Virus Name: Sagiyama	Abbreviation: SAGV

Status
Probable Arbovirus

Select Agent
No

SALS Level
3

SALS Basis
Disease is sheep, cattle, or horses.

Other Information

Antigenic Group
A

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation
M6/Mag 132

Accession Number

Original Date Submitted
8/2/1984

Family
Togaviridae

Genus
Alphavirus

Information From
William F. Scherer

Address
Cornell University Medical College, York Avenue, New York, N.Y. 10021

Information Footnote
Revised

Section II - Original Source

Isolated By (name)
Personnel 406 MGL (1,2)

Isolated at Institute
Zama, Japan

Host Genus
Culex tritaeniorhynchus

Species

Host Age/Stage
Adults

Sex
Female

Isolated From

Isolation Details

Signs and Symptoms of Illness

Arthropod
Engorged, Depleted

Time Held Alive before Inoculation
Less than one day

Collection Method
Pig-baited modified Magoon trap

Collection Date
7/23/1956

Place Collected (Minimum of City, State, Country)
Sagiyama heronry, 20 miles north of Tokyo, Japan

Latitude

Longitude

Macrohabitat
Heronry

Microhabitat

Method of Storage until Inoculated
Mosquitoes frozen on dry ice on day of collection (1)

Footnotes

Section III - Method of Isolation

Inoculation Date
10/4/1956

Animal (Details will be in Section 6)
nb mice

Route Inoculated
ic and sc

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) **1:5**	After Treatment Titer **<3.4 dex**	Control Titer **6.4 dex**
Lipid Solvent (chloroform)	After Treatment Titer	Control Titer
Lipid Solvent (deoxycholate) **1:1000**	After Treatment Titer **<3.6 dex**	Control Titer **7.0 dex**

Other (formalin, radiation)

Virion Morphology

Shape **Spherical**	Dimensions **40-50 nm**	
Mean nm	Range nm	
Measurement Method **Electron microscopy**	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	
6.1-6.6	**6.2-6.4**	
Temperature Range	Temperature Optimum	
25dC and 37dC	**25dC**	

Remarks

Serologic Methods Recommended
HI, CF, NT,

Footnotes

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

See References [1] , [10] , [11] for details.

Related to Group A viruses by NT and CF tests. Antiserum to Malayan viruses Getah (MM2021) and Bebaru (MM2354) neutralized each of three strains of Sagiyama virus although there was only equivocal neutralization between the Malayan viruses themselves. It appears that Sagiyama virus lies immunolo- gically in between these two Malayan viruses and possesses a common antigen with one virus and another with the second virus. SAG virus should be studied further to determine whether it is a variety or a subtype of Getah virus.
The SIRACA now considers Sagiyama and Bebaru viruses to be subtypes of Getah virus [11] .

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)	
Procine kidney (PC)		3-5	CPE						
Hamster kidney (PC)		3-5	CPE						
BHK-21 (CL)		1	extensive	>8.0*	3	large	>8.0* (8)		
Aedes albopictus (CL)		1-2	moderate to extensive	>8.0	4	large	>8.0 (8)		

* 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
Man	0/0	18/192 NT	Near Tokyo, Japan;1956-58
Man		23/1,851 HI *	Japan; 1966
Swine	0/0	75/111 NT	Near Tokyo, Japan; 1956-57
Herons and egrets	0/0	9/290 NT	
Chickens		18/27 HI *	Near Tokyo, Japan; 1965-66
Cow		2/13 HI *	
Goats		5/5 HI *	
Dogs		5/9 HI *	
Rabbits		3/32 HI *	
Horses	0/0	2/2 NT	Near Tokyo, Japan; 1956, 1958
Culex tritaeniorhynchus	8		Near Tokyo, Japan; 1956
Aedes vexans	2		
Aedes vexans	2		Near Tokyo, Japan; 1959

* Using Getah antigen

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)	SM 15	ic 0.01	CNS signs or paralysis	2-7	9.5-10.5
Mice (nb)		ip 0.01	CNS signs or paralysis	4-10	
Mice (nb)		sc			
Mice (wn)	SM 8	ic 0.03	None		
Mice (wn)		ip			

Titer of virus from suckling mouse muscle approximately = that from brain.

Host range: No overt disease in adult rabbits (inoculated ip) or in guinea pigs (weanlings inoculated ic and ip, and adults inoculated ip). Chicks develop viremia 2-4 days after sc and two days after iv inoculation of low mouse passage virus. Liver and spleen (pooled) and brain of baby chicks, dying 2 days after iv inoculation yielded virus. No regular deaths or signs of illness in chicks occurred after sc inoculation. In embryonated chicken eggs, certain strains produce death and hemorrhage in embryos upon inoculation by CAM or yolk sac routes. Virus has been passed by yolk sac inoculation and harvest of embryos through 15 passages. However, titers for embryonated chicken eggs remain low.

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

Section X - Histopathology

Character of lesions (specify host)
Inflammation of central nervous system, spinal cord, brown fat, and skeletal muscle of suckling mice inoculated intracranially or intraperitoneally.

Inclusion Bodies — Intranuclear

Organs/Tissues Affected
Brain (LV), spinal cord (LV)

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)
Japan and Okinawa (4)

Suspected (Antibody only detected)

Section XIII - References

1. Scherer, W.F., et al. 1962. Am. J. Trop. Med. Hyg. 11:255-268.
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Remarks

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