

Virus Name: Para		Abbreviation: PARAV
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 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		
<u>Isolated From</u>	<u>Isolation Details</u>	
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; ground 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

Hemagglutination Yes	Antigen Source SMB ext. by sucrose-acetone + sonication	Erythrocytes (species used) goose
pH Range 5.8-7.0	pH Optimum 6.0	
Temperature Range room, 37dC	Temperature Optimum 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		

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/ \geq 64 ^a	32/16	0
AG80-934	256/16	32/16	0
Control	0	0	
^a Serum titer/antigen titer; 0 = \leq 4/ \leq 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 +/- (g)		
		Day (c)	Extent (d)	Titer TCD50/ml (e)	Day (c)	Size (f)	Titer PFU/ml (e)			
Vero (CL)	SMB 9	2	4+	$\geq 3.5^{\circ}$	4	2 mm	7.2°			
HEp-2 (CL)		2	4+	≥ 3.5						
MDCK (CL)			No CPE							

° Expressed in dex

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	
Rodent		0/1 HI	Alenquer, Para, Brazil; 1976
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) ocosa 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)		Transmission by bite (d)		Assay of arthropod, log10/ml (e)		
	Feeding	Injected	Days	°C	Host	Ratio	Whole	Organ	System
<p>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).</p>									

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