

<b>Virus Name: Pacui</b>		<b>Abbreviation: PACV</b>
Status <b>Probable Arbovirus</b>	Select Agent <b>No</b>	SALS Level <b>2</b>
SALS Basis <b>Results of SALS surveys and information from the Catalogue.</b>		
Other Information		
Antigenic Group <b>Phlebotomus Fever</b>		

**SECTION I - Full Virus Name and Prototype Number**

Prototype Strain Number / Designation <b>BeAn 27326</b>	Accession Number	Original Date Submitted <b>7/19/1984</b>
Family <b>Bunyaviridae</b>	Genus <b>Phlebovirus</b>	
Information From <b>Belem Virus Lab.</b>	Address <b>Belem Virus Laboratory, Instituto Evandro Chagas, Belem, Para, Brazil</b>	
Information Footnote <b>Revised by T.H.G. Aitken</b>		

**Section II - Original Source**

Isolated By (name) <b>Belem Virus Laboratory</b>	Isolated at Institute <b>Belem, Para, Brazil</b>	
Host Genus <b>Oryzomys sp.</b>	Species	Host Age/Stage <b>Adult</b>
Sex <b>Not Answered</b>		
<u>Isolated From</u>	<u>Isolation Details</u>	
Signs and Symptoms of Illness <b>None observed</b>	Arthropod	
Time Held Alive before Inoculation		
Collection Method <b>Trapped by Dr. Hugo Laemmert</b>	Collection Date <b>2/10/1961</b>	
Place Collected (Minimum of City, State, Country) <b>Belem-Brasilia Highway, km 92, Brazil</b>		
Latitude <b>3° S</b>	Longitude <b>48° W</b>	
Macrohabitat <b>Virgin forest</b>	Microhabitat <b>Ground level</b>	Method of Storage until Inoculated <b>Not stored</b>
Footnotes		

**Section III - Method of Isolation**

Inoculation Date  
**2/10/1961**

Animal (Details will be in Section 6)  
**nb mice**

Route Inoculated <b>Intracerebral</b>	Reisolation <b>No</b>
--	--------------------------

Other Reasons

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) <b>1:1000</b>	After Treatment Titer <b>&lt;1.5 dex</b>	Control Titer <b>6.0 dex</b>
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 <b>No</b>	Antigen Source <b>SMB ext. by sucrose-acetone</b>	Erythrocytes (species used) <b>Goose</b>
-------------------------------	--	---

pH Range <b>6.0-7.0</b>	pH Optimum
----------------------------	------------

Temperature Range	Temperature Optimum
-------------------	---------------------

Remarks

Serologic Methods Recommended  
**CF, NT**

Footnotes

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

Related to TRVL 39316 and 39357 by CF. Pacui serum (CF titer=64) did not react by CF with: Irituia, Piry, Acara, Akabane, Mossuril, Ingwavuma, Palyam, Wongal, Mapputta, Witwatersrand, Tacaribe, Tete, IG3159, Junin, Bunyamwera, Cache Valley, Ilesha, Germiston, Sororoca, California, Kairi, Wyeomia complex, Guaroa, Batai, Melao, trivittatus, Tahyna, Icoaraci, Hart Park, Naples, VSNJ, Tacaiuma, Sicilian, Ganjam, LCM, Lumbo, Wanowrie, Aruac, Lukuni, Nyamanini, VS-Indiana, Trinita, Turlock, Anopheles A and B, Oropouche, Sathuperi, Manzanilla, Ketapang, Bakau, Chenuda, Simbu, CTF, Minnal, Navarro, Kern Canyon, Pongola, Congo, Lebombo, Wad Medani, Quaranfil, Nyando, Jurona, and Herpes simplex.

Pacui antigen reacted by CF with homologous serum but not with: Grouping sera of groups or complexes A, B, C, Guama, Capim, Bunyamwera, Bakau, California, Simbu, nor with hyperimmune sera of Candiru, Acara, Irituia, Akabane, Hart Park, Mossuril, Ingwavuma, Palyam, Wongal, Tete, Mapputta, Witwatersrand, Tacaribe, IG3159, Junin, VSNJ and Indiana, Nodamura, Tsuruse, K622, LCM, Tacaiuma, Navarro, Lebombo, Anopheles A and B, SF Naples, SF Sicilian, epizootic hemorrhagic deer disease, New Jersey, Nyamanini, Congo, Pongola, Lukuni, Nyando, Quaranfil, Jurona, Trinita, Wad Medani, Wanowrie, and Chenuda.

Pacui serum (CF titer=64) did not inhibit hemagglutinins of: Bwamba, Ingwavuma, Akabane, Tacaiuma, Guama, Naples, Icoaraci, Ketapang, Bakau, Sathuperi, Turlock, Umbre, Manzanilla, EEE, VEE, WEE, Ndumu, Mayaro, Aura, Una, dengue 2, Ilheus, Oriboca, Caraparu, Bunyamwera, Cache Valley, Ilesha, Germiston, Guaroa, California, Tahyna, Witwatersrand, Sicilian. Shows cross-reactions with Caimito, Chilibre, and Gabek Forest (SudAn 754-61) viruses by plaque-neutralization test [7].

For additional information on antigenic relationships, see References [9], [10].

## 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 +/- (g)
		Day (c)	Extent (d)	Titer TCD50/ml (e)	Day (c)	Size (f)	Titer PFU/ml (e)	
Vero (CL)			CPE (6)			Plaques (5)		
BHK-21 (CL)			No CPE				+ (6)	
Aedes albopictus (CL)			No CPE				- (6)	

## 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 capito goeldii	9		Para, Brazil (1)
Oryzomys capito goeldii		2/14 NT	Amapa Terr., Brazil
Oryzomys capito goeldii		119/300 NT	Para, Brazil
Proechimys guyannensis		97/376 NT	
Proechimys guyannensis		0/19 NT	Amapa Terr., Brazil
Nectomys squamipes		7/39 NT	Para, Brazil
Oecomys sp. (arboreal)		0/3 NT	
Echimys sp. (arboreal)		0/3 NT	
Didelphis marsupialis		19/105 NT	
Metachirus nudicaudatus		3/11 NT	

Philander opossum		10/30 NT	
Caluromys philander (arboreal)		3/166 NT	
Marmosa sp.		2/59 NT	
Bats		0/88 NT	Para and Amapa Terr., Brazil
Zygodontomys brevicauda	1	NT antibody	Trinidad, W.I.(2, 3)
Oryzomys capito velutinus	1		
Sentinel guinea pigs		3 NT	Belem, Brazil (1)
Sentinel Proechimys		3 NT	
Phlebotomine flies:			
Lutzomyia flaviscutellata (86 pools, engorged females)	13/5,879		Belem, Brazil; 1968-70
Lutzomyia flaviscutellata (415 pools, unengorged females)	84/41,276		
Lutzomyia flaviscutellata) (157 pools, males)	3/14,282		
Lutzomyia infraspinoso	0/424		

Experimental host and age	Passage history and strain	Inoculation Route-Dose	Evidence of infection	AST (days)	Titer log <sub>10</sub> /ml
Mice (nb)	P-3, prototype	ic 0.02	Death	5.0	8.7
Mice (nb)		ip 0.02	Death	5.3	
Mice (nb)		sc			
Mice (wn)		ic 0.03	Antibody		
Mice (wn)		ip 0.03	Antibody		
Mice (nb)	P-14-20	ic 0.02	Viremia 2-3 days, death		
Mice (nb)		ip 0.02	Viremia 2-3 days, some died		
Mice (nb)		sc 0.02	No viremia, survived		
white rats (nb)	P-14, prototype	ic	No viremia, death 2-6 days		
white rats (nb)		ip	No viremia, NT antibody		
guinea pigs (ad)		ip	NT antibody		
hamsters (24-30 day)	P-14-20	ic,ip,sc	Viremia 1-4 days, NT and CF antibody		
Proechimys guyannensis (juv-ad)	P-14, prototype	im,in	No viremia, no NT antibody		
Oryzomys capito (8 da-ad)		sc	No viremia, 6/11 NT antibody		
Oryzomys capito (20-22 da)	P-2 (150381)	sc	Viremia 1-4 days, NT antibody		
Saguinus, Cebus Saimiri (ad)		sc 0.5	No viremia, no NT antibody		
Zygodontomys (ad)	P-1 (39316)	sc	Viremia, NT and CF antibody (2)		

**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
Lutzomyia longipalpis, infected with Pacui virus, transmitted to 32% of progeny (11). Transovarial transmission demonstrated in Lutzomyia flaviscutellata (12).									

**Section X - Histopathology**

Character of lesions (specify host)  
**nb mice, ic, ip: encephalitic lesions in brain, lesions in striated skeletal muscles; occasional lesions in thymus; foci of fatty infiltration in liver of some mice. ad mice, ic: encephalitis of variable intensity. Occasional lesions in liver after ic or ip inoc. (8).**

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)  
**Brazil and Trinidad**

Suspected (Antibody only detected)

### Section XIII - References

1. Aitken, T.H.G., et al. 1975. *Am. J. Trop. Med. Hyg.* 24:358-368.
2. Jonkers, A.H., et al. 1968. *Am. J. Trop. Med. Hyg.* 17:276-284.
3. Spence, L., et al. 1968. *Prog. Med. Virol.* 10:415-486.
4. Bensabath, Gilberta. Personal communication.
5. Bergold, G.H. and Mazzoli, R. 1968. *J. Gen. Virol.* 2:273-284.
6. Buckley, S.M. Personal communication.
7. Tesh, R.B., et al. 1975. *Am. J. Trop. Med. Hyg.* 24:135-144.
8. Dias, L.B. Personal communication. 1981.
9. Tesh, R.B., et al. 1982. *Am. J. Trop. Med. Hyg.* 31:149-155.
10. Travassos Da Rosa, A.P.A., et al. 1983. *Am. J. Trop. Med. Hyg.* 32:1164-1171.
11. Tesh, R.B. *Current Topics in Vector Res.* 2: pp 57-76.
12. Herve, J.P. et al. 1984. *Cah. ORSTOM Ser. Entomol. Med. Parasitol.* 22:207-212".

### Remarks