Virus Name: Mahogany Hammock	Abbreviation: MHV

Status
Possible Arbovirus

Select Agent
No

SALS Level
2

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

Other Information

Antigenic Group
Guama

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation
FE4-2s

Accession Number

Original Date Submitted
10/18/1984

Family
Bunyaviridae

Genus
Bunyavirus

Information From
Arbovirology Unit

Address
Center for Disease Control, Atlanta, Georgia 30333, USA

Information Footnote
Reviewed by editor

Section II - Original Source

Isolated By (name)
Arbovirus Ecology Lab (1)

Isolated at Institute
CDC, Atlanta, GA

Host Genus
Culex (Melanoconion) sp., pool of 44 unfed mosquitoes

Species

Host Age/Stage

Sex
Female

Isolated From

Isolation Details

Signs and Symptoms of Illness

Arthropod

Time Held Alive before Inoculation

Collection Method
Light trap

Collection Date
1/25/1964

Place Collected (Minimum of City, State, Country)
Everglades National Park, Florida, USA

Latitude
25° N

Longitude
81° W

Macrohabitat
Mahogany Hammock (sea level); palm-hardwood hammock

Microhabitat
Under tree cover along boardwalk

Method of Storage until Inoculated
On dry ice, then at -60dC in mechanical freezer

Footnotes

Section III - Method of Isolation

Inoculation Date
1/6/1965

Animal (Details will be in Section 6)
nb mice

Route Inoculated
Intracerebral

Reisolation

Other Reasons
Other isolates from mosquitoes in same area.

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) **1:2**	After Treatment Titer **<3.2 dex**	Control Titer **6.1 dex**
Lipid Solvent (chloroform)	After Treatment Titer	Control Titer
Lipid Solvent (deoxycholate)	After Treatment Titer	Control Titer

Other (formalin, radiation)
Heat: At 56C, loss of 0.5 dex titer after 15 min.; 1 dex reduction after 30 min.

Virion Morphology

Shape	Dimensions **>50, <100 nm**	
Mean nm	Range nm	
Measurement Method **Centrifugal filtration through graded filters**	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**	**Goose**
pH Range	pH Optimum	
5.8-7.0	**6.0**	
Temperature Range	Temperature Optimum	
26dC to 37dC	**37dC**	

Remarks
Partial hemagglutination at 1:20

Serologic Methods Recommended
CF, NT

Footnotes
Partial hemagglutination at 1:20

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

In CF testing, suckling mouse brain antigen did not react with the following: Buttonwillow, Modoc, Ilheus, Herpes simplex, broad group A (Burro), Oropouche, Bwamba, West Nile, Venezuelan equine encephalitis, broad group B, Tacaribe, Cocal, Hughes, Lukuni, TRVL 42529-1-5, TRVL 39316-1-5, Triniti, Ieri, Aruac, EEE, CTF, trivittatus, Turlock, Wyeomia, Apeu, Marituba, Oriboca, Anopheles B, Aruac, Ieri, broad Bunyamwera group, FE3-45E, Tensaw, Pan A, VSNJ, VSI, Chenuda, Quaranfil, Nyamanini, broad group C, and Capim. It did react with broad Guama and Capim group.

Serological Relationship of Mahogany Hammock Virus (FE4-2s) with Guama Group Arboviruses

	Mahogany Hammock Antigen		Mahogany Hammock Ascitic Fluids	
	CF	NT	CF	NT
Hyperimmune Ascitic Fluids or Viruses	Ht/Ho	Ht/Ho	Ht/Ho	Ht/Ho
Mag.Ham.(FE4-2s)	128	>4.1 *	128	>4.1 *
Guama	256/512	3.8/>3.6	32/128	2.2/>4.1
Bimiti	64/256	1.7/>3.5	32/128	3.3/>4.1
BeAn 20525	256/512	3.0/>3.5	32/128	2.3/>4.1
Moju	32/64	3.2/>2.0	64/128	2.0/>4.1
Catu	256/512	0.3/>5.3	32/128	0.9/>4.1

* LNI in dex

Section VI - Biologic Characteristics

Virus Source (all VERTEBRATE isolates)

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)
GMK (CL)	SMB 2	4-5	CPE	5.0**				
PK(15) (CL)		4-6	CPE	6.0				
RK-13 (CL)			No CPE					
GMK (CL)					7-8	Plaques	7.0**	
PK (15) (CL)						Plaques very small and faint. Not countable.		
HeLa (CL)					5-7	Very small	6.0	
BHK-21 (CL)					3-5		7.5	

** 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
Culex (Mel) sp.	12/33,853		Everglades National Park, Florida, 1963-65
Sigmodon hispidus (cotton rat)	1/22		
Culex (Mel) sp.	32		Everglades National Park, Florida, 1966-69

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 2	ic 0.02	Paralysis, prostration and death	6-7	9.1
Mice (nb)		ip			
Mice (nb)		sc			
Mice (wn)		ic 0.02	Paralysis, prostration and death	7-9	7.0
Mice (wn)		ip			

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)
Florida, USA

Suspected (Antibody only detected)

Section XIII - References

1. Coleman, P.H., et al. 1969. Am. J. Epidem. 89:217-221.

Remarks