Virus Name: Para	Abbreviation: PARAV

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
BeAn 280577

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
white Swiss mouse

Species

Host Age/Stage
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
6/6/1975

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

Latitude
1° 28' S

Longitude
48° 27' W

Macrohabitat
tropical rain forest

Microhabitat
relatively undisturbed flooded forest; gound level

Method of Storage until Inoculated
no storage

Footnotes

Section III - Method of Isolation

Inoculation Date
6/6/1975

Animal (Details will be in Section 6)
nb mice

Route Inoculated
intracerebral

Reisolation
Not tried

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 **<=1.5 dex**	Control Titer **3.8 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	**SMB ext. by sucrose-acetone + sonication**	**goose**

pH Range	pH Optimum
5.8-7.0	**6.0**

Temperature Range	Temperature Optimum
room, 37dC	**room**

Remarks
the HA antigen improved in titer and sensitivity with trypsin treatment following sonication

Serologic Methods Recommended
CF, HI, and NT

Footnotes
the HA antigen improved in titer and sensitivity with trypsin treatment following sonication

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

In the HI test, serum (homologous titer of 160) of virus BeAn 280577 inhibited hemagglutination by Caraparu, Apeu, Madrid and Tr 34053-1 (Caraparu-like) viruses at a dilution of 1:20.
Studies at YARU determined that Para virus was indistinguishable in PRNT and CF tests from virus strain AG80-934 isolated in Argentina (supplied by C. Calisher, CDC).

Complement-Fixation Test

Antigens	Sera		
	BeAn 280577	AG80-934	Control
BeAn 280577	256/>=64 [a]	32/16	0
AG80-934	256/16	32/16	0
Control	0	0	

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

PRNT

Viruses	Sera	
	BeAn 280577	AG80-934
BeAn 280577	1024 [b]	64
AG80-934	1024	64

[b] Reciprocal of highest dilution giving 80% plaque reduction in Vero cell cultures

Section VI - Biologic Characteristics

Virus Source (all VERTEBRATE isolates)
brain and liver (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)	SMB 9	2	4+	>=3.5 [c]	4	2 mm	7.2 [c]		
HEp-2 (CL)		2	4+	>=3.5					
MDCK (CL)			No CPE						

[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 mouse	1/882	(ground level)	APEG, Belem, Para, Brazil; 1975
Sentinel mouse	0/2,032	(tree level)	
Marsupials		0/48 HI	Cachoeira Porteira area, Brazil, 1977-79
Rodents		0/163 HI	
Primates		0/78 HI	
Carnivores		0/4 HI	
Edentates		0/2 HI	
Ungulates		0/14 HI	
Reptiles		0/20 HI	
Bats		0/13 HI	
Wild birds		2/508 HI	
Primates		0/6 HI	Alenquer, Para, Brazil; 1976
Rodent		0/1 HI	
Marsupials		0/6 HI	Uruacu, Goias, Brazil; 1980
Rodents		0/5 HI	
Primates		0/7 HI	
Bats		0/43 HI	
Man		0/622 HI	Uruacu, Goianesia, Goias, Brazil; 1980
Culex (Mel) ocossa group		1/22,969	Chaco Province, Argentina

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 2	ic 0.02	illness, death	3.7	
mice (nb)		ip 0.02	illness, death	8.8	
mice (nb)		sc			
mice (wn)		ic 0.03	antibody		
mice (wn)		ip 0.03	antibody		
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 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

Para virus (Argentina strain AG80-934) readily infected Cx quinquefasciatus mosquitoes and grew to high titer following intrathoracic inoculation of approximately two Vero PFU/mosquito. The same species of mosquito was refractory to infection by the oral route after feeding on a blood-sugar virus suspension containing 5.7 dex Vero PFU/ml (1).

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. Mitchell, C.J. Personal communication. 1983.

Remarks