Virus Name: Kaisodi	Abbreviation: KSOV

Status
Probable Arbovirus

Select Agent
No

SALS Level
2

SALS Basis
Results of SALS surveys and information from the Catalogue.

Other Information

Antigenic Group
Kaisodi

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation
IG 14132

Accession Number

Original Date Submitted
3/16/1985

Family
Bunyaviridae

Genus
Bunyavirus-like

Information From
The Virus Research Centre

Address
Poona, India

Information Footnote
Reviewed by editor

Section II - Original Source

Isolated By (name)
The Virus Research Centre

Isolated at Institute
Poona, Maharashtra, India

Host Genus
Haemaphysalis spinigera

Species

Host Age/Stage
Adult

Sex
Male

Isolated From

Isolation Details

Signs and Symptoms of Illness

Arthropod

Time Held Alive before Inoculation

Collection Method
From undergrowth in forest

Collection Date
8/7/1957

Place Collected (Minimum of City, State, Country)
Kannur, Shimoga, Mysore, India

Latitude
14° 17' N

Longitude
75° 9' E

Macrohabitat

Microhabitat

Method of Storage until Inoculated
Kept alive until processed

Footnotes

Section III - Method of Isolation

Inoculation Date
8/14/1957

Animal (Details will be in Section 6)
nb mice

Route Inoculated
ic and sc

Reisolation
No

Other Reasons
Repeated isolations of the virus from the same locality (Shimoga Dist) and from the same source (H. spinigera)

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)	After Treatment Titer	Control Titer
Lipid Solvent (deoxycholate) **1:200**	After Treatment Titer **2.5 dex**	Control Titer **5.7 dex**

Other (formalin, radiation)

Virion Morphology

Shape	Dimensions **100 - 220 nm**	
Mean nm	Range nm	
Measurement Method **Millipore filtration (3)**	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

Hemaggiutination **No**	Antigen Source **SMB ext. by sucrose-acetone, acetone-ether + prot. Sulphate**	Erythrocytes (species used) **Goose**
pH Range **6.2-7.2**	pH Optimum	
Temperature Range **37dC, 4dC, and 24-26dC**	Temperature Optimum	

Remarks

Serologic Methods Recommended
CF, NT

Footnotes

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

Employing Kaisodi antiserum prepared in mice, HI tests were carried out with 8 units of each of the following antigens:

Group A:	EEE, WEE, VEE, Mayaro, chikungunya, Semliki Forest, Sindbis, Getah, Bebaru, Middelburg, Aura;
Group B:	yellow fever, Wesselsbron, Zika, Banzi, Spondweni, West Nile, dengue 2, MVE, Ntaya, RSSE, Powassan, St. Louis, JE;
Others:	Ilesha, Bunyamwera, Germiston, California, Tahyna, Marituba, Oriboca, Caraparu; Bwamba, Sathuperi, Ketapang, Bakau, Neapolitan and Sicilian sandfly fevers, Akabane, Manzanilla, Witwatersrand and Koongol.

The serum failed to inhibit agglutination at a dilution of 1:10 or higher.

In CF tests, there was no cross-reaction between Kaisodi and any of the following tickborne viruses: Quaranfil, Chenuda, Nyamanini (EgAr 1304), Wad Medani, Ganjam (IG 619), Wanowrie, Silverwater, Colorado tick fever, Hughes virus and Kemerovo. There was some cross-reaction between Kaisodi and a Malayan virus, strains Lanjan and TP 123, obtained from Dr. Gordon Smith. This cross-reaction could be detected by CF as well as HI tests.

	Antigens			
	Kaisodi		Lanjan (TP 94)	
Antisera	CF	HI	CF	HI
Kaisodi	512/1024		32/8	160
Lanjan	8/8		128/512	320

The KSO serogroup presently consists of Lanjan and Silverwater viruses in addition to Kaisodi virus. These serogroup viruses are considered as possible members of the Bunyaviridae family [8] and therefore, are listed taxonomically as ""bunyavirus-like"".

Section VI - Biologic Characteristics

Virus Source (all VERTEBRATE isolates)
Blood (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	
		Day (c)	Extent (d)	Titer TCD50/ml (e)	Day (c)	Size (f)	Titer PFU/ml (e)	+/- (g)	
LLC-MK2 (CL)	P-2				6	2 mm	>7.7* (5)		
Vero (CL)						No plaques (6)			
Aedes albopictus (CL)			No multiplication					- (5)	
Ae aegypti (CL)			No multiplication					- (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
Haemaphysalis spinigera	30/>30,000		Shimoga District, Mysore State, India
Zoothera citrina (ground thrush; serum)	1		Shimoga, Mysore, India (7)
Man		0/204 NT	Shimoga District, Mysore State, India
Small mammals (all collected before 1960)		0/69 NT	
Haemaphysalis turturis	2		Mysore State, India (7)

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)	G14132, P-7	ic 0.02	Illness and death	5.7	5.2
Mice (nb)		ip 0.03	Illness and death	>11.7	
Mice (nb)		sc			
Mice (wn)		ic 0.03		9.5	1.4
Mice (wn)		ip 0.2			5.5
Mice		ic	No viremia but illness (6)		
Mice		ip	Viremia, days 3 and 7 (6)		
Mice		iv	Viremia after 4 hr and 1 day (6)		
white leghorn chicks (1-2 day)		im 0.1	No illness, no viremia; 1/10 NT antibodies.		
rabbits (ad)		ip 1.0	No illness, no viremia; 1/2 NT antibodies.		
guinea pigs (ad)		ip 0.2	No illness, no viremia; 2/2 NT antibodies.		

Section IX - Experimental Arthropod Infection and Transmission

Arthropod species & virus source(a)	Method of Infection log10/ml (b)		Incubation period (c)		Transmision by bite (d)		Assay of arthropod, log10/ml (e)		
	Feeding	Injected	Days	°C	Host	Ratio	Whole	Organ	System
Some larval progeny from eggs of female Haemaphysalis spinigera injected with virus; were positive for virus (7). (Represents tranovarial transmission) (7).									

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)
India

Suspected (Antibody only detected)

Section XIII - References

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Remarks