

<b>Virus Name: Kaikalur</b>		<b>Abbreviation: KAIV</b>
Status <b>Possible Arbovirus</b>	Select Agent <b>No</b>	SALS Level <b>2</b>
SALS Basis <b>Results of SALS surveys and information from the Catalogue.</b>		
Other Information		
Antigenic Group <b>Simbu</b>		

**SECTION I - Full Virus Name and Prototype Number**

Prototype Strain Number / Designation <b>VRC 713423-2</b>	Accession Number	Original Date Submitted <b>9/26/1984</b>
Family <b>Bunyaviridae</b>	Genus <b>Bunyavirus</b>	
Information From <b>F.M. Rodrigues</b>	Address <b>Virus Research Centre, Poona, India</b>	
Information Footnote <b>Reviewed by editor</b>		

**Section II - Original Source**

Isolated By (name) <b>Virus Research Centre</b>	Isolated at Institute <b>Poona, India</b>	
Host Genus <b>Culex tritaeniorhynchus (1)</b>	Species	Host Age/Stage <b>100 adults</b>
Sex <b>Female</b>		
<u>Isolated From</u>	<u>Isolation Details</u>	
Signs and Symptoms of Illness	Arthropod <b>Engorged, Gravid</b>	
Time Held Alive before Inoculation <b>72 hours</b>		
Collection Method <b>Mouth suction tube</b>	Collection Date <b>7/17/1971</b>	
Place Collected (Minimum of City, State, Country) <b>Kaikalur town, Krishna Dist., Andhra Pradesh, India</b>		
Latitude <b>16° 35' N</b>	Longitude <b>81° 14' E</b>	
Macrohabitat <b>Indoor cattle shed, with thatched roof</b>	Microhabitat <b>Walls, corners, and hay in cattle shed</b>	Method of Storage until Inoculated <b>At +4dC on wet ice for 4 days</b>
Footnotes		

**Section III - Method of Isolation**

Inoculation Date  
**7/24/1971**

Animal (Details will be in Section 6)  
**nb mice**

Route Inoculated <b>Intracerebral</b>	Reisolation <b>No</b>
--	--------------------------

Other Reasons  
**First virus of this type in the laboratory**

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)  
**Labile at pH 4.0**

Lipid Solvent (ether - % used to test)	After Treatment Titer	Control Titer
Lipid Solvent (chloroform) <b>1:20</b>	After Treatment Titer <b>&lt;2.3 dex</b>	Control Titer <b>5.8 dex</b>
Lipid Solvent (deoxycholate) <b>1:200</b>	After Treatment Titer <b>&lt;2.0 dex</b>	Control Titer <b>&gt;8.0 dex</b>
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 <b>Yes</b>	Antigen Source <b>20% SMB in borate saline, pH 9.0; protamine treated.</b>	Erythrocytes (species used) <b>Goose</b>
--------------------------------	---	---

pH Range <b>6.0-6.2</b>	pH Optimum
----------------------------	------------

Temperature Range <b>27dC</b>	Temperature Optimum
----------------------------------	---------------------

Remarks  
**HA was not obtained with sucrose-acetone extracted mouse brain antigen tested at pH 6.0-7.0**

Serologic Methods Recommended  
**CF, NT**

Footnotes  
**HA was not obtained with sucrose-acetone extracted mouse brain antigen tested at pH 6.0-7.0**

Studies at the Virus Research Centre, Poona [1] :

No relationship was detected by the CF test with immune sera to the following viruses: Alphaviruses; CHIK, SIN. Flaviviruses; JE, WN, DEN, types 1, 2, 3, and 4, KFD, MVE, NTA, and LGT. Bunyaviruses; UMB, BAT, and KSO. Orbiviruses; AHS, type 2, and PAL. Rhabdovirus; CHP. Herpesvirus; herpes simplex. Reovirus; reovirus type 3. Orthomyxoviridae; DHO. Unclassified: VKT, Ichampadi, ARK, and MIN. In preliminary CF tests, relationship was established between VRC 713423-2 and Sathuperi virus. The results of neutralization tests in infant mice with 713423-2, Sathuperi and Ingwavuma viruses and the respective homologous and heterologous immune sera were as follows:

Immune sera	Virus					
	713423-2		Sathuperi		Ingwavuma	
	Titre	LNI <sup>a</sup>	Titre	LNI	Titre	LNI
713423-2	<2.0	> 4.5	> 6.7	+1.0	6.5	0.2
Sathuperi	4.2	2.3	2.7	> 5.0	ND	
Normal mouse serum	6.5		> 7.7		6.7	
BAPS control titrations	6.0		> 7.6		6.6	

<sup>a</sup> LNI in dex.

Studies at Yale University School of Medicine:

Neutralization tests in Vero cells were conducted with 713423-2 virus and mouse immune ascitic fluid (MIAF) to the following viruses belonging to the Simbu group: AKA, BUT, ING, MAN, MER, ORO, SABO, SAN, SHA, SHU, SIM, THI, Utinga, and Yaba 7. 713423-2 was neutralized only by MIAF to Shuni virus. The relationship between 713423-2 and Shuni and Sathuperi viruses is shown by the following results of neutralization tests in Vero cells:

MIAF	Virus								
	713423-2			Shuni			Sathuperi		
	Virus dose (dex)	Titre <sup>b</sup>	LNI <sup>c</sup>	Virus dose (dex)	Titre	LNI	Virus dose (dex)	Titre	LNI
713423-2	1.8	320	>4.35	1.5	240	>4.0	2.3	60	2.5
Shuni	1.5	210	3.0	2.0	>1280	>4.0	1.7	90	3.7
Sathuperi	1.8	80	2.85	2.0	70	3.0	2.0	>1280	>4.3

<sup>b</sup> Serum dilution neutralization endpoints vs. 100 TCD<sub>50</sub>.

<sup>c</sup> Constant serum-varying virus dilution neutralization indices in dex.

713423-2 is closely related to Shuni virus but the sixfold or higher difference in titres of Shuni MIAF when tested with Shuni and 713423-2 viruses, respectively, indicate that they are not identical.

**Section VI - Biologic Characteristics**

Virus Source (all VERTEBRATE isolates)  
 Blood (M), urine (M)(LV), nasopharyngeal (M); pleural,  
 peritoneal, pericardial exudates in man (M)

Lab Methods of Virus Recovery (ALL ISOLATIONS)  
 Newborn 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)	SM 3	5	CPE Pos.	8.15 (d)				

(d) 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 tritaeniorhynchus	1/470 pools (39,294)		Andhra Pradesh State, India (1)

**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)	SM 3	ic 0.02	Sickness and death		
Mice (nb)		ip 0.03	Sickness and death		
Mice (nb)		sc			
Mice (wn)		ic 0.03	Sickness and death		
Mice (wn)		ip			
mice (nb)	SM 7	ic	Sickness and death	1.2-1.6	9.0

**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) <b>India (1)</b>
Suspected (Antibody only detected)

**Section XIII - References**

1. Rodrigues, F.M., et al. 1977. Indian J. Med. Res. 66(5):719-725.
---

**Remarks**

--