Virus Name: Itupiranga	Abbreviation: ITUV

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
ungrouped

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation
BeAr 312086

Accession Number

Original Date Submitted
4/13/1985

Family
unclassified

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
Aedes (Och) serratus, pool of 15 mosquitoes

Species

Host Age/Stage
adult

Sex
Female

Isolated From

Isolation Details

Signs and Symptoms of Illness

Arthropod
Depleted

Time Held Alive before Inoculation
1 to 6 hours

Collection Method

Collection Date
12/7/1976

Place Collected (Minimum of City, State, Country)
Fazenda, Burguinho, Itupiranga, Para

Latitude
5° 20' S

Longitude
49° 15' 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
12/16/1976

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 **5.0 dex**	Control Titer **6.5 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

Hemaggiutination	Antigen Source	Erythrocytes (species used)
No	**SMB ext. by sucrose-aceton + sonication**	**goose**
pH Range **5.8 - 7.0**	pH Optimum	
Temperature Range **room, 37dC**	Temperature Optimum	

Remarks

Serologic Methods Recommended
CF and NT

Footnotes

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

Itupiranga virus mouse brain antigen did not react by CF with the following hyperimmune ascitic fluids: Groups A, B, C, Guama, Capim, Bunyamwera, and Phlebotomus fever, as well as Mirim, Oropouche, Utinga, Melao, Serra do Navio, Belem, Jurona, Tacaiuma, Piry, Cocal, Timbo, Chaco, Turlock, Group Changuinola, Amapari, Flexal, Kwatta, Mosqueiro, Marco, Tembe, Cotia-like, Agua Preta, Ieri, Araguari, Inhangapi, Aruac, Triniti, Pacora, Lukuni, mouse encephalomyelitis, Pacui, Acara, rabies, EMC, mouse hepatitis virus, BeAr 263191, Jacareacanga, Sena Madureira, BeAn 306770, Santarem, Para, Cuiaba, Mojui dos Campos, Mapuera, Xiburema, and herpes simplex.
In addition, no reaction by CF was found with the following NIH grouping immune fluids: Groups A, B, C, Guama, Capim, California, Bunyamwera, Phlebotomus fever, Tacaribe, Kemerovo, VSV, Simbu, polyvalents 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, Bwamba, Congo, Patois, Quaranfil, Palyam, Anopheles A, and rabies/LCM.
At YARU, Itupiranga virus was unrelated by CF to Pichinde, Aguacate, Cacao, Caimito, Chilibre, Connecticut, Frijoles, La Joya, New Minto, Rio Grande, Group Sakhalin, Group Australia, Nariva, Boteke, Burg El Arab, Gomoka, Lebombo, Matariya, Malakal, Minnal, Nkolbisson, Okola, Wanowrie, Witwatersrand, Zinga, Arkonam, Puchong, Tataguine, Yogue, Hart Park, Mossuril, Charleville, Joinjakaka, Mt. Elgon bat, Navarro, Isfahan, rabies, Lagos bat, Duvenhage, Keuraliba, kotonkan, TB4-222, TB4-1054, 79V5816, 76V23524, and Enseada. It reacted to a dilution of 1:32 with a serum of DakA802 (homologous greater than 1:512) but attempts to confirm this reaction by IFA and PRNT in Vero cells were negative.

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)	SMB 4	4-5	4+	>=8.5**					

** 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
Culicidae	1/498 [a]		Three farm areas, Itupiranga, Para, Brazil; 1978
Culicidae	0/1,312		Itupiranga village, Para, Brazil; 1975
Culicidae	1/46,763 [b]		Sena Madureira, Acre, Brazil; 1978
Culicidae	1/6,088 [c]		Mato Grosso State, Brazil; 1982

[a] Isolated from Aedes (Och.) serratus

[b] Isolated from Psorophora (Jan.) ferox

[c] Isolated from Psorophora (Jan.) albipes

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 4	ic 0.02	illness, death	4.0	8.2
"" (nb)		ip 0.02	illness, death	9.0	
"" (nb)		sc			
"" (wn)		ic 0.03	survived		
"" (wn)		ip 0.03	survived		

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)

Remarks