Virus Name: Lanjan	Abbreviation: LJNV

Status
Possible 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
TP94

Accession Number

Original Date Submitted
6/1/1984

Family
Bunyaviridae

Genus
Bunyavirus-like

Information From
C.E.G. Smith

Address
London School of Hygiene and Tropical Medicine

Information Footnote
Revised

Section II - Original Source

Isolated By (name)
Dr. Dora Tan (1)

Isolated at Institute
Inst. Med. Res.,Kuala Lumpur, Malaysia

Host Genus
Dermacentor auratus group *

Species

Host Age/Stage
Nymphs

Sex
Not Answered

Isolated From

Isolation Details

Signs and Symptoms of Illness

Arthropod

Time Held Alive before Inoculation

Collection Method
Hand catch from rodent species

Collection Date
8/25/1960

Place Collected (Minimum of City, State, Country)
Bukit Lanjan, Malaysia

Latitude
3° 8' N

Longitude
101° 40' E

Macrohabitat
Forest reserve surrounded by young and old secondary growth; 7 miles W. of Kuala Lumpur

Microhabitat
Collected from rodent species

Method of Storage until Inoculated

Footnotes

Section III - Method of Isolation

Inoculation Date

Animal (Details will be in Section 6)
nb mice

Route Inoculated
Intracerebral

Reisolation
Yes

Other Reasons
Further isolate from Dermacentor auratus ticks caught in same region Dec. '60 - March '61.

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) **0.1%**	After Treatment Titer **2.0 dex**	Control Titer **6.1 dex**

Other (formalin, radiation)
Tryspin, 0.05%; ttr_aft, 5.0 dex; contrl_ttr, 6.1 dex

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

Hemaggiutination	Antigen Source	Erythrocytes (species used)
Yes	**SMB purified by calcium phosphate chromatography**	**Goose**
pH Range **6.2-7.0**	pH Optimum **6.7**	
Temperature Range **4dC - 37dC**	Temperature Optimum	

Remarks
Unable to produce an antigen by sucrose-acetone or Arcton extraction. Hemagglutinin was unstable on storage. * At that time, it was believed that this group of ticks contained two species.

Serologic Methods Recommended
CF, HI

Footnotes
Unable to produce an antigen by sucrose-acetone or Arcton extraction. Hemagglutinin was unstable on storage. * At that time, it was believed that this group of ticks contained two species.

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

Not related by HI to JE, WN, Langat, louping ill, chikungunya, Semliki Forest, dengue 1, dengue 2, Tembusu, or yellow fever.

Not related by CF to JE, WN, Langat, chikungunya, Oropouche.

Shown to be related to Kaisodi virus by HI and CF [2] .

	Antigens			
	Lanjan (TP94)		Kaisodi	
Antisera	CF	HI	CF	HI
Lanjan (TP94)	128/512	320	8/8	
Kaisodi	32/8	160	512/1024	

Blank: not done; HA not available for Kaisodii virus.

Section VI - Biologic Characteristics

Virus Source (all VERTEBRATE isolates)
Blood (LV)

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)	
Vero (CL)	P-10					No plaques (3)			
LLC-MK2 (CL)					6	5 mm	5.7* (3)		
Hyalomma dromedarii(PC)	TP 94, SM 7							+ (6)	

* 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
Dermacentor auratus	2		Bukit Lanjan, Malayasia
Haemaphysalis, sp.	2		Malaysia (4, 5)
H. semermis	2		
Ixodes granulatus	1		
Rattus sabanus		1/50	Ulu Langat, Kepong and Bukit Lanjan Forest
Rattus mulleri		0/30	Reserves, Malayasia
Rattus rajah		0/7	
Rattus jalorensis		0/22	
Rattus bowersi		0/5	
Rattus surifer		2/9	
Rattus annandeli		0/10	
Rattus argentiventer		0/8	
Rattus canus		0/2	
Macaca nemestrina (serum)	1		Malayasia (5)

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 4	ic 0.01	Paralysis and death	4-5	7.0
Mice (nb)		ip			
Mice (nb)		sc			
Mice (wn)		ic 0.03	Paralysis and death	13	7.0
Mice (wn)		ip 0.03	No deaths		
rabbit		5 dex ic	No deaths		
guinea pig		5 dex ic	No deaths		
hamster		5 dex ip	No deaths		
		5 dex ic	No deaths		
		5 dex iv	No deaths		
monkey		5 dex ic	Died from tuberculosis (no virus recovered)		
		5 dex iv	No deaths		

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

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)
Malayasia

Suspected (Antibody only detected)

Section XIII - References

1. Tan, D., et al. 1967. Nature 214:1154-1155.
2. Pavri, K.M. and Casals, J. 1966. Am. J. Trop. Med. Hyg. 15:961-963.
3. Stim, T.B. 1969. J. Gen. Virol. 5:329-338.
4. Rudnick, A. Personal communication. April 1972.
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6. Varma, M.G.R. and Pudney, M. Unpublished results.

Remarks