Virus Name: Parana	Abbreviation: PARV

Status
Not Arbovirus

Select Agent
No

SALS Level
2

SALS Basis
Level 2 arenaviruses are not known to cause serious acute disease in man and are not acutely pathogenic for laboratory animals, including primates. Survey experience is sufficient to conclude that laboratory aerosol infection does not occur in the course of routine work with cell cultures and animals not subject to chronic infection. In view of reported high frequency of laboratory aerosol infection that occurred in workers manipulating high concentrations of Pichinde virus, it is strongly recommended that work with high concentrations of Level 2 arenaviruses be done at Level 3.

Other Information

Antigenic Group
Tacaribe

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation
12056

Accession Number

Original Date Submitted
2/14/1985

Family
Arenaviridae

Genus
Arenavirus

Information From
Patricia Ann Webb

Address
Middle America Research Unit, Box 2011, Balboa Heights, Canal Zone

Information Footnote
Reviewed by editor

Section II - Original Source

Isolated By (name)
Patricia Ann Webb (1)

Isolated at Institute
Middle America Research Unit

Host Genus
Oryzomys buccinatus

Species

Host Age/Stage
Adult

Sex
Female

Isolated From	Isolation Details
Organs/Tissues	**Kidney**

Signs and Symptoms of Illness
None

Arthropod

Time Held Alive before Inoculation

Collection Method
Live trapped

Collection Date
8/16/1965

Place Collected (Minimum of City, State, Country)
San Francisco, Misiones, Paraguay

Latitude
26° 25' S

Longitude
56° 32' W

Macrohabitat
Mature secondary forest

Microhabitat
Forest floor

Method of Storage until Inoculated
Liquid nitrogen and -70dC Revco

Footnotes

Section III - Method of Isolation

Inoculation Date
9/20/1966

Animal (Details will be in Section 6)
nb hamster

Route Inoculated
Intracerebral

Reisolation
Yes

Other Reasons

Homologous Antibody Formation by Source Animal
Not tested

Test(s) Used

Footnotes

Section IV - Virus Properties

Physicochemical
RNA

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 **<1.3 dex**	Control Titer **7.8 dex**
Lipid Solvent (deoxycholate)	After Treatment Titer	Control Titer

Other (formalin, radiation)

Virion Morphology

Shape **Pleomorphic to spherical**	Dimensions **110 nm**	
Mean nm	Range **60-280 nm**nm	
Measurement Method **Electron microscopy (2)**	Surface Projections/Envelope **Club-shaped projections; envelope observed (2)**	Nucleocapsid Dimensions, Symmetry **Intravirionic dense granules, no symmetry (2)**

Morphogenesis

Site of Constituent Formation in Cell	Site of Virion Assembly	Site of Virion Accumulation
Inclusion Bodies **Intracytoplasmic inclusions (2)**	Other	

Hemagglutination

Hemaggiutination **Not tried**	Antigen Source	Erythrocytes (species used)
pH Range	pH Optimum	
Temperature Range	Temperature Optimum	
Remarks		
Serologic Methods Recommended **CF and NT**		
Footnotes		

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

Immune Sera	Parana Antigen CF Ht/Ho	Parana Antigen CF Ratio	Parana Hamster Immune Serum CF Ht/Ho	Parana Hamster Immune Serum CF Ratio
Machupo	32/256	1/8	32/512	1/16
Junin	16/16	1/1	32/512	1/16
Tacaribe	8/64	1/8	32/512	1/16
Amapari	16/64	1/4	32/512	1/16
Tamiami	16/128	1/8	32/512	1/16
Pichinde	16/128	1/8	64/512	1/8

Neutralization

Plaque reduction in Vero cells. Serum NT antibody titer Ho =64

Ht =<4

Direct Immunofluorescence

No reaction with other Tacaribe group members.

Indirect Immunofluorescence

1+ fluorescence with Parana antiserum against LCM-infected cells (3T3)

(viral antigen)

Section VI - Biologic Characteristics

Virus Source (all VERTEBRATE isolates)
Spleen (LV), kidney (LV).

Lab Methods of Virus Recovery (ALL ISOLATIONS)
Newborn hamsters and Vero cell cultures

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 cells (CL)	SHB 4					Plaques	7.2 *	

* 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
Oryzomys buccinatus	3/4	0/4 NT	Misiones, Paraguay
Oryzomys nigripes	0/4	0/4 NT	
Zygodontomys sp.	0/3	0/5 NT	
Rattus sp.	0/5	0/10 NT	
Mus sp.	0/47	0/47 NT	
Phyllotis sp.	0/41	0/41 NT	
Man		0/412 NT	Misiones, Boqueron, Paraguay

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)		ic	Illness	10-15	
Mice (nb)		ip			
Mice (nb)		sc			
Mice (wn)		ic			
Mice (wn)		ip	None observed		
hamster (nb)		ic 0.02	Death	8	8.2
hamster (ad)		ip	No illness observed; CF antibody		

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)
Paraguay

Suspected (Antibody only detected)

Section XIII - References

1. Webb, P.A., et al. 1970. Arch. ges. Virusforsch. 32:379-388.
2. Murphy, F.A., et al. 1970. J. Virol 6:507-518.

Remarks