Virus Name: Acara	Abbreviation: ACAV

Status
Probable Arbovirus

Select Agent
No

SALS Level
2

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

Other Information

Antigenic Group
Capim

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation
BeAn 27639

Accession Number

Original Date Submitted
2/27/1985

Family
Bunyaviridae

Genus
Bunyavirus

Information From
Belem Virus Laboratory

Address
Belem Virus Laboratory, Instituto Evandro Changas, 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
Swiss mouse

Species

Host Age/Stage
3 Days

Sex
Not Answered

Isolated From	Isolation Details
Organs/Tissues	**Brain and liver pool**

Signs and Symptoms of Illness
Death

Arthropod

Time Held Alive before Inoculation

Collection Method
Exposed 24 hrs.

Collection Date
2/22/1961

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

Latitude
2° S

Longitude
48° W

Macrohabitat
Secondary growth forest

Microhabitat
One meter from ground in wire cage under hood

Method of Storage until Inoculated
None

Footnotes

Section III - Method of Isolation

Inoculation Date
2/22/1961

Animal (Details will be in Section 6)
nb mice

Route Inoculated
Intracerebral

Reisolation
Not tried

Other Reasons
Same virus from four other exposed siblings

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 **2.3 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; serum ext. by sucrose-acetone; acetone**	**Goose**
pH Range **6.0 - 7.0**	pH Optimum	
Temperature Range	Temperature Optimum **4° C**	

Remarks

Serologic Methods Recommended
CF, HI, NT

Footnotes

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

Acara antigen and immune serum failed to react in CF tests with a large number of known arboviruses as shown in published Catalogue ([5]). Acara antiserum failed to inhibit HA of 30 arboviruses ([5]).
Acara related by HI and/or CF to members of Capim group as follows:

	Antigen of Registered Virus				Immune Serum of Registered Virus				
	HI		CF		HI		CF		
Immune Serum	Ht/Ho	Index	Ht/Ho	Index	Antigen	Ht/Ho	Index	Ht/Ho	Index
Capim	0/80	0	0/64	0	Capim	0/40	0	0/16	0
Guajar	0/80	0	0/32	0	Guajara	0/40	0	0/16	0
BeAn 20076 *	0/80	0	0/32	0	BeAn 20076	0/40	0	0/16	0
Gamboa +	0/320	0		Gamboa	0/20	0			
Benfica	0/80	0	16/32	1/2	Benfica	0/40	0	8/16	1/2
Benevies	0/40	0	16/32	1/2	Benevide	0/40	0	16/16	1/1
Morich	40/160	1/4	0/256	0	Moriche	40/40	1/1	0/16	0
Juan Diaz +	10/640	1/64		Juan Diaz	0/20	0	0/8	0	

* Close to Bushbush

+ Tests done by G. Justines

NOTE: MARU 8620 from a sentinel mouse in Panama is very close to Acara.

SIRACA has antigenically classified Acara virus as a distinct virus type and placed it in the Acara complex, one of five complexes comprising the Capim serogroup ([6]).

Section VI - Biologic Characteristics

Virus Source (all VERTEBRATE isolates)
Blood (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)
Chick embryo (PC)						Plaques	(inconsistent)	(2)
Vero (CL)	P-2				6	1mm	5.7 **	
LLC-MK2 (CL)					3	3mm	7.9(3)	

** 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
Sentinel mice	29/16,315		Para, Brazil (1)
Sentinel mice	1		Panama
Nectomys squamipes (blood)	2	2/8 NT	Para, Brazil (1)
Proechimys		19/172 NT	
Caluromys		1/32 NT	
Oryzomys		3/76 NT	
Philander		1/3 NT	
Metachirus		1/8 NT	
Didelphis		1/75 NT	
Marmosa		2/48 NT	
Culex spp.	2		
Culex B17	1		
Culex amazonensis	1		Panama

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	3.7	7.0
Mice (nb)		ip 0.02	Death	7.5	
Mice (nb)		sc			
Mice (wn)		ic 0.03	Antibody		
Mice (wn)		ip 0.03	Antibody		
hamsters (ad)		ic	Death		

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 :	virus carried through 8 serial salivary gland passages by parenteral inoculation (4).								
An quadrimaculatus :	virus carried through 2 serial salivary gland passages by parenteral inoculation (4).								
Cx quinquefasciatus :	virus carried through 4 serial salivary gland passages by parenteral inoculation (4).								

Section X - Histopathology

Character of lesions (specify host)
ad, nb mice: 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; Panama

Suspected (Antibody only detected)

Section XIII - References

1. Woodall, J.P. 1967. Atas Simpos. Biota Amazon. 6:31-63.
2. Pinheiro, F.P. Personal communication.
3. Stim, T.B. 1969. J. Gen. Virol. 5:329-338.
4. Whitman, L. Personal communication.
5. Taylor, R.M. 1967. Catalogue of Arthropod-borne Viruses of the World. PHS Publication No. 1760, U.S. Govt. Printing Office, Washington, D.C., p. 598.
6. Calisher, C.H., et al. 1985. Intervirology. To be submitted.

Remarks