

Virus Name: Kaeng Khoi		Abbreviation: KKV
Status Possible Arbovirus	Select Agent No	SALS Level 2
SALS Basis Results of SALS surveys and information from the Catalogue.		
Other Information		
Antigenic Group Bunyamwera Supergroup		

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation S-19-B	Accession Number	Original Date Submitted 11/13/1984
Family Bunyaviridae	Genus Bunyavirus	
Information From William A. Neill	Address Johns Hopkins Univ. School Hygiene and Public Health, Baltimore, Maryland, USA	
Information Footnote Reviewed by editor		

Section II - Original Source

Isolated By (name) William A. Neill	Isolated at Institute SEATO Med. Res. Lab., Bangkok, Thailand	
Host Genus Tadarida plicata	Species	Host Age/Stage Mature
Sex Not Answered		
<u>Isolated From</u>	<u>Isolation Details</u>	
Organs/Tissues	Brain	
Signs and Symptoms of Illness	Arthropod	
Time Held Alive before Inoculation		
Collection Method Isolated from a dead bat found in a cave	Collection Date 3/10/1969	
Place Collected (Minimum of City, State, Country) SaraBuri bat cave		
Latitude 14° 35' N	Longitude 101° 8' E	
Macrohabitat Limestone foothills, Central Thailand	Microhabitat Cave	Method of Storage until Inoculated -70dC
Footnotes		

Section III - Method of Isolation

Inoculation Date
4/2/1969

Animal (Details will be in Section 6)
wn mice (Tissue Culture)

Route Inoculated Intracerebral	Reisolation Yes
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Other Reasons
Isolation of a similar agent; antibodies in animals and human.

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 Similar to bunyaviruses in polypeptide composition.	
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)	After Treatment Titer	Control Titer
Lipid Solvent (deoxycholate)	After Treatment Titer	Control Titer
Other (formalin, radiation)		

Virion Morphology

Shape Bunyavirus-like	Dimensions 95-105 nm	
Mean nm	Range nm	
Measurement Method Electron microscopy	Surface Projections/Envelope Envelope present	Nucleocapsid Dimensions, Symmetry

Morphogenesis

Site of Constituent Formation in Cell	Site of Virion Assembly	Site of Virion Accumulation
Inclusion Bodies	Other	

Hemagglutination

Hemagglutination Yes	Antigen Source SMB ext. by sucrose-acetone; Vero cell cult. fl. conc. by PEG	Erythrocytes (species used) Goose
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pH Range 5.8-6.8	pH Optimum
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Temperature Range RT	Temperature Optimum
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Remarks

Serologic Methods Recommended
CF, NT

Footnotes

Section V - Antigenic Relationship and Lack of Relationship to Other Viruses

Kaeng Khoi (S-19-B) ascitic fluid, 6/29/71, CF negative at 1:4 with the following: Antigens used in 1:4 and 1:40 dilutions: Acado, Acara, Akabane, Almpiwari, Amapari, Anopheles A, Anopheles B, Apeu, Arkonam, Aruac, Arumowot, Bahig, Bakau, Bandia, Agua Preta, Urucuri, Benfica, Belem, Beritoga, Bhanja, bluetongue, Bocas, Boraceia, Boteke, Botambi, Bujaru, Bunyamwera, Buttonwillow, Bwamba, California, Candiru, Capim, Caraparu, Chaco, Chagres, Chandipura, Changuinola, Charleville, Chenuda, chikungunya, CoAr 1071 (ANA group), Colorado tick fever, Congo, ConnAn 114, Corripata, Cotia, D'Aquilar, dengue 1, 2, 3, 4, Dugbe, EgAn 1398-61, EgAn 1825-61 (UUK group), EHD-New Jersey, Eretmapodites 147, Eubenangee, Farallon, Flanders, Gamboa, Ganjam, Germiston, Getah, Gossas, Grand Arbaud, Guajara, Guama, Guaroa, Hart Park, Hazara, Herpes, Hughes, I 6235, IbAn 38918, IbAn 17143, Jos, Mokola (IbAn 27377), IbAn 8341, Oyo (IbAn 2898), IbAn 20433, IbAn 28946, IbAn 10065, kotonkan (IbAr 23380), IbAr 22619 (EHD gr.), Orungo, Icoaraci, Ieri, Ilesha, Irituia, Itaporanga, JE, Johnston Atoll, Junin, Jurona, Kaisodi, Kamese, Kammavanpettai, Kannamangalam, Karimabad, Kemerovo, Kern Canyon, Klamath, Kowanyama, Kwatta, KFD, Lagos bat, La Joya, Lanjan, LCM, Lebombo, Lone Star, Lukuni, Manawa, Manzanilla, Mapputta, Maprik, Marco, Matariya, Melao, Minatitlan, Minnal, Mirim, Mitchell River, MML, Modoc, Mono Lake, Mossuril, Mt. Elgon bat, Naples, Nariva, Navarro, NDV, Nepuyo, Nkolbisson, Nyamanini, Nyando, Okola, Olifantsvlei (SAAr 5133), Oriboca, Oropouche, Pacora, Pacui, Pata (DakAr 1327), Patois, Pichinde, Piry, Pongola, Powassan, Punta Toro, Q 3255, Qalyub, Quarantil, St. Louis, Salehabad, Sathuperi, Sawgrass, Sembalam, SH 763, Sicilian, Silverwater, Simbu, Sindbis, Soldado, Sororoca, SudAr 1169-64, Tacaiuma, Tacaribe, Tamiami, Tataguine, Tembe, Tensaw, Tete, Thimiri, Thogoto, Thottapalyam, TBE, Timbo, Tribec, Triniti, Trivittatus, Trubanaman, Turlock, Umbre, Upolu, Rio Bravo, VSI, VSJ, Wad Medani, Wanowrie, Warrego, WEE, Wesselsbron, West Nile, Witwatersrand, Wongol, Wyeomyia, Yaba-1, poxvirus (Ectromelia), rabies, reovirus type 3, Obodhiang (SudAr 1154-64). Studies at YARU have shown the Kaeng Khoi virus belongs in the Bunyamwera Supergroup but cannot be assigned to any specific group [1].

Section VI - Biologic Characteristics

Virus Source (all VERTEBRATE isolates)

Lab Methods of Virus Recovery (ALL ISOLATIONS)
Vero cell cultures

Cell system (a)	Virus passage history (b)	Evidence of Infection							Growth Without CPE +/- (g)
		CPE			PLAQUES				
		Day (c)	Extent (d)	Titer TCD50/ml (e)	Day (c)	Size (f)	Titer PFU/ml (e)		
BHK-21 (CL)	SMB 5		CPE	5.0*					
LLC-MK2 (CL)			CPE			Plaques			
Vero (CL)			CPE			Plaques	5.0*		
Aedes albopictus(CL)			Replication	4.0				+	

* Expressed in dex

Vertebrate (species and organ) and arthropod	No. isolations/No. tested	No. with antibody/No. tested Test used	Country and region
Bat *	612/1,022		Thailand
Sentinel **			
mice	4/15		
rat	1/10	1/1 NT	
Man (guano miners)		4/14 NT	
Rattus rattus (caught in cave)		1/1 NT	
Bedbugs:			
Stricticimex parvus	4/20		Central Thailand (2)
S. parvus and Cimex insectus	18/42		

* Multiple isolations from brains or salivary glands of *Tadarida plicata* and *Taphozous theobaldi* bats (1).

** Sentinel animals housed in cages placed in cave with metal lids prohibiting direct contact with bat urine and droppings. Large screen mesh (3/8 x 3/8) permits dust and arthropods to enter freely.

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 log10/ml	
Mice (nb)	SMB 5	ic .03	Death		6.0	
Mice (nb)		ip .03	Death		6.0	
Mice (nb)		sc				
Mice (wn)		ic .03	Death		6.0	
Mice (wn)		ip .03	None			
Mice (nb)				Viremia, days 2-3 pi		5.0

Section IX - Experimental Arthropod Infection and Transmission

Arthropod species & virus source(a)	Method of Infection log10/ml (b)		Incubation period (c)		Transmission by bite (d)		Assay of arthropod, log10/ml (e)		
	Feeding	Injected	Days	°C	Host	Ratio	Whole	Organ	System

Section X - Histopathology

Character of lesions (specify host)

Inclusion Bodies

Intranuclear

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) Thailand
Suspected (Antibody only detected)

Section XIII - References

1. Director, YARU. Personal communication. 1973. 2. Williams, J.E., et al. 1976. Bull World Health Organ. 53:365-369. 3. Karabatsos, N. et al. Personal communication. 1979.
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Remarks

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