

Virus Name: Sepik

Abbreviation: SEPV

Status: Probable Arbovirus
SALS Level: 3
Antigenic Group: B
Taxonomic status: *Flavivirus*
Other Information: None.

Select Agent:
SALS Basis: IE

HEPA Filtration:

Section I - Full Virus Name and Prototype Number

Full Virus Name: Sepik
Prototype Number: MK 7148
Information from: Ian D. Marshall *
Date: 11/23/1984
Address: Dept. of Microbiology, JCSMR, Aust. Nat. Univ., Canberra, Australia
*
Reviewed by editor

Section II - Original Source

Isolated by: I.D. Marshall and G.M. Woodroofe
at: Canberra
Genus and species: *Mansonia septempunctata*
Age/Stage: Adult
Sex: F
Sentinel: X

Isolated From	Isolation detail
---------------	------------------

Signs and symptoms of illness:
Arthropod engorged: depleted gravid
Time held alive before inoculation:
Collection date: 3/21/1966
Method: Light trap
Place collected: Timaiui, 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 and Validity

Inoculation Date: 5/10/1966
Animal: nb mice
Embryonated egg:
Tissue Culture: X
(Details in Section VI - Biologic Char.)
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 (See Section II):
Test used: HI CF NT
Other:
Footnotes:

Section IV - Virus Properties

Physicochemical:

RNA: DNA: Single Strand: Double Strand:
Pieces: Infectivity: Sedimentation coefficient(s): /strong>
Percentage wt. of virion protein , lipid carbohydrate
Virion polypeptides:
Number: Details:
Non-virion polypeptides:
Number: Details:
Virion density: Sedimentation coefficient:
Nucleocapsid density Sedimentation coefficient:

Stability of infectivity (effects) pH

Lipid solvent:
(ether) After treatment titer Control titer
(chloroform) After treatment titer Control titer
Detergent:
(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) how measured
Surface projections, envelope
Nucleocapsid dimensions, symmetry

Morphogenesis:

Site of constituent formation in cell
Site of virion assembly
Inclusion bodies
Other

Hemagglutination:

Hemagglutination Yes Antigen source SMB ext. by sucrose-acetone
Erythrocytes Gander pH range 6.0-6.8 pH optimum 6.2
Temperature optimum 35dC range
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. Woodroffe

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

Susceptibility of Cell Culture Systems:

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)		
Chick embryo (PC)						Plaques			

Section VII - Natural Host Range

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 (Record Viremia)

Experimental host and age	Passage history and strain	Inoculation Route-Dose	Evidence of infection	AST (days)	Titer log ₁₀ /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 fetuses of newborn.		

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
	Mosquitoes infected by membrane feeding (1)								

Section X - Histopathology

Character of lesions:

Inclusion bodies:

Cytoplasmic:(M) (LV) **Intranuclear:** (M) (LV)

Organs-tissues affected:

Category of tropism:

Section XI - Human Disease

Human disease: **In nature:** (S) (R) X

Death: (S) (R)

Residua: (S) (R)

Laboratory infections: **Subclinical:** (S) (R)

Overt Disease: (S) (R)

Clinical manifestations: Fever (R), headache (R)

Category: Febrile illness **No. of cases:** 1

Section XII - Geographic Distribution

Known (virus):

Sepik District, New Guinea

Section XIII - References

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

Section XIV - Remarks

One patient hospitalized with FUO showed rising neutralizing antibody titers.