Virus Name: Timboteua		Abbreviation: TBTV
Status **Probable Arbovirus**	Select Agent **No**	SALS Level **2**

SALS Basis
Placed at this biosafety level based on close antigenic or genetic relationship to other viruses in a group of 3 or more viruses, all of which are classified at this level.

Other Information

Antigenic Group
Guama

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation	Accession Number	Original Date Submitted
BeAn 116382		9/29/1984

Family	Genus
Bunyaviridae	**Bunyavirus**

Information From	Address
F.P. Pinheiro and Amelia A.T. Rosa	**Inst. Evandro Chagas, FSESP, Brazilian Ministry of Health, CP 621, 66.000 Belem, Para, Brazil**

Information Footnote
Reviewed by editor

Section II - Original Source

Isolated By (name)	Isolated at Institute	
Belem Virus Laboratory	**Instituto Evandro Chagas, Brazil**	
Host Genus	Species	Host Age/Stage
Mouse, sentinel		**Newborn**

Sex
Not Answered

Isolated From	Isolation Details
Organs/Tissues	**Brain and liver**

Signs and Symptoms of Illness	Arthropod

Time Held Alive before Inoculation

Collection Method	Collection Date
Unknown	**3/12/1967**

Place Collected (Minimum of City, State, Country)
APEG, IPEAN, Belem, Para

Latitude	Longitude
1° 28' S	**48° 27' W**

Macrohabitat	Microhabitat	Method of Storage until Inoculated
Tropical rain forest	**Relatively undisturbed flooded forest, ground level**	**-60dC**

Footnotes

Section III - Method of Isolation

Inoculation Date
3/17/1967

Animal (Details will be in Section 6)
nb mice

Route Inoculated
Intracerebral

Reisolation
Not tried

Other Reasons
Other strains of the virus isolated in the same area

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 **<0.8 dex**	Control Titer **6.2 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)
Yes	**SM serum ext. by acetone**	**Goose**
pH Range	pH Optimum	
5.8-6.0	**6.0**	
Temperature Range	Temperature Optimum	
RT and 37dC	**Room temperature**	

Remarks

Serologic Methods Recommended
CF, HI, NT

Footnotes

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

Timboteua virus is a member of group Guama, by CF, HI, and NT (CF data not shown here).

CF TESTING

Ascitic Fluid or Hyperimmune Mouse Sera	Antigens: Catu	Guama	Moju	Ananindeua	Bimiti	Timboteua
Catu	64/64 [a]	32/64	16/64	8/64	32/256	0
Guama	64/64	64/256	64/256	32/64	64/256	4/64
Moju	64/16	64/64	64/256	32/64	64/256	0
Ananindeu	64/16	64/64	64/64	128/64	64/256	8/64
Bimiti	128/64	128/64	64/256	32/64	128/256	16/64
Timboteua	8/16	8/64	0	0	16/64	256/256
Guama Gr.	128/64	128/64	128/64	32/64	256/256	32/256

[a] Reciprocal of antibody/antigen titers: 0 = <4/<4

HI TESTING

HI TESTING

Ascitic Fluid or Hyperimmune Mouse Sera	Antigens (4 units)					
	Catu	Guama	Moju	Ananindeua	Bimiti	Timboteua
Catu	160	0	0	0	0	0
Guama	0	80	20	40	0	0
Moju	0	20	160	0	0	0
Ananindeua	0	20	0	160	0	0
Bimiti	0	0	0	0	160	0
Timboteua	0	0	0	0	0	160
Gr. Guama	160	80	40	40	160	80

0 = <10

NT TESTING (INFANT MICE, IC ROUTE)

Ascitic Fluid or Hyperimmune Mouse Sera	Virus					
	Catu	Guama	Moju	Ananindeua	Bimiti	Timboteua
Catu	> 5.0 [b]	<1.2	<0.9	<0.5	<1.1	<1.3
Guama	<1.1	4.4	2.1	2.5	<1.1	<1.3
Moju	<1.1	<1.2	> 3.9	1.5	<1.1	<1.3
Ananindeua	<1.1	3.4	1.9	5.5	<1.1	<1.3
Bimiti	<1.1	<1.2	<0.9	<0.5	5.6	2.8
Timboteua	<1.1	<1.2	<0.9	<0.5	<1.1	> 6.3

[b] LNI in dex

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	
		Day (c)	Extent (d)	Titer TCD50/ml (e)	Day (c)	Size (f)	Titer PFU/ml (e)	+/- (g)	
Vero (CL)	SM 13	5-6	4+	5.5 (c)					
BHK-21 (CL)	SM 11				3	2 mm	4.9 (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
Sentinel mice (brain and liver)	4		IPEAN, Para, Brazil
Proechimys sp. (blood)	1	0/52 HI	Humaita, Amazonas, Brazil
Oryzomys sp.		0/36 HI	
Nectomys sp.		0/10 HI	
Rattus rattus		0/7 HI	
Oecomys sp.		0/3 HI	
Dasyprocta sp.		0/2 HI	
Agouti paca		0/1 HI	
Sciurus sp.		0/1 HI	
Monodelphis sp.		0/8 HI	

Sentinel monkeys		0/2 HI	Altamira, Para, Brazil
Sentinel chickens		0/57 HI	
Proechimys sp.		0/34 HI	Cachoeira Porteira, Para, Brazil
Oryzomys sp.		0/3 HI	
Nectomys sp.		0/3 HI	
Neacomys sp.		0/3 HI	
Rattus alexandrinus		0/1 HI	
Myoprocta sp.		0/2 HI	
Monodelphis sp.		0/20 HI	
Philander opossum		0/18 HI	
Lizard (jacuraru)		0/1 HI	
Monkeys		0/9 HI	
Callithrix		0/2 HI	
Bats		0/13 HI	
Tayassu pecari		0/1 HI	
Land turtle		0/3 HI	

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)	SM 2	ic 0.02	Death	6.0	
Mice (nb)		ip 0.02	None		
Mice (nb)		sc			
Mice (wn)		ic 0.03	None		
Mice (wn)		ip 0.03	None		
Mice (nb)	SM 13	ic 0.02	Death		8.2 (serum)
Mice (nb)	SM 16	ic 0.02	Viremia, death		9.5 (serum)

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)
Para and Amazonas State, Brazil

Suspected (Antibody only detected)

Remarks