

Virus Name: Maguari		Abbreviation: MAGV
Status Arbovirus	Select Agent No	SALS Level 2
SALS Basis Results of SALS surveys and information from the Catalogue.		
Other Information		
Antigenic Group Bunyamwera		

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation BeAr 7272	Accession Number	Original Date Submitted 2/27/1985
Family Bunyaviridae	Genus Bunyavirus	
Information From R.E. Shope and L. Whitman	Address Yale Arbovirus Research Unit, New Haven, Connecticut	
Information Footnote Reviewed by editor		

Section II - Original Source

Isolated By (name) Belem Virus Laboratory	Isolated at Institute Belem, Para, Brazil	
Host Genus Mixed mosquito pool*	Species	Host Age/Stage Adult
Sex Female		
<u>Isolated From</u>	<u>Isolation Details</u>	
Signs and Symptoms of Illness	Arthropod	
Time Held Alive before Inoculation		
Collection Method Human bait	Collection Date 6/1/1957	
Place Collected (Minimum of City, State, Country) Utinga forest, Brazil		
Latitude 1° 28' S	Longitude 48° 27' W	
Macrohabitat Watershed forest	Microhabitat Ground level	Method of Storage until Inoculated At -15dC in mechanical freezer
Footnotes		

Section III - Method of Isolation

Inoculation Date
6/7/1957

Animal (Details will be in Section 6)
nb mice

Route Inoculated
Intracerebral

Reisolation
Not tried

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)	After Treatment Titer	Control Titer

Other (formalin, radiation)

Virion Morphology

Shape	Dimensions 98 nm	
Mean nm	Range nm	
Measurement Method Electron microscopy (8)	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

Antigen Source

Erythrocytes (species used)

Yes

SMB ext. by sucrose-acetone

Goose

pH Range

pH Optimum

6.0-6.4

6.1

Temperature Range

Temperature Optimum

22dC - 37dC

27dC or 37dC

Remarks

*** Contained Aedes scapularis 2, Ae serratus 5, Ae sexlineatus 2, Mansonia sp. 1, and Psorophora ferox 12.**

Serologic Methods Recommended

CF, HI, and NT

Footnotes

*** Contained Aedes scapularis 2, Ae serratus 5, Ae sexlineatus 2, Mansonia sp. 1, and Psorophora ferox 12.**

Maguari is related to Cache Valley and Tensaw. The following data are from Whitman at the Rockefeller Foundation Virus Laboratories, New York:

Cross-HI tests between Maguari, Tensaw and Cache Valley Sera			
Sera	Antigens		
	Maguari BeAr 7272	Cache Valley(6V663)	Tensaw A9-171b
Maguari Mouse (Tr20659 **	160	40	40
Cache Valley (6V633) Rabbit	40	160	40
Tensaw (A9-171b)	40	40	160

** Tr20659 (ex Trinidad) and BeAr 7272 have previously been shown to be indistinguishable.

Cross-neutralization tests in baby mice. Dex virus neutralized		
Sera	Viruses	
	Maguari (BeAr 7272)	CV (6V633)
Maguari Mouse	3.5	2.2
Cache Valley Mouse	2.3	4.6
Cache Valley Rabbit	2.3	3.4

SIRACA has antigenically classified Maguari virus as a subtype of Cache Valley virus. Playas virus and an unregistered virus were also classified as subtypes of Cache Valley virus. The unregistered isolate from Argentina was considered to be a variety of Maguari virus [18].

For additional information on antigenic relationships, see Reference [19].

Section VI - Biologic Characteristics

Virus Source (all VERTEBRATE isolates) Lab Methods of Virus Recovery (ALL ISOLATIONS)
blood (M)(LV), cerebro spinal fluid (M), CNS (M)(LV), heart (M) newborn and weaning mice and hamsters
(LV), lung (M)(LV), liver (M)(LV), spleen (M)(LV), kidney (M)
(LV), skeletal muscles (M)

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, turkey embryo (PC)	P-2				3-5	Plaques	6.6(a)(16)	
BHK-21 (CL)	P-20				4	Plaques	>7.2 (16)	
HeLa (CL)	P-7		CPE	5.7(a)(14)				
Vero (CL)					4	7 mm	6.5 (15)	
LLC-MK2 (CL)					2	2 mm	6.0 (15)	

(a) Expressed in dex

Vertebrate (species and organ) and arthropod	No. isolations/No. tested	No. with antibody/No. tested Test used	Country and region
Man		50/78 NT	Brazil; French Guiana
Man		96/1,560 HI	
Man		14/831 HI	Argentina (5, 6, 9)
Man		95/1,063 HI	Peru (9)
Man		13/63 NT	Colombia (11)
Man		1/17 HI	Para, Brazil
Sentinel mice	2/16,315		Para, Amapa, Brazil
Horses	1		Guyana (10)
Horses		18/141 HI	Para, Brazil
Horses and cattle		11/15 NT	Para, Brazil
Horses and cattle		8/12 HI,NT	Sao Paulo, Brazil
Horses and cattle		46/153 HI	Cordoba, Argentina(6)
Water buffalo		44/527 HI	Para and Amazonas, Brazil
Sheep		2/15 HI	Para, Brazil
Birds		2/897 HI	
Rodents		0/286 HI	
Horses	2		Colombia (17)

Mosquitoes: *Ae fulvus* 3, Belem; *Ae scapularis* 2, Belem, 1 Trinidad (12), 1 Colombia (11); *Ae serratus*, 1 Belem, 1 Trinidad; other *Aedes*, 1 Belem, 1 Colombia, 1 Argentina (CbaAr 426); *Culex taeniopus*, 1 Belem, 1 Trinidad (10); *Anopheles* 1 Belem; *Wyeomyia* 1 French Guiana (13); *Psorophora* 1 Belem.

243 isolates of Maguari virus were obtained from mosquitoes and sentinel hamsters exposed in coastal Ecuador from 1974-1978 (23).

Experimental host and age	Passage history and strain	Inoculation Route-Dose	Evidence of infection	AST (days)	Titer log ₁₀ /ml
Mice (nb)	P-6	ic 0.02	Death	3.0	8.7
Mice (nb)	P-3	ip 0.02	Death, viremia (7)	4.0	8.3
Mice (nb)		sc			
Mice (wn)		ic 0.03	Antibody		
Mice (wn)		ip 0.03	Antibody		
hamsters (ad)		ip, sc	Nonlethal		

Section XII - Geographic Distribution

Known (Virus detected)

Brazil, Trinidad, Guyana, French Guiana, Colombia, Argentina

Suspected (Antibody only detected)

Surinam (20,21), Venezuela (22)

Section XIII - References

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- NOTE: Maguari virus has been cited in the above references as "Cache Valley". Strains BeAr 7272 and TRVL 20659 have been shown to differ antigenically from the prototype and are now called "Maguari".

Remarks