Virus Name: Sepik	Abbreviation: SEPV

Status
Probable Arbovirus

Select Agent
No

SALS Level
3

SALS Basis
Isufficient experience with virus; i.e., experience factor from SALS surveys was less than 500 in laboratory facilities with low biocontainment.

Other Information

Antigenic Group
B

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation
MK 7148

Accession Number

Original Date Submitted
11/23/1984

Family
Flaviviridae

Genus
Flavivirus

Information From
Ian D. Marshall

Address
Dept. of Microbiology, JCSMR, Aust. Nat. Univ.,Canberra, Australia

Information Footnote
Reviewed by editor

Section II - Original Source

Isolated By (name)
I.D. Marshall and G.M. Woodroofe

Isolated at Institute
Canberra

Host Genus
Mansonia septempunctata

Species

Host Age/Stage
Adult

Sex
Female

Isolated From

Isolation Details

Signs and Symptoms of Illness

Arthropod

Time Held Alive before Inoculation

Collection Method
Light trap

Collection Date
3/21/1966

Place Collected (Minimum of City, State, Country)
Timaui, Sepik District, New Guinea

Latitude
3° 40' S

Longitude
143° 7' E

Macrohabitat
Secondary tropical forest, low foothills adjoining Kunai grass plains

Microhabitat
4' from ground, overnight trapping

Method of Storage until Inoculated
Liquid nitrogen and Revco at -70dC

Footnotes

Section III - Method of Isolation

Inoculation Date
5/10/1966

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

Route Inoculated
ic and sc

Reisolation
Yes

Other Reasons
Antigenically distinct from other group B viruses held in this lab.

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) **1:1000**	After Treatment Titer **<2.0 dex**	Control Titer **5.2 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

Hemaggiutination	Antigen Source	Erythrocytes (species used)
Yes	**SMB ext. by sucrose-acetone**	**Gander**
pH Range	pH Optimum	
6.0-6.8	**6.2**	
Temperature Range	Temperature Optimum	
	35dC	

Remarks

Serologic Methods Recommended
CF and NT

Footnotes

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

Mouse Immune Ascitic Fluids or Antigens	Sepik (MK 7148) Antigen			Sepik (MK 7148) Antiserum		
	HI	CF	NT	HI	CF	NT
	Ht/Ho	Ht/Ho	Ht/Ho	Ht/Ho	Ht/Ho	Ht/Ho
MVE	480/10240	5/80	1.0/5.0	320/320	<5/320	1.3/5.0
Kokobera	<10/1280	<5/40	0.7/3.0	160/320	5/320	0.5/5.0
Kunjin	1280/10240	<5/40	0.7/4.3	320/320	<5/320	0.5/5.0
Edge Hill	<10/320	20/320	0.4/1.0	160/320	10/320	0.5/5.0
Stratford	<10/20	<5/40	<0.5/0.7	120/320	<5/320	<0.5/5.0
JBE	640/1280	<5/160		40/320	<5/320	
Apoi *		<4/32			8/1024	
Langat		<4/32			8/1024	
Tembusu		16/512			16/1024	
Zika		4/32			4/1024	
Wesselsbron		8/8	2.7/4.5		512/1024	3.1/>4.5
West Nile		16/512			16/1024	
Dengue 1		<4/32			<4/1024	
Dengue 2		<4/32			<4/1024	
Dengue 3		4/4			<4/1024	
Dengue 4		<4/4			16/1024	

NT: LNI in dex.

* Tests from Apoi down were carried out at YARU by Dr. G.M. Woodroofe

Sepik virus is closely related to Wesselsbron virus but distinguishable by neutralization test from both South African and Thai strains of that virus.

Section VI - Biologic Characteristics

Virus Source (all VERTEBRATE isolates)

Lab Methods of Virus Recovery (ALL ISOLATIONS)
Newborn mice, chick embryo cell cultures

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)	
Chick embryo (PC)						Plaques			

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
Mansonia septempunctata	1/105		Sepik District, New Guinea
Ficalbia flavens and Ficalbia spp.	2/6,993		
Armigeres spp.	1/39		
Mixed mosquito pool	1		
Sheep		0/372 HI	Australia. Widely dispersed sites throughout New South Wales.

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 4	ic 0.02	Death	7-9	8.7
Mice (nb)		ip 0.02	Death	7-9	8.0
Mice (nb)		sc			
Mice (wn)		ic 0.02	Death	8-15	7.7
Mice (wn)		ip 0.02	Antibodies		<3.0
guinea pigs (pregnant)		footpad	Transient low grade viremia in at least 2/12 mothers. Abortion rate no higher than in normal or JE and MVE inoculated controls. No virus in aborted foetuses of newborn.		

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
	Mosquitoes infected by membrane feeding (1)								

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
Reported

Subclinical — Overt Disease

Clinical Manifestations
Fever (R), headache (R)

Number of Cases
1

Category (i.e. febrile illness, etc.)
Febrile illness

Section XII - Geographic Distribution

Known (Virus detected)
Sepik District, New Guinea

Suspected (Antibody only detected)

Section XIII - References

1. Director, Queensland Inst. Ned. Res. Personal communication. 1973.

Remarks

One patient hospitalized with FUO showed rising neutralizing antibody titers.