illness	Arthropod	
Time Held Alive before Inoculation 48 hours		
Collection Method From human subjects	Collection Date 4/25/1956	
Place Collected (Minimum of City, State, Country) Rantau Panjang, Malaya, Malaysia		
Latitude 3° 3' N	Longitude 101° 23' E	
Macrohabitat Coastal Nipah palm-mangrove swamp	Microhabitat Small clearing in swamp; remote from human habitation	Method of Storage until Inoculated Mosquitoes kept alive 48 hours
Footnotes		

Section III - Method of Isolation

Inoculation Date
4/27/1956

Animal (Details will be in Section 6)
nb mice

Route Inoculated Intracerebral	Reisolation Yes
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Other Reasons
No identical strain in laboratory at time of original isolation

Homologous Antibody Formation by Source Animal

Test(s) Used

Footnotes

Section IV - Virus Properties

Physicochemical

Pieces (number of genome segments)	Infectivity	Sedimentation Coefficients(s) (S)
Percentage wt, of Virion Protein	Lipid	Carbohydrate
Virion Polypeptides: Number	Details	
Non-virion Polypeptides: Number	Details	
Virion Density	Sedimentation Coefficients(s) (S)	
Nucleocapsid Density	Sedimentation Coefficients(s) (S)	

Stability of Infectivity (effects)

pH (infective range)

Lipid Solvent (ether - % used to test)	After Treatment Titer	Control Titer
Lipid Solvent (chloroform) 1:20	After Treatment Titer <3.6 dex	Control Titer 7.1 dex
Lipid Solvent (deoxycholate) 1:1000	After Treatment Titer 4.4 dex	Control Titer 7.6 dex
Other (formalin, radiation)		

Virion Morphology

Shape	Dimensions	
Mean nm	Range nm	
Measurement Method	Surface Projections/Envelope	Nucleocapsid Dimensions, Symmetry

Morphogenesis

Site of Constituent Formation in Cell

Site of Virion Assembly

Site of Virion Accumulation

Inclusion Bodies

Other

Hemagglutination

Hemagglutination

Antigen Source

Erythrocytes (species used)

Yes**SM serum ext. by acetone-ether****Chick**

pH Range

pH Optimum

5.6-6.4**5.6**

Temperature Range

Temperature Optimum

4dC, 27dC and 37dC**27dC**

Remarks

Serologic Methods Recommended

HI, CF, NT

Footnotes

Immune Sera	Ketapang Antigen				NT Ht/Ho
	HI		CF		
	Ht/Ho	Ratio	Ht/Ho	Ratio	
Bakau	<10/160	>1/16	80/80	1	0.4/>>5.1

Antigens	Ketapang Immune Sera				NT Ht/Ho
	HI		CF		
	Ht/Ho	Ratio	Ht/Ho	Ratio	
Bakau	<10/640	>1/64	20/320	1/16	0.1/3.3

NT: LNI given in dex

HI Tests: Ketapang antigen not inhibited by immune sera from eastern, western and Venezuelan equine encephalitis, chikungunya, Semliki Forest, Mayaro, Sindbis, dengue 1, St. Louis, Japanese encephalitis, RSSE, West Nile, Apeu, Caraparu, Marituba, Murutucu, Oriboca, Bunyamwera, Kairi, Wyeomyia, Guama, Catu, California encephalitis, Bwamba, Quarantil, Chenuda, Oropouche, Simbu, Umbre, Turlock, Sandfly, Tacaiuma, Rift Valley, Colorado tick fever, herpes, GD 7 and Newcastle disease viruses [2].

Ketapang immune sera did not react with antigens from eastern, western and Venezuelan encephalitis, Mayaro, chikungunya, Semliki Forest, Getah, Bebaru, Aura, Una, Sindbis, Japanese encephalitis, St. Louis, and Murray Valley viruses [2].

CF Tests: Ketapang antigen did not fix complement in the presence of known positive sera from Mayaro, Semliki Forest, Marituba, Apeu, Murutucu, Caraparu, and Oriboca viruses [2].

Ketapang immune sera did not react with antigens from Mayaro, Semliki and Cache Valley viruses [2].

Section VI - Biologic Characteristics

Virus Source (all VERTEBRATE isolates)

Lab Methods of Virus Recovery (ALL ISOLATIONS)
Weanling mice

Cell system (a)	Virus passage history (b)	Evidence of Infection						
		CPE			PLAQUES			Growth Without CPE +/- (g)
		Day (c)	Extent (d)	Titer TCD50/ml (e)	Day (c)	Size (f)	Titer PFU/ml (e)	
Vero (CL)	P-5				4	2 mm	6.9* (3)	
LLC-MK2 (CL)					3	1 mm	6.6 (3)	
BHK-21 (CL)	MB 4	3	4+	5.5* (5)				

* Expressed in dex

Section VII - Natural Host Range (Additional text can be added below table)

Vertebrate (species and organ) and arthropod	No. isolations/No. tested	No. with antibody/No. tested Test used	Country and region
Culex (Lop) spp.	1/7 pools (1,563 mosq.)		Rantau Panjang, Malaya, Malaysia
Man		7/97 NT	Kuala Lumpur, Malaya, Malaysia
		24/74 NT	Kuantan, Malaya, Malaysia
		20/85 NT	Rantau Panjang, Malaya, Malaysia

NT: positive = >1.8 dex neutralizing antibody

Section VIII - Susceptibility to Experimental Infection (include viremia)

Experimental host and age	Passage history and strain	Inoculation Route-Dose	Evidence of infection	AST (days)	Titer log ₁₀ /ml
Mice (nb)	SM 9	ic 0.015	Death	3	6.5
Mice (nb)		ip			
Mice (nb)		sc			
Mice (wn)	SM 10	ic 0.03	Death	3	8.3
Mice (wn)		ip			
rabbits (ad)			ip 1.0x4	Neutralizing antibody	

Section IX - Experimental Arthropod Infection and Transmission

Arthropod species & virus source(a)	Method of Infection log ₁₀ /ml (b)		Incubation period (c)		Transmission by bite (d)		Assay of arthropod, log ₁₀ /ml (e)		
	Feeding	Injected	Days	°C	Host	Ratio	Whole	Organ	System
Aedes aegypti	Successful propagation of virus by inoculation (4)								

Section X - Histopathology

Character of lesions (specify host)		
<u>Inclusion Bodies</u>	<u>Intranuclear</u>	
Organs/Tissues Affected		
Category of tropism		

Section XI - Human Disease

In Nature	Residual	Death
Subclinical	Overt Disease	
Clinical Manifestations		
Number of Cases	Category (i.e. febrile illness, etc.)	

Section XII - Geographic Distribution

Known (Virus detected) Malaysia
Suspected (Antibody only detected)

Section XIII - References

<ol style="list-style-type: none">1. Inst. Med. Res., Kuala Lumpur, Fed. of Malaya. 1957. Unpublished observations.2. Rockefeller Foundation Virus Laboratory, New York. 1960. Unpublished results.3. Stim, T.B. 1969. J. Gen. Virol. 5:329-338.4. Theiler, M. and Downs, W.G. 1973. The Arthropod-borne Viruses of Vertebrates. Yale Univ. Press, pp. 272-273.5. Karabatsos, N. and Buckley, S.M. 1967. Am. J. Trop. Med. Hyg. 16:99-105.
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Remarks
