

Virus Name: Turuna		Abbreviation: TUAV
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 352492	Accession Number	Original Date Submitted 10/12/1984
Family Bunyaviridae	Genus Phlebovirus	
Information From F. Pinheiro and Amelia P.A.T. Rosa	Address Instituto Evandro Chagas, FSESP, Ministry of Health, CP-621, 66.000, 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 Inst. Evandro Chagas	
Host Genus Lutzomyia sp. (1)	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 1 hour		
Collection Method Human bait, night	Collection Date 7/24/1978	
Place Collected (Minimum of City, State, Country) Km 4, Cachoeira Porteira, Trombetas river, Brazil		
Latitude 1° 2' S	Longitude 57° 6' W	
Macrohabitat Tropical rain forest	Microhabitat Ground	Method of Storage until Inoculated Liquid nitrogen and -60dC electrical freezer
Footnotes		

Section III - Method of Isolation

Inoculation Date
2/9/1979

Animal (Details will be in Section 6)
nb mice

Route Inoculated Intracerebral	Reisolation No
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Other Reasons
First strain of this virus isolated in our laboratory

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 1.6 dex	Control Titer 3.5 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)
No **SMB ext. by sucrose-acetone + sonication** **Goose**

pH Range pH Optimum
5.8-7.0

Temperature Range Temperature Optimum
25-27dC

Remarks

Serologic Methods Recommended
CF, NT

Footnotes

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

Turuna virus is a member of the Phlebotomus fever group by CF and NT (tests performed at the Evandro Chagas Institute):

Antigens	CF Testing									
	Sera									
	Ar 352492	ICO	PAC	BUJ	ITP	URU	ANH	CDU	ITA	ALE
Ar 352492	>256/>256 ^a	0	0	0	0	0	0	16/16	32/16	16/16
Icoaraci	0	256/>256		0	0	0	0	0	0	0
Pacui	0	0	>16/>16	0	0	0	0	0	0	0
Bujaru	0	0	0	32/64	0	0	0	0	0	0
Itaporanga	0	0	0	0	32/64	0	0	0	0	0
Urucuri	0	0	0	0	0	256/>256	0	0	0	0
Anhanga	0	0	0	0	0	0	64/>256	0	0	0
Candiru	16/>256	0	0	0	0	0	0	>256/>256	256/>256	0
Itaituba	32/16	0	0	0	0	0	0	>256/16	>256/16	8/4
Alenquer	16/>256	0	0	0	0	0	0	0	16/>256	>256/>256

^a Antibody/antigen titers; 0 = <4/<4

NT Testing (Infant Mice, ic Route)

Viruses	Sera									
	Ar 352492	ICO	PAC	BUJ	ITP	URU	ANH	CDU	ITA	ALE
Ar 352492	2.1 ^b	1.1	0.0	<0.3	<0.2	1.2	0.3	<0.3	1.2	1.0
Candiru	1.4							3.4		
Itaituba	1.6								4.3	
Alenquer	<1.5									2.7

^b LNI in dex

Icoaraci: ICO, Pacui: PAC, Bujaru: BUJ, Itaporanga: ITP, Urucuri: URU, Anhangá: ANH, Candiru: CDU, Itaituba: ITA, Alenquer: ALE

Section VI - Biologic Characteristics

Virus Source (all VERTEBRATE isolates)
Liver and spleen (LV) , Blood (LV)

Lab Methods of Virus Recovery (ALL ISOLATIONS)
Newborn mice

Cell system (a)	Virus passage history (b)	Evidence of Infection							Growth Without CPE +/- (g)
		CPE			PLAQUES				
		Day (c)	Extent (d)	Titer TCD50/ml (e)	Day (c)	Size (f)	Titer PFU/ml (e)		
Vero (CL)	SMB 2	5	4+	6.5 (c)					
LLC-MK2 (CL)		4	4+	>4.5					

(c) Expressed in dex

Vertebrate (species and organ) and arthropod	No. isolations/No. tested	No. with antibody/No. tested Test used	Country and region
Lutzomyia sp. (females) (1976-79)	1/51 (2,813 insects)		Cach. Porteira, Trombetas River, Para, Brazil
Lutzomyia sp. (males) (1976-79)	0/7 (202 insects)		
Proechimys quyanensis		0/51 NT	
Hamsters (sentinel)		0/19 NT	
Aguti paca		1/5 NT	
Rattus rattus		0/1 NT	

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)	SMB 2	ic 0.02	Death	5.0	
Mice (nb)	SMB 4	ip 0.02	1 of 6 died		
Mice (nb)		sc			
Mice (wn)		ic 0.03			
Mice (wn)		ip 0.03	Antibody		
Mice (nb)	SMB 2	ic 0.02	Death		5.5
Mice (nb)	SMB 6	ic 0.02	Death		7.3

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

Section X - Histopathology

Character of lesions (specify host)		
<u>Inclusion Bodies</u>	<u>Intranuclear</u>	
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)
Brazil
Suspected (Antibody only detected)

Section XIII - References

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

Remarks

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