Virus Name: Sal Vieja	Abbreviation: SVV

Status
Possible Arbovirus

Select Agent
No

SALS Level
3

SALS Basis
Placed at this biosafety level based on close antigenic or genetic relationship to other viruses in a group of 3 or more viruses, all of which are classified at this level.

Other Information

Antigenic Group
B

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation
78TWM-106

Accession Number

Original Date Submitted
8/31/1984

Family
Flaviviridae

Genus
Flavivirus

Information From
Robert G. McLean

Address
Vector-Borne Diseases Division, CDC, P.O. Box 2087, Fort Collins, CO 80522

Information Footnote
Reviewed by editor

Section II - Original Source

Isolated By (name)
R.G. McLean

Isolated at Institute
CDC, Fort Collins, Colorado

Host Genus
Peromyscus leucopus (rodent)

Species

Host Age/Stage
Adult

Sex
Female

Isolated From	Isolation Details
Serum/Plasma	

Signs and Symptoms of Illness
None

Arthropod

Time Held Alive before Inoculation

Collection Method
Sherman live trap

Collection Date
8/28/1978

Place Collected (Minimum of City, State, Country)
Sal Vieja oilfield, 2 mi. NE of La Sara, Texas

Latitude
26° 30' N

Longitude
97° 54' W

Macrohabitat
Cultivated farm in mesquite brushland of semi-arid Tamaulipan brush-thorn association

Microhabitat
Mesquite and grass hedgerow between milo and sugarcane fields

Method of Storage until Inoculated
-60dC (dry ice)

Footnotes

Section III - Method of Isolation

Inoculation Date
9/5/1978

Animal (Details will be in Section 6)
nb mice

Route Inoculated
Intracranial

Reisolation
Not tried

Other Reasons

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 **4.2 dex**	Control Titer **6.8 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 ext. by sucrose-acetone**	**Goose**
pH Range	pH Optimum	
5.75-7.0	**6.1**	
Temperature Range	Temperature Optimum	
4dC and RT	**Room temperature**	

Remarks

Serologic Methods Recommended
HI, CF, NT

Footnotes

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

In CF and HI tests, with crude alkaline extract of infected SM brain as antigen, 78TWM-106 reacted only with a flavivirus grouping MIAF. No reactions were observed when 78TWM-106 antigen was tested with 47 other immune mouse ascitic fluids representing more than 250 arboviruses plus rabies, mouse hepatitis and Theiler's GDVII viruses. Sal Vieja virus (78TWM-106) was found to be most closely related to Modoc, Jutiapa, Cowbone Ridge, Rio Bravo, and Apoi flaviviruses.

Antigen or antibody to:	Sal Vieja antigen		Sal Vieja antibody	
	CF [a]	NT [b]	CF	NT
Sal Vieja	2048	5120	2048	5120
71V1251 [c]	128	40	256	40
Modoc	363	316	64	457
Saboya	16	[d]	8	
Aroa	16		<8	<40
Cowbone Ridge	16	80	128	80
Jutiapa	16	40	<8	320
Entebbe bat	16		<8	
Mont. Myot. leukoenc.	8		<8	
Rio Bravo	8	<40	16	<40

Apoi	<8	<40	64	<40
Sokuluk	<8	<40	16	<40
St. Louis enc.	<8	<40	8	<40
Dakar bat	<8		8	
Bukalasa bat	<8		8	
Negishi	<8		8	

[a] Also tested by CF with Sal Vieja antigen and MIAF for: Israel turkey meningoencephalitis, Batu Cave, Phnom Penh bat, Carey Island, Koutango, and Tamana bat viruses as well as Sal Vieja MIAF and antigens for: Israel Turkey meningoencephalitis, Batu Cave, Phnom Penh bat, Carey Island, Koutango, and Tamana bat viruses - all <8.

[b] Also tested by serum dilution plaque-reduction neutralization with Sal Vieja virus and MIAF for: Phnom Penh bat virus as well as Sal Vieja MIAF and Phnom Penh bat virus - all <40.

[c] 71V1251 is a flavivirus from south Texas for which the name San Perlita virus has been proposed.

[d] Blank = not tested.

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)	
LLC-MK2 (CL)	SM4				9	2-3 mm	6.9*		
Vero (CL)							<3.0		
Duck embryo (PC)							<3.0		

* 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
Peromyscus leucopus	1/62		South Texas, USA
11 other rodent species	0/222		
Nycticerus humeralis	0/17		
Didelphis marsupialis	0/8		
4 other species of mammals	0/5		
51 species of birds	0/653		
5 species of reptiles	0/34		
Aedes mosquitoes (6 species)	0/606 pools (38,248)		
Anopheles mosquitoes (4 species)	0/43 (129)		
Culex mosquitoes (5 species)	0/210 (6,110)		
Psorophora mosquitoes (5 species)	0/481 (32,919)		
Uranotaenia lowii	0/7 (61)		

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)	Original	ic	Death	14	
Mice (nb)		ip			
Mice (nb)		sc			
Mice (wn)		ic			
Mice (wn)	SM4	ip	None		
Mice (nb)	SM1	ic	Death	7	
Mice (nb)	SM4	ic	Death	8	8.8

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)

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)
Southeast Texas, USA

Suspected (Antibody only detected)

Section XIII - References

1. Wesley,I.V. and Calisher, C.H. 1982. Am. J. Trop. Med. Hyg. 31:1273-1284.

Remarks