Virus Name: Aroa	Abbreviation: AROAV

Status
Possible Arbovirus

Select Agent
No

SALS Level
2

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

Other Information

Antigenic Group
B

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation
Maracay 01809

Accession Number

Original Date Submitted
8/31/1984

Family
Flaviviridae

Genus
Flavivirus

Information From
Julieta de Siger

Address
Instituto de Investigaciones Veterinarias, Apartado 70, Maracay, Aragua, Venezuela

Information Footnote
Reviewed by editor

Section II - Original Source

Isolated By (name)
Seccion de Arbovirus

Isolated at Institute
Maracay, Venezuela

Host Genus
Hamster (Cricetus auratus)

Species

Host Age/Stage
Adult

Sex
Male

Isolated From	Isolation Details
Organs/Tissues	**Brain**

Signs and Symptoms of Illness

Arthropod

Time Held Alive before Inoculation

Collection Method

Collection Date
12/13/1972

Place Collected (Minimum of City, State, Country)
Vicinity of Aroa river, Venezuela

Latitude
10° 39' N

Longitude
68° 28' W

Macrohabitat
Tropical rain forest (<100 meters elevation)

Microhabitat
1m above ground level. Hamsters exposed from 4 to 8 December 1972.

Method of Storage until Inoculated
Whole animal at -70C, 26 months; then brain suspension at -70C for 8 months.

Footnotes

Section III - Method of Isolation

Inoculation Date
10/21/1975

Animal (Details will be in Section 6)
nb mice

Route Inoculated
ic and ip

Reisolation
No

Other Reasons
***When attempted three years after isolation. No other group B viruses in laboratory.**

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)	After Treatment Titer	Control Titer

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	
6.0-7.2	**6.8**	
Temperature Range	Temperature Optimum	
Remarks		
Serologic Methods Recommended		
CF, HI		
Footnotes		

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

Initial HI and CF tests performed in Maracay with nb mouse brain antigen (sucrose-acetone) and several grouping immune ascitic fluids indicated that Aroa is a group B virus. Further CF testing at YARU indicated that Aroa immune serum (2 injections) homologous titer was 64 [1] . Reactions with dilutions 1:4 and 1:16 of antigens for all the group B viruses were either negative or 8, with the exception of Alfuy , Bussuquara , and Rocio , with which the titer was 32.
Additional CF results, obtained also in YARU , were as follows:

	Serum						
Antigen	Aroa	Bussuquara	Alfuy	Rocio	Antigen	Aroa	Bussuquara
Aroa	128/>256[a]	8/8	8/8	8/8	Aroa	128/1024	32/512
Bussuquara	32/64	128/128	8/8		Bussuquara	64/128	256/256
Alfuy	8/64	8/8	256/>256		Control	0	0
Rocio	16/16			512/64			

[a] Antibody titer/antigen titer

It is concluded that, by CF, Aroa is a new virus of group B and that its closest relative is Bussuquara [1] .

In addition, Aroa antigen and antibody were tested by CF against reagents for the following 21 vector-unassociated flaviviruses: Apoi (homologous antibody titer=1024), Saboya (4096), Sokoluk (2048), Israel turkey meningoencephalitis (2048), Batu Cave (1024), Phnom Penh bat (1024), Carey Island (512), Cowbone Ridge (64), Jutiapa (256), Modoc (2048), San Perlita (2048), Sal Vieja (2048), MA-387-72 (1024), Dakar bat (32), BP-111(45), Entebbe bat (1024), Koutango (128), MML (64), Negishi (128), Rio Bravo (256), Tamana bat (128). A close relationship was not detected with any of the vector-unassociated flaviviruses [2] .
Serum dilution plaque-reduction neutralization tests (SDPRNT) indicated that Aroa and Bussuquara viruses were distinguishable both ways as shown below [3] .

	Antibody to:	
Virus	BSQ	AROA
BSQ	640 [b]	<40
AROA	80	> 10240

[b] Reciprocal of antibody dilution giving 90% plaque reduction.

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)
Vero (CL)	P5SM1				9		5.8 [c](2)	
LLC-MK2 (CL)					6		6.6 (2)	
DE (PC)					6		7.0(2)	

[c] 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. tsted Test used	Country and region
Sentinel hamster (brain)	1/84		Vicinity of Aroa river, Yumare, Venezuela

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)	Prototype SM3	ic 0.025	Death; viremia not investigated	6.3-6.8	8.1
Mice (nb)		ip 0.025	Death; viremia not investigated	6.8	7.7
Mice (nb)		sc			
Mice (wn)		ic 0.025	Some died between days 7-9		
Mice (wn)		ip 0.025	No deaths		

Section IX - Experimental Arthropod Infection and Transmission

Section X - Histopathology

Character of lesions (specify host)

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)
Venezuela

Suspected (Antibody only detected)

Section XIII - References

1. Casals, J. Personal communication. 1978.
2. Wesley, I.V. and Calisher, C.H. 1982. Am. J. Trop. Med. Hyg. 31:1273-1284.
3. Lazuick, J. and Calisher, C.H. Personal communication. 1980.

Remarks