

Virus Name: Munguba		Abbreviation: MUNV
Status Possible Arbovirus	Select Agent No	SALS Level 3
SALS Basis Insufficient 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		
<u>Isolated From</u>	<u>Isolation Details</u>	
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		

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)
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Percentage wt, of Virion Protein	Lipid	Carbohydrate
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Virion Polypeptides: Number	Details
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Non-virion Polypeptides: Number	Details
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Virion Density	Sedimentation Coefficients(s) (S)
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Nucleocapsid Density	Sedimentation Coefficients(s) (S)
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Stability of Infectivity (effects)

pH (infective range)

Lipid Solvent (ether - % used to test)	After Treatment Titer	Control Titer
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Lipid Solvent (chloroform)	After Treatment Titer	Control Titer
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Lipid Solvent (deoxycholate) 1:1000	After Treatment Titer 1.8 dex	Control Titer 3.6 dex
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Other (formalin, radiation)

Virion Morphology

Shape	Dimensions
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Mean nm	Range nm
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Measurement Method	Surface Projections/Envelope	Nucleocapsid Dimensions, Symmetry
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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
No

Antigen Source
SMB ext. by sucrose-acetone + sonication

Erythrocytes (species used)
goose

pH Range
5.8-7.0

pH Optimum

Temperature Range
room, 37dC

Temperature Optimum

Remarks

Serologic Methods Recommended
CF and NT

Footnotes

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

Antigens	Complement-Fixation Test									
	BeAr 389707	ICO	BUJ	ITP	URU	CDU	ITA	ALE	TUA	PAC
BeAr 389707	^a ≥128/≥64	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/≥64
Anhanga										

^a Serum titer/antigen titer; 0 = <4/<4

Viruses	Results of Neutralization Tests Performed in Newborn Mice, ic Route									
	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 cross-react with 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 +/- (g)
		Day (c)	Extent (d)	Titer TCD50/ml (e)	Day (c)	Size (f)	Titer PFU/ml (e)	
Vero (CL)	SMB 1	7	4+	7.0 °	6	2.0 mm	6.5 °	

° 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
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 tetradactyla		0/6 NT	
Dasypus novemcinctus		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)		Transmission 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.
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Remarks

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