

Virus Name: Manzanilla		Abbreviation: MANV
Status Possible Arbovirus	Select Agent No	SALS Level 2
SALS Basis Results of SALS surveys and information from the Catalogue.		
Other Information		
Antigenic Group Simbu		

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation TRVL 3587	Accession Number	Original Date Submitted 1/24/1985
Family Bunyaviridae	Genus Bunyavirus	
Information From Trinidad Regional Virus Laboratory	Address P.O. Box 164, Port of Spain, Trinidad	
Information Footnote Reviewed by editor		

Section II - Original Source

Isolated By (name) TRVL (1)	Isolated at Institute Port of Spain, Trinidad	
Host Genus Alouatta seniculus insularis	Species	Host Age/Stage Adult
Sex Female		
<u>Isolated From</u>	<u>Isolation Details</u>	
Serum/Plasma		
Signs and Symptoms of Illness	Arthropod	
Time Held Alive before Inoculation		
Collection Method Shot by shotgun; heart blood taken by syringe	Collection Date 6/16/1954	
Place Collected (Minimum of City, State, Country) Brigand Hill, Trinidad		
Latitude 10° 30' N	Longitude 61° 5' W	
Macrohabitat Evergreen seasonal forest (Koppen: Af) altitude about 300'	Microhabitat Forest canopy	Method of Storage until Inoculated Thermos (wet ice) for no more than six hours
Footnotes		

Section III - Method of Isolation

Inoculation Date
6/16/1954

Animal (Details will be in Section 6)
nb mice

Route Inoculated
Intracerebral

Reisolation
Yes

Other Reasons

No other isolations of this virus have as yet been made from this or other laboratories.

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)	After Treatment Titer 1.5 dex	Control Titer 6.8 dex
Other (formalin, radiation)		

Virion Morphology

Shape	Dimensions 101 nm	
Mean nm	Range nm	
Measurement Method Electron microscopy (3)	Surface Projections/Envelope	Nucleocapsid Dimensions, Symmetry

Morphogenesis

Site of Constituent Formation in Cell	Site of Virion Assembly	Site of Virion Accumulation
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Inclusion Bodies	Other
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Hemagglutination

Hemagglutination Yes	Antigen Source SMB crude borate saline susp., pH 9.0; centrifuged.	Erythrocytes (species used) Goose
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pH Range 6.0-6.4	pH Optimum 6.2
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Temperature Range 4dC - 37dC	Temperature Optimum 4dC
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Remarks

Serologic Methods Recommended
CF, NT

Footnotes

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

Mainly on the basis of CF tests, Manzanilla virus has been placed in the Simbu group; in it Manzanilla is closely related to Ingwavuma virus (see Catalogue card) and less so to Oropouche [2]. For a list of viruses with which it has been compared and no relation detected, see Reference [1].

Antigenic relationships were determined for 24 viruses of the Simbu serogroup [5]. Manzanilla virus was placed in the Manzanilla complex, one of as many as ten complexes comprising the Simbu serogroup. Ingwavuma, Mermet, and Inini viruses were determined to be subtypes of Manzanilla virus [5], [6].

Section VI - Biologic Characteristics

Virus Source (all VERTEBRATE isolates)
CNS (LV), heart (LV), liver (LV), spleen (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 +/- (g)
		Day (c)	Extent (d)	Titer TCD50/ml (e)	Day (c)	Size (f)	Titer PFU/ml (e)	
Vero (CL)	MB 4				3	3 mm	6.7** (4)	
LLC-MK2 (CL)					3	1 mm	5.7 (4)	
BHK-21 (CL)	MB 2	2	4+	5.7** (7)				

** Expressed in dex

Vertebrate (species and organ) and arthropod	No. isolations/No. tested	No. with antibody/No. tested Test used	Country and region
Man	0/2,800	8/142 NT	Trinidad*
Alouatta seniculus insularis	1/79		
Cebus	0/26		
Cebus		0/13 NT	Colombia
Aotus		0/4 NT	
Ateles		0/5 NT	
Alouatta		0/11 NT	
Wild birds	0/3,000		Trinidad
Small rodents	0/1,000		
Arthropods (including mosquitoes, Simuliidae, Heleliidae, Tabanidae, Mallophaga, Anoplura, ticks, trombiculid mites)	0/1,162,230		

Experimental host and age	Passage history and strain	Inoculation Route-Dose	Evidence of infection	AST (days)	Titer log ₁₀ /ml	
Mice (nb)	MB 10 to 15	ic	Illness and death	2	5.5	
Mice (nb)		ip	Illness and death	3	5.9	
Mice (nb)		sc				
Mice (wn)		ic	Illness and death	3	6.0	
Mice (wn)		ip	No illness			
chick embryo (7 day)	SMB 3	ys	Death	3	7.0	
		al.c.	Death	3		
		am.s.	Death	3		
chicks (1 day)		ic,1000 LD	None			
rabbits (ad)		ic, ip	Not susceptible			
hamsters (ad)		ic	Paralysis, death	5-8	5.0	
hamsters (ad)		ip	Develop antibody			
guinea pigs (ad)		ic, ip	Develop antibodies			

NOTE: The AST's given above are with virus dosages exceeding 100 LD₅₀.

NOTE: AST's are with EID₅₀ exceeding 100. Carried through 34 egg passages by ys route.

Section XIII - References

1. Anderson, C.R., et al. 1960. Am. J. Trop. Med. and Hyg. 9:78-80.
2. Director, Rockefeller Foundation Virus Laboratory. Personal communication. 1963.
3. Holmes, I.H. 1971. Virology 43:708.
4. Stim, T.B. 1969. J. Gen. Virol. 5:329-338.
5. Kinney, R.M. and Calisher, C.H. 1981. Am. J. Trop. Med. Hyg. 30:1307-1318.
6. Calisher, C.H., et al. 1985. Intervirology. To be submitted.
7. Karabatsos, N. and Buckley, S.M. 1967. Am. J. Trop. Med. Hyg. 16:99-105.

Remarks

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