Virus Name: Itaituba	Abbreviation: ITAV

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
BeAn 213452

Accession Number

Original Date Submitted
9/28/1984

Family
Bunyaviridae

Genus
Phlebovirus

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

Address
Instituto Evandro Chagas, FSESP, Brazilian Ministry of Health, P.O. Box 621, 66.000, Belem, Para, Brazil

Information Footnote
Revised

Section II - Original Source

Isolated By (name)
Pinheiro, F.P. et al.

Isolated at Institute
Instituto Evandro Chagas, Belem, Para, Brazil

Host Genus
Didelphis marsupialis

Species

Host Age/Stage
Young adult

Sex
Male

Isolated From	Isolation Details
Whole Blood	

Signs and Symptoms of Illness

Arthropod

Time Held Alive before Inoculation

Collection Method
UNKNOWN

Collection Date
12/7/1971

Place Collected (Minimum of City, State, Country)
Transamazon Highway, Itaituba, Para, Brazil

Latitude
4° 22' S

Longitude
55° 50' W

Macrohabitat
Virgin tropical forest

Microhabitat
Ground level

Method of Storage until Inoculated
-60dC

Footnotes

Section III - Method of Isolation

Inoculation Date
1/7/1972

Animal (Details will be in Section 6)
nb mice

Route Inoculated
Intracerebral

Reisolation
Not tried

Other Reasons
Virus different from any available in laboratory

Homologous Antibody Formation by Source Animal
Not tested

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 **<2.5 dex**	Control Titer **5.2 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 **No**	Antigen Source **Mouse and hamster sera tr. by acetone.**	Erythrocytes (species used) **Goose**
pH Range **5.8-7.0**	pH Optimum	
Temperature Range **RT and 37dC**	Temperature Optimum	
Remarks		
Serologic Methods Recommended **CF, NT**		
Footnotes		

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

The virus antigen (mouse brain and liver) did not react in CF testing with the following ascitic fluids: groups A, B, C, Guama, Capim, Bunyamwera; and specific ascitic fluids to Piry, Itaporanga, Jurona, Pacui, and Irituia viruses. Liver antigen gave a reaction of 4/>8 with a grouping ascitic fluid for the Phlebotomus fever group. In a second CF test, this liver antigen was negative with ascitic fluids of viruses of the Phlebotomus fever group: Icoaraci, Bujaru, Anhanga, Sicilian, Chagres, and Urucuri, but reacted with the ascitic fluid for Candiru virus.

	Ascitic fluids		
Antigens	**BeAn 213452**	**Candiru**	**Control**
BeAn 213452	128/1024 [a]	64/256	0
Candiru	128/128	128/256	0
Control	0	0	0

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

A cross NT with Candiru gave the following results:

	Virus	
Ascitic fluid	**BeAn 213452**	**Candiru**
BeAn 213452	> 5.8 [b]	0.6
Candiru	0.7	3.4
Control	<1.0	0

[b] LNI in dex.

At YARU, it was whown by CF testing that the registered virus is not related to Naples, Sicilian, Ib 15736, Chagres, Punta Toro, and Karimabad viruses. A relationship to Candiru and Nique viruses was demonstrated.
Immune serum to BeAn 213452 (titer of >256) did not react in CF test with the antigens of Anhanga, Bujaru, Chagres, Karimabad, Sicilian, Naples, Arumowot, Icoaraci, Punta Toro, and Gabek Forest. It reacted at 16/8 with Buenaventura and 16/>256 with Nique antigen.
Plaque reduction neutralization tests performed at the National Institute of Health, Hawaii [1] revealed that BeAn 213452 was not neutralized by a 1:10 dilution of the immune sera to the following Phlebotomus fever viruses: Alenquer (BeH 301101), St. Floris, Gordil, Naples, Sicilian, Arumowot, Gabek Forest, Salehabad, Karimabad, Punta Toro, Chagres, Itaporanga, Icoaraci, Candiru, Pacui, Anhanga, Urucuri, Buenaventura, Frijoles, Aguacate, Cacao, Nique, Caimito, Chilibre, Rio Grande, Charleville.

Section VI - Biologic Characteristics

Virus Source (all VERTEBRATE isolates)
Blood (LV)

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 7	4	4+	4.5*					

* 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
Didelphis m. marsupialis (blood)	1		Itaituba, Para, Brazil
Didelphis m. marsupialis		1/38 NT	Itaituba and Altamira, Para, Brazil
Philander o. opossum		0/17 NT	
Marmosa spp.		0/3 NT	
Monodephis spp.		0/3 NT	
Metachirus nudicaudatus		0/3 NT	
Caluromys spp.		0/3 NT	

No other isolations of the virus were obtained from viscera and/or blood from 921 wild birds, 55 marsupials, 168 rodents, 58 monkeys, 2 edentates, and 2 other animals captured in the Tapacurazinho area in 1971-72. Virus was not isolated from the blood and/or viscera and salivary glands taken from 58 bats collected 25 km. east of Itaituba.

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 4	ic 0.02	Death	3.5	
Mice (nb)		ip 0.02	Death	3.5	
Mice (nb)	SM 5	ic	Death		4.2(brain)
Mice (wn)	SM 4	ic 0.03	Antibodies		
Mice (wn)		ip 0.03	Antibodies		
Mice (nb)	SM 3	ic	Viremia, death		8.8(serum)
Mice (nb)		ic	Death		8.2(liver)
hamsters (23 day)	SM 5	ic	Antibodies		
albino rat		ic	Antibodies		

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, Brazil

Suspected (Antibody only detected)

Section XIII - References

1. Tesh, R.B. Personal communication.

Remarks