Virus Name: Icoaraci	Abbreviation: ICOV

Status
Probable 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
BeAn 24262

Accession Number

Original Date Submitted
1/27/1985

Family
Bunyaviridae

Genus
Phlebovirus

Information From
Robert E. Shope

Address
Yale Arbovirus Research Unit, New Haven, Connecticut

Information Footnote
Reviewed by editor

Section II - Original Source

Isolated By (name)
Belem Virus Lab. (1)

Isolated at Institute
Belem, Para, Brazil

Host Genus
Unidentified rodent

Species

Host Age/Stage
Adult

Sex
Male

Isolated From	Isolation Details
Organs/Tissues	**Pool of liver, spleen, kidney, heart**

Signs and Symptoms of Illness
None

Arthropod

Time Held Alive before Inoculation

Collection Method
At autopsy following sacrifice of animal

Collection Date
10/14/1960

Place Collected (Minimum of City, State, Country)
Instituto Agronomico do Norte, Brazil

Latitude
1° 28' S

Longitude
48° 27' W

Macrohabitat
Second growth forest

Microhabitat
Ground trap

Method of Storage until Inoculated
None

Footnotes

Section III - Method of Isolation

Inoculation Date
10/14/1960

Animal (Details will be in Section 6)
nb mice

Route Inoculated
Intracerebral

Reisolation
Yes

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 **<2.5 dex**	Control Titer **6.5 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**	**Goose**
pH Range	pH Optimum	
6.0-6.6	**6.2**	
Temperature Range	Temperature Optimum	
27dC and 37dC	**27dC and 37dC**	

Remarks

Serologic Methods Recommended
HI, CF, NT

Footnotes

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

Hyperimmune serum or antigen	HI titer of hyperimmune Icoaraci serum		HI titer of serum with Icoaraci antigen	HI titer of serum with homologous antigen
	No. 1	No. 2		
Icoaraci	1280	320		
Candiru	640		40	640
Itaporanga	80		320	640
Anhanga	20		320	160
Bujaru	160		80	640
Chagres		40	20	640
Naples		10	320	640
Sicilian		10	0	320

Relationship to Phlebotomus fever group viruses by NT and CF not conclusive:

Hyperimmune serum or virus	LNI (in dex) of Icoaraci serum with	LNI (in dex) of serum with Icoaraci virus	LNI (in dex) of serum with homologous virus
Icoaraci	2.8		
Candiru	1.9	0.6	4.4
Itaporanga	0.2	0.5	2.4
Anhanga	0	0.8	1.3
Bujaru		0.5	
Chagres		0.5	
Sicilian		0.6	

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

For further information on antigenic relationships, see References [5] - [7] .

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	
		Day (c)	Extent (d)	Titer TCD50/ml (e)	Day (c)	Size (f)	Titer PFU/ml (e)	+/- (g)	
BHK-21 (CL)	P-2				6-7	Plaques	>6.2* (3)		
Vero (CL)	P-9				8	1 mm	5.7 (4)		
LLC-MK2 (CL)					6	1 mm	5.1 (4)		

* 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
Unidentified rodent	1		Para, Brazil
Proechimys guyannensis oris	12	89/320 HI	
Oryzomys goeldi	0/4,351	26/286 HI	
Nectomys aquaticus	0/424	4/52 HI	
Other rodents	0/979		
Marsupials	0/1,950	6/223 HI	
Chiroptera	0/878	0/47 HI	
Edentata	0/127		
Carnivora	0/32		
Horse and cattle	0/185		
Reptiles	0/5,926	0/24 HI	
Birds	3		Sao Paulo, Brazil (2)
Birds		4/805 HI	Para, Brazil
Amphibia	0/42		
Monkeys	0/87		
Humans	0/2,095	0/608 HI	
Sentinel mice	1		Sao Paulo, Brazil (2)

Mosquitoes: Anopheles cruzii 5; Aedes, 2; Sabethini, 3; Culex, 2, Sao Paulo, Brazil(2)

Phlebotomines: Lutzomyia flaviscutellata, 1, Para, Brazil

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	7.3	7.2
Mice (nb)		ip 0.02	Some die		
Mice (nb)		sc			
Mice (wn)		ic 0.03	Antibody		
Mice (wn)		ip 0.03	Antibody		
hamsters (25 days)	Prototype		HI and 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
Does not multiply in mosquitoes by inoculation of salivary glands. (Whitman, L. Personal communication)									

Section X - Histopathology

Character of lesions (specify host)
Encephalitis only (L.B. Dias)

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

Suspected (Antibody only detected)

Section XIII - References

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Remarks