Virus Name: Piry		Abbreviation: PIRYV
Status **Possible Arbovirus**	Select Agent **No**	SALS Level **3**

SALS Basis
Results of SALS surveys and information from the Catalogue.

Other Information
USDA Permit Required

Antigenic Group
Vesicular Stomatitis

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation	Accession Number	Original Date Submitted
BeAn 24232		1/27/1985

Family	Genus
Rhabdoviridae	**Vesiculovirus**

Information From	Address
Belem Virus Lab.	**Belem Virus Laboratory, Instituto Evandro Chagas, Belem, Para, Brazil**

Information Footnote
Reviewed by editor

Section II - Original Source

Isolated By (name)	Isolated at Institute	
Belem Virus Lab.	**Belem, Para, Brazil**	
Host Genus **Philander opossum**	Species	Host Age/Stage **Adult**

Sex
Male

Isolated From	Isolation Details
Organs/Tissues	**Spleen and liver**

Signs and Symptoms of Illness	Arthropod
None	

Time Held Alive before Inoculation

Collection Method	Collection Date
Trapped	**10/12/1960**

Place Collected (Minimum of City, State, Country)
Utinga forest, Brazil

Latitude	Longitude
1° 28' S	**48° 27' W**

Macrohabitat	Microhabitat	Method of Storage until Inoculated
Watershed forest	**Ground level**	**Not stored**

Footnotes

Section III - Method of Isolation

Inoculation Date
10/12/1960

Animal (Details will be in Section 6)
nb mice

Route Inoculated
Intracerebral

Reisolation
Yes

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) **1:1000**	After Treatment Titer **<4.5 dex**	Control Titer **>9.3 dex**

Other (formalin, radiation)

Virion Morphology

Shape **Bullet-shaped**	Dimensions **155 x 62 nm**	
Mean nm	Range nm	
Measurement Method **Electron microscopy (1)**	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	**Vero roller cultures (2), supernatant fluid Attempts with SMB, liver, serum tr. by acetone; sucrose-acetone; prot., freon; and freon-n-heptane have failed.**	**Goose**
pH Range	pH Optimum **6.2**	
Temperature Range	Temperature Optimum **4dC**	

Remarks

Serologic Methods Recommended
HI, CF, NT

Footnotes

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

Not related by CF to viruses isolated in Belem using sera for groups A, B, C, Guama; for complexes Capim, California, Wyeomyia; and specific sera for Cache Valley, Kairi, Guaroa, Oropouche, Tacaiuma, Mirim, Icoaraci, Candiru, Acara, Pacui, Irituia, Jurona.
CF tests with Piry antigen against antisera for 48 arboviruses and LCM showed no reactions. CF tests with Piry hyperimmune mouse serum against 62 arboviruses and Herpes simplex antigens were negative. In HI tests, Piry hyperimmune serum failed to inhibit HA of 33 arboviruses.
Serological relationship to other members of VSV group found as follows:

	Piry Antigen/Virus						Piry Antiserum				
	HI		CF		NT		HI		CF		NT
Immune Sera	Ht/Ho	Ratio	Ht/Ho	Ratio	Ht/Ho	Antigens/ Viruses	Ht/Ho	Ratio	Ht/Ho	Ratio	Ht/Ho
VSNJ			0/256	0	2.5/5.0+	VSNJ			0/128	0	0/5.7
VSI			0/256	0	2.3/6.2+	VSI			0/128	0	0/5.7
Cocal			0/256	0	2.6/7.0+	Cocal			0/128	0	1.7/5.7
Chandipura			8/128	1/16	3.4/5.7+	Chandipura			0/128	0	4.6/5.7

NT: LNI in dex

Section VI - Biologic Characteristics

Virus Source (all VERTEBRATE isolates)
Serum (M), pool of spleen 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)	
BHK-21(CL)	P-3				<4.0	Plaques	8.3*(4)		
Chick embryos(PC)					2-3	2 sizes	7.5(4)		
Turkey embryo(PC)					2-3	2 sizes	7.5(4)		
Mouse embryo(PC)							7.95(4)		
GMK (CL)						Plaques (4)			
Vero (CL)			CPE (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
Man (blood; lab infection)	1	15/83 NT	Xingu, Brazil
Man		3%/31 NT	Rondonia, Brazil
Man		5/374 NT	Elsewhere, Brazil
Philander opossum	1		Para, Brazil (3)
Philander opossum		0/31 NT	Para and Amapa, Brazil
Other marsupials		16/337 NT	
Monkeys		8/104 NT	
Edentates		8/91 NT	
Rodents		13/508 NT	Para, Brazil
Bats		1/39 NT	
Birds		0/178 NT	
Pigs		4/178 NT	
Water buffalo		2/291 NT	
Horses, cattle		0/103 NT	
Man		105/261 *	Rio Grande do Sul, Brazil (7)

No isolation from arthropods

* Rates increased with age

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)	P-3	ic 0.02	Death	1.3	10.7+
Mice (nb)		ip 0.02	Death	1.7	
Mice (nb)		sc			
Mice (wn)		ic 0.03	Death	3.8	
Mice (wn)		ip 0.03	Antibody		>20.0
white rats (ad)	Prototype	ip 0.2	Antibody		
guinea pigs (ad)		ip 0.2	Viremia, antibody		
hamsters (ad)		ip 0.2	Viremia, death	2.5	
Didelphis, Philander(ad)		im,sc 0.2	Viremia, death	4-12	

S-180 ascites tumor of mice destroyed by Piry virus, but virus titer potentiated (6).

Ponies, intralingual, elevated temp., ulcers at inoc. site; antibody production (8).

Steers, sheep, goats, intralingual, antibodies (8).

Pigs, inoc. in snout, heel, coronary band, antibodies (8).

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
Ae aegypti	By parenteral inoculation achieved 3 serial passages in salivary glands (5).								

Section X - Histopathology

Character of lesions (specify host)
Diffuse in connective tissue, liver and kidneys (mice). In a Didelphis, reticulohistiocytic hyperplasia, with long mononuclear cells, in focal areas of renal interstitial tissue, hepatic sinusoids, and red pulp of spleen (L.B. Dias).

Inclusion Bodies — Intranuclear

Organs/Tissues Affected

Category of tropism

Section XI - Human Disease

In Nature — Residual — Death

Subclinical — Overt Disease
Significant

Clinical Manifestations
Fever (S), headache (R), prostration (S), myalgia (S), arthralgia (S), and RUQ tenderness, loss of desire to smoke, anorexia

Number of Cases
6 (all laboratory infections)

Category (i.e. febrile illness, etc.)

Section XII - Geographic Distribution

Known (Virus detected)
Brazil

Suspected (Antibody only detected)

Section XIII - References

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8. Wilks, C.R. and House, J.A. 1984. J. Hyg. 93:147-156".

Remarks