Virus Name: Munguba	Abbreviation: MUNV

Status
Possible 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
Phlebotomus fever

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation
BeAr 389707

Accession Number

Original Date Submitted
9/26/1984

Family
Phlebovirus

Genus

Information From
F.P. Pinheiro and Amelia P.A.T. Rosa

Address
Instituto Evandro Chagas, FSESP, Ministry of Health, CP-621, Belem, Para, Brazil

Information Footnote
Reviewed by editor

Section II - Original Source

Isolated By (name)
F. Pinheiro and Amelia P.A.T. Rosa

Isolated at Institute
Instituto Evandro Chagas

Host Genus
Lutzomyia umbratilis, pool of 150

Species

Host Age/Stage

Sex
Female

Isolated From

Isolation Details

Signs and Symptoms of Illness

Arthropod
Depleted

Time Held Alive before Inoculation
3-4 hours

Collection Method
aspiration from tree trunk

Collection Date
9/20/1980

Place Collected (Minimum of City, State, Country)
16 km. NW of Monte Dourado, Jari, Para

Latitude
0° 51' S

Longitude
52° 32' W

Macrohabitat
tropical rain forest

Microhabitat
ground level

Method of Storage until Inoculated
liquid nitrogen and mechanical freezer (-60dC)

Footnotes

Section III - Method of Isolation

Inoculation Date
12/4/1980

Animal (Details will be in Section 6)
nb mice

Route Inoculated
intracerebral

Reisolation
No

Other Reasons

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 **1.8 dex**	Control Titer **3.6 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

Hemaggiutination	Antigen Source	Erythrocytes (species used)
No	**SMB ext. by sucrose-acetone + sonication**	**goose**

pH Range	pH Optimum
5.8-7.0	

Temperature Range	Temperature Optimum
room, 37dC	

Remarks

Serologic Methods Recommended
CF and NT

Footnotes

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

Serological studies carried out in Brazil showed that virus strain BeAr 389707 was related by CF and NT to viruses of the Phlebotomus fever gr

Complement-Fixation Test

Antigens	Sera									
	BeAr 389707	ICO	BUJ	ITP	URU	CDU	ITA	ALE	TUA	PAC
BeAr 389707	>=128/>=64 [a]	0	4/8	0	0	0	0	0	0	0
Icoaraci	0	>=128/>=64								
Bujaru	>=128/>=64		32/>=64							
Itaporanga	0			>=16/>=64						
Urucuri	0				>=128/>=64					
Candiru	0					>=128/>=64				
Itaituba	0						>=128/>=64			
Alenquer	0							64/>=64		
Turuna									>=128/>=64	
Pacui										128/>=6
Anhanga										

[a] Serum titer/antigen titer; 0 = <4/<4

Results of Neutralization Tests Performed in Newborn Mice, ic Route

Viruses	Sera									
	BeAr 389707	ICO	BUJ	ITP	URU	CDU	ITA	ALE	TUA	PAC
BeAr 389707	4.0 [b]	0.2	0.2	<=0.1	0.5	0.2	0.0	0.0	0.2	0.2
Bujaru	2.5		2.7							

[b] LNI in dex

The CF results were confirmed at YARU, and it showed that this virus was not related to Arumowot, Buenaventura, Cacao, Caimito, Chilibre, Fri Gabek Forest, Gordil, Karimabad, Naples, Nique, Punto Toro, Rift Valley fever (serum only), Rio Grande, Saint- Floris, Salehabad, Sicilian, Tehe Toscana viruses. BeAr 389707 antigen showed a slight cross-reaction with Chagres and Aguacate sera. Virus strain BeAr 389707 did not cros plaque-reduction neutralization tests when it was tested against antisera to Chagres, Aguacate, and Bujaru viruses.

Section VI - Biologic Characteristics

Virus Source (all VERTEBRATE isolates)
Heart (LV), liver (LV), nasopharyngeal (LV), milk (LV), spleen-brain pool (6)

Lab Methods of Virus Recovery (ALL ISOLATIONS)
Newborn mice, hamster (asymptomatic infection in hamsters inoculated im; blood positive for virus)

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)	
Vero (CL)	SMB 1	7	4+	7.0 [c]	6	2.0 mm	6.5 [c]		

[c] 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
Lutzomyia umbratilis (female)	1/6,753		Km. 16 NW, Monte Dourado, Para, Brazil
Lutzomyia umbratilis (male)	0/9,665		
Phlebotomines spp. (female)	0/516		
Phlebotomines spp. (male)	0/1,727		
Choloepus didactylus (sloth)		1/1 NT	Monte Dourado area, Jari, Para, Brazil
Tamandua tetradractyla		0/6 NT	
Dasypus novemcintus		0/4 NT	

Munguba virus was not isolated from viscera or blood of the following animals captured in the Monte Dourado area in 1980: 21 Choloepus didactylus, 18 anteaters and 3 armadillos.

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 3	ic 0.02	death	3.0	
mice (nb)		ip 0.02	death	6.3	
mice (nb)		sc			
mice (wn)		ic 0.03	survived, antibodies		
mice (wn)		ip 0.03	survived		
mice (nb)	SMB 4	ic 0.02	death		6.5

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)

Suspected (Antibody only detected)

Section XIII - References

1. Travossos da Rosa, A.P.A. et al. 1983. Am. J. Trop. Med. Hyg. 32:1164-1171.

Remarks