

Virus Name: Araguari		Abbreviation: ARAV
Status Possible Arbovirus	Select Agent No	SALS Level 3
SALS Basis Insufficient experience with virus; i.e., experience factor from SALS surveys was less than 500 in laboratory facilities with low biocontainment.		
Other Information		
Antigenic Group Ungrouped		

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation BeAn 174214	Accession Number	Original Date Submitted 5/7/1984
Family Not listed	Genus Not listed	
Information From F.Pinheiro and Amelia P.A.T.	Address Instituto Evandro Chagas, FSESP, Brazilian Misnistry of Health, CP 621, 66.000 Belem, Brazil	
Information Footnote		

Section II - Original Source

Isolated By (name) Pinheiro, F.P. et al.	Isolated at Institute Instituto Evandro Chagas	
Host Genus Philander o. opossum	Species	Host Age/Stage Adult
Sex Male		
<u>Isolated From</u>	<u>Isolation Details</u>	
Organs/Tissues	Pool of spleen, liver, heart, and kidney	
Signs and Symptoms of Illness	Arthropod	
Time Held Alive before Inoculation		
Collection Method Trapped	Collection Date 9/11/1969	
Place Collected (Minimum of City, State, Country) Serra do Navio, T.F. Amapa, Brazil		
Latitude 1° N	Longitude 52° W	
Macrohabitat Tropical forest, periodically inundated	Microhabitat Primary vegetation ar ground level, shade	Method of Storage until Inoculated At -60dC
Footnotes		

Section III - Method of Isolation

Inoculation Date 11/14/1969	
Animal (Details will be in Section 6) nb mice	
Route Inoculated Intracerebral	Reisolation Not tried
Other Reasons Virus different from any available in the laboratory	
Homologous Antibody Formation by <u>Source Animal</u> 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)	
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<u>Stability of Infectivity (effects)</u>		
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 2.8 dex	Control Titer 5.4 dex
Other (formalin, radiation)		
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<u>Virion Morphology</u>		
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

Hemagglutination Yes	Antigen Source SM liver ext. by sucrose-acetone + sonication	Erythrocytes (species used) Goose
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pH Range 5.8-6.0	pH Optimum 5.8
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Temperature Range	Temperature Optimum
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Remarks

Serologic Methods Recommended
CF, HI, NT

Footnotes

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

No reactions were observed in HI tests between Araguaari virus antigen and the following hyperimmune ascitic fluids from the Evandro Chagas Institute (IEC) stock: groups A, B, C, Guama, Capim, Bunyamwera, and Phlebotomus fever; or antibody to individual viruses: Acara, Utinga, Timbo, Chaco, Mirim, Jurona, Melao, Piry, Irituia, Turlock Oropouche, Lukuni, Pacui, Amapari, Marco, Tacaiuma, Cocal, Agua Preta, Serra do Navio, Belem, GD VII, and EMC.

An immune serum to Araguaari virus with a homologous titer of 80 did not react in HI tests with the following antigens: Pixuna, Mucambo, EEE, WEE, Mayaro, Yellow fever, Bussuquara, Ilheus, SLE, Oriboca, Itaqui, Marituba, Murutucu, Apeu, Caraparu, Nepuyo, Catu, Guama, Moju, Ananindeua, Bimiti, Timboteua, Benfica, Benevides, Bushbush, Icoaraci, Bujaru, Itaporanga, Urucuri, Oropouche, Utinga, Turlock, Tacaiuma, Guaroa, and Belem.

The antigen of Araguaari virus did not react in CF tests with the following grouping ascitic fluids distributed by the National Institutes of Health: groups A, B, C, Guam, Bunyamwera, Capim, Simbu, VSV, Phlebotomus fever, Tacaribe, California, Sakhalin, Kemerovo, and Palyam; or with polyvalents Quarafil, Patois, Rabies, etc. (Rabies, Vaccinia, Herpes simplex, Lymphocytic choriomeningitis, Newcastle disease), Anopheles A, etc. (groups Anopheles A, Anopheles B, and Turlock), Coongo, and polyvalents 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, and 12. It was also negative with IEC stock hyperimmune ascitic fluids or sera to the following viruses: Acara, Utinga, Timbo, Chaco, Mirim, Jurona, Melao, Piry, Irituia, Ieri, Turlock, Oropouche, Lukuni, Pacui, Amapari, Marco, Tacaiuma, Cocal, Agua Preta, Serra do Navio, Belem, Chandipura, trivittatus, Anopheles A, Anopheles B, Cotia, Boracea, Bertioga, Trinita, Manzanilla, Mapputta, Nariva, BeAn 157575, Mosqueiro, SPAn 2220, Cayenne 404, Cayenne 241, Cayenne 564, GD VII, EMC, Santarem, Rabies, and mouse hepatitis.

A mouse hyperimmune serum to Araguaari virus (homologous titer of 32/>64) failed to react by CG test with 193 antigens of nearly all of the arboviruses of the Yale Arbovirus Research Unit collection.

By HI, Araguaari virus antigen (4 units) was not inhibited by the following grouping ascitic fluids distributed by the NIH: groups B, Capim, Bunyamwera, California, Simbu, Phlebotomus, VSV, Tacaribe, Anopheles B, and Turlock, Bwamba, Congo, Palya, Patois, Rabies, etc. (Rabies, LCM, NDV, Herpes simplex, Vaccinia).

Section VI - Biologic Characteristics

Virus Source (all VERTEBRATE isolates)
Pool of spleen, liver, heart, and kidney (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 +/- (g)
		Day (c)	Extent (d)	Titer TCD50/ml (e)	Day (c)	Size (f)	Titer PFU/ml (e)	
Chick embryo (PC)	P-4				8-10	1mm	4.6 *	
Vero (CL)	P-5		No CPE					
BHK-21 (CL)			No CPE					

* 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
Philander opossum (organs)	1	93/240 HI	Serra do Navio, Amapa, Brazil
Man		1/124 HI	
Didelphis marsupialis		137/461 HI	
Marmosa spp.		3/58 HI	
Monodelphis spp.		6/42 HI	
Caluromys spp.		0/10 HI	
Matachirus nudicaudatus		11/35 HI	
Proechimys spp.		9/246 HI	
Other rodents		0/5 HI	
Bats		0/41 HI	

Ungulates		0/13 HI	
Rodents		1/1,746 HI	Amazon region, Brazil
Marsupials		2/643 HI	
Primates		0/461 HI	
Bats		2/670 HI	
Ungulates		0/101 HI	
Reptiles		0/134 HI	
Edentates		0/53 HI	
Carnivores		0/11 HI	
Sentinal chickens		0/104 HI	
Man (non-Indians)		12/23971 HI	
Man (Tuscanos Indians)		9/395 HI	
Man (other Indians)		31/1,145 HI	
Wild birds		2/171 HI	

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-4	ic	Death	3.8	6.9	
mice (nb)		ip	Death	4.1	(liver)	
mice (nb)		sc				
mice (wn)		ic	Antibody			
mice (wn)		ip	Antibody			
hamster (23 day)		P-12	ic	Survived		
hamster (23 day)	P-6	ic	Survived			
hamster (23 day)		ip	Survived			

Section IX - Experimental Arthropod Infection and Transmission

Section X - Histopathology

Character of lesions (specify host)

Newborn mice inoculated ic with 5th passage mouse brain suspension showed multiple foci of necrosis in the liver and edema in the brain; no lesions were observed in the spleen, heart, lungs, or pancreas (1).

Inclusion Bodies

Intranuclear

Organs/Tissues Affected

Liver and Brain

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

1. Dias, L.B. Personal communication.

Remarks

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