Virus Name: Candiru	Abbreviation: CRUV

Status
Possible Arbovirus

Select Agent
No

SALS Level
2

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

Other Information

Antigenic Group
Phlebotomus Fever

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation
BeH 22511

Accession Number

Original Date Submitted
1/27/1985

Family
Bunyaviridae

Genus
Phlebovirus

Information From
Belem Virus Lab

Address
Belem Virus Laboratory, Instituto Evandro Chagas, Belem, Para, Brazil

Information Footnote
Reviewed by editor

Section II - Original Source

Isolated By (name)
Belem Virus Laboratory

Isolated at Institute
Belem, Para, Brazil

Host Genus
Man

Species

Host Age/Stage
Adult

Sex
Male

Isolated From	Isolation Details
Serum/Plasma	

Signs and Symptoms of Illness
Fever, headache, dizziness, pain in back, muscles, and joints

Arthropod

Time Held Alive before Inoculation

Collection Method
Venepuncture

Collection Date
8/27/1960

Place Collected (Minimum of City, State, Country)
Km 94, Belem-Brasilia Highway, Brazil

Latitude
2° S

Longitude
47° W

Macrohabitat
Primary forest

Microhabitat

Method of Storage until Inoculated
Not stored

Footnotes

Section III - Method of Isolation

Inoculation Date
8/27/1960

Animal (Details will be in Section 6)
nb mice

Route Inoculated
Intracerebral

Reisolation
Not tried

Other Reasons

Homologous Antibody Formation by Source Animal
Yes

Test(s) Used
HI, NT, HI = 320; NT, LNI = >1.5 dex

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 **<2.5 dex**	Control Titer **5.3 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 + protamineMouse serum also used for prep. of HA antigen**	**Goose**
pH Range **6.0-6.8**	pH Optimum	
Temperature Range **27dC and 37dC**	Temperature Optimum	
Remarks		
Serologic Methods Recommended **HI, CF, NT**		
Footnotes		

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

Testing with Phlebotomus fever group viruses as follows:

Hyperimmune serum or antigen	HI titer of hyperimmune Candiru serum	HI titer of serum with Candiru antigen	HI titer of serum with homologous antigen
Candiru	>640		
Icoaraci	40	>640	>1280
Itaporanga	0	0	>640
Anhanga	0	0	160
Bujaru	0	0	>640
Chagres		0	

Hyperimmune serum or virus	LNI (in dex) of Candiru serum with	LNI (in dex) of serum with Candiru virus	LNI (in dex) of serum withhomologous virus

Candiru	4.4		
Icoaraci	0.6	1.9	2.8
Itaporanga	0.5	<0.2	2.4
Anhanga	0.0	<0.2	1.3
Bujaru		<0.3	
Chagres		1.8	
Sicilian		1.0	

Hyperimmune serum or Antigen	CF titer of Candiru with	CF titer of serum with Candiru antigen	CF titer of serum with homologous antigen
Candiru	64		
Icoaraci	0	0	256
Naples	0	0	256
Sicilian	0	0	256

Mouse ascitic fluids were used instead of sera in some cases; all sera made in mice.

For further information on antigenic relationships, see References [3] - [5] .

Section VI - Biologic Characteristics

Virus Source (all VERTEBRATE isolates)
Serum (M)

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 10				3-4	1 mm	6.8* (2)		
LLC-MK2 (CL)					3	1 mm	4.9 (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	1/2,095		Para, Brazil (1)
Man		1/253 HI	Amazon Valley, Brazil
Rodents	0/11,043		Para, Brazil (1)
Marsupials	0/1,950		
Monkeys	0/87		
Bats	0/878		
Edentates	0/127		
Carnivores	0/32		
Horses and cattle	0/185		
Birds	0/6,000	1/805 HI	
Reptiles	0/5,926		
Amphibians	0/42		
Arthropods pools	0/20,758		Amazon region, Brazil

NOTE: Above totals tested were through May, 1964. No further isolation has been made from any source at Belem through December, 1970.

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 3	ic 0.02	Death	3.7	7.0
Mice (nb)		ip 0.02	Death	4.8	
Mice (nb)		sc			
Mice (wn)		ic 0.03	Antibody		
Mice (wn)		ip 0.03	Antibody		
hamsters(25 days)	SMB 21		Viremia, HI and CF antibodies		

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
Does not multiply in mosquitoes by inoculation of salivary glands. (Whitman, L. Personal communication).									

Section X - Histopathology

Character of lesions (specify host)
nb mice: hyaline necrosis of isolated hepatocytes or of small groups of same (L.B. Dias)

Inclusion Bodies — Intranuclear

Organs/Tissues Affected

Category of tropism

Section XI - Human Disease

In Nature — Residual — Death
Reported

Subclinical — Overt Disease

Clinical Manifestations
Fever (R), headache (R), prostration (R), myalgia (R), arthralgia (R), coryza

Number of Cases
One

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

Section XII - Geographic Distribution

Known (Virus detected)
Brazil

Suspected (Antibody only detected)

Section XIII - References

1. Woodall, J.P. 1967. Atas Simpos. Biota Amazon. 6:31-63.
2. Stim, T.B. 1969. J. Gen. Virol. 5:329-338.
3. Tesh, R.B., et al. 1975. Am. J. Trop. Med. Hyg. 24:135-144.
4. Tesh, R.B., et al. 1982. Ibid. 31:149-155.
5. Tesh, R.B., et al. 1983. Ibid. 32:1164-1171.

Remarks