

Virus Name: Nepuyo		Abbreviation: NEPV
Status Arbovirus	Select Agent No	SALS Level 2
SALS Basis Results of SALS surveys and information from the Catalogue.		
Other Information		
Antigenic Group C		

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation TRVL 18462	Accession Number	Original Date Submitted 2/3/1985
Family Bunyaviridae	Genus Bunyavirus	
Information From Trinidad Reg. Virus Lab.	Address P.O. Box 164, Port of Spain, Trinidad	
Information Footnote Reviewed by editor		

Section II - Original Source

Isolated By (name) TRVL (3)	Isolated at Institute Port of Spain, Trinidad	
Host Genus Culex (Aedinus) accelerans (= sp. No. 8; pool of 190 mosq.)	Species	Host Age/Stage Adult
Sex Female		
<u>Isolated From</u>	<u>Isolation Details</u>	
Signs and Symptoms of Illness	Arthropod	
Time Held Alive before Inoculation		
Collection Method Human bait	Collection Date 11/20/1957	
Place Collected (Minimum of City, State, Country) Nariva-Mayaro County, Trinidad		
Latitude 10° 18' N	Longitude 61° 7' W	
Macrohabitat Archer Estate; 6 miles east of Rio Claro, south-east Trinidad	Microhabitat Collection made out-of-doors at ground level on cacao estate	Method of Storage until Inoculated Held alive overnight at 4C before sorting and grinding
Footnotes		

Section III - Method of Isolation

Inoculation Date
11/21/1957

Animal (Details will be in Section 6)
nb mice

Route Inoculated Intracerebral	Reisolation No
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Other Reasons
No Group C virus present in laboratory prior to isolation of this virus

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 <1.8 dex	Control Titer 4.6 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

Hemagglutination

Antigen Source

Erythrocytes (species used)

Yes**SM serum acetone extracted****Goose**

pH Range

pH Optimum

6.0-6.4**6.0**

Temperature Range

Temperature Optimum

4 - 37d C**4dC**

Remarks

Personal communication from R.E. Shope, Belem

Serologic Methods Recommended

HI, CF, NT

Footnotes

Personal communication from R.E. Shope, Belem

An antigen prepared by acetone-ether extraction from suckling mouse brain infected with Nepuyo virus failed to react in CF with the following antisera:

EEE	Makonde	SF Naples
WEE	Ntaya	Tacaiuma
Semliki	Oriboca	Quaranfil (EgAr 1095)
Chikungunya	Marituba	Chenuda (EgAr 1152)
Sindbis	Apeu	Anopheles A
Ilheus	Catu	Turlock
Yellow fever	Guama	Bwamba
St. Louis	Bimiti	Rift Valley fever
Dengue	California enc.	Simbu
Rio Bravo	Melao	Mengo
JBE	Bunyamwera	Lukuni
West Nile	Wyeomyia	Triniti
RSSE	Kairi	Ieri
Spondweni	Cache Valley	Aruac
Zika	Guaroa	Tacaribe
		GD VII

Hyperimmune mouse serum to Nepuyo virus inhibited hemagglutination by TRVL 34053-1 virus, a Group C virus which is closely related to Caraparu virus.

HI tests carried out by Dr. Robert Shope, Belem, and by Dr. Loring Whitman, New York, confirmed that Nepuyo is a Group C virus. Both found the virus to be closely related to a Belem Group C isolate, BeAn 10709 [4].

Nepuyo is most closely related to Murutucu and Marituba by HI and NT, and to Apeu and Marituba by CF [4].

SIRACA considers Nepuyo virus to be a distinct virus in the Marituba complex, one of four complexes comprising serogroup C. An unregistered virus, 63U11, was antigenically classified as a variety of Nepuyo virus [13].

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 +/- (g)
		Day (c)	Extent (d)	Titer TCD50/ml (e)	Day (c)	Size (f)	Titer PFU/ml (e)	
Hamster kidney(PC)	MB 11	6-8	CPE					
Vero(CL)	TRVL 18462				6	2-3 mm	4.1* (5)	
Vero (CL)	P-3				5	2 mm	8.6 (14)	
LLC-MK2 (CL)					7	2 mm	6.0 (14)	

* Expressed in dex

Vertebrate (species and organ) and arthropod	No. isolations/No. tested	No. with antibody/No. tested Test used	Country and region
Man	0/2,500	4/35 NT	Trinidad
Cebus (monkey)	0/26		
Alouatta (monkey)	0/79		
Birds	0/2,300		
Sentinel mice	0/4,303		
Sentinel mice	15		Para, Brazil (1)
Proechimys	1		Utinga Forest, Belem Brazil (1)
Nectomys	1		Para, Brazil (1)
Culex (Ads) accelerans (= sp. 8)	1		Southeast Trinidad
Culex spp.	2		Para, Brazil (1)
Artibeus jamaicensis	1		Honduras (8)
Artibeus lituratus (fruit-eating bats)	1		
Mosquitoes and sentinel hamsters, mice	23		SE Mexico (9)
Man (blood)	2		Guatemala (11, 12)

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 log ₁₀ /ml
Mice (nb)	MB 14	ic 0.02	Illness, viremia, death	3-5	6.0
Mice (nb)		ip	Illness, death		4.0
Mice (nb)		sc			
Mice (wn)	MB 13	ic 0.03	None		
Mice (wn)		ip 0.2	None		
Mice (nb)		sc	Illness, death		
chick emb.	MB 4	am.s.	None		
		al.c.	None		
		ys	None		

Section IX - Experimental Arthropod Infection and Transmission

Arthropod species & virus source(a)	Method of Infection log ₁₀ /ml (b)		Incubation period (c)		Transmission by bite (d)		Assay of arthropod, log ₁₀ /ml (e)		
	Feeding	Injected	Days	°C	Host	Ratio	Whole	Organ	System
<p><i>Ae aegypti</i> and <i>Cx quinquefasciatus</i>, inoculated parenterally, maintained the prototype strain through 2 serial salivary gland passages (6).</p> <p><i>Culex</i> spp., naturally infected, transmitted to mice (7).</p>									

Section X - Histopathology

Character of lesions (specify host)

Adult and baby mice experimentally infected with BeAn 10709 showed lesions limited to the CNS, characterized by hydropic tumefaction, chromatolysis, retraction and necrosis of diffuse distribution (2).

Inclusion Bodies

Intranuclear

Organs/Tissues Affected

Category of tropism

Section XI - Human Disease

In Nature
Reported

Residual

Death

Subclinical

Overt Disease

Clinical Manifestations

Fever (R), headache (R), myalgia (R)

Number of Cases

Two (11,12)

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

Febrile illness

Section XII - Geographic Distribution

Known (Virus detected)

Trinidad, Honduras (8), Mexico (9); Panama (10); Brazil, Guatemala

Suspected (Antibody only detected)

Section XIII - References

1. Belem Virus Laboratory, Brazil. Unpublished data.
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Remarks