Virus Name: Minatitlan		Abbreviation: MNTV
Status **Possible Arbovirus**	Select Agent **No**	SALS Level **2**

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

Other Information

Antigenic Group
Minatitlan

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation	Accession Number	Original Date Submitted
M67U5		11/9/1984

Family	Genus
Bunyaviridae	**Bunyavirus**

Information From	Address
M.L. Zarate	**Instituto Nacional de Virologia Mexico 17, D.F. Mexico**

Information Footnote
Reviewed by editor

Section II - Original Source

Isolated By (name)	Isolated at Institute
M.L. Zarate and W. Dickerman	**Instituto Nacional de Virologia**

Host Genus	Species	Host Age/Stage
Cricetus auratus (hamster), sentinel		**3-4 months**

Sex
Male

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

Signs and Symptoms of Illness	Arthropod
Death	

Time Held Alive before Inoculation

Collection Method	Collection Date
Sentinel wire cage	**9/14/1967**

Place Collected (Minimum of City, State, Country)
Minatitlan, Veracruz, Mexico

Latitude	Longitude
18° 0' N	**94° 30' W**

Macrohabitat	Microhabitat	Method of Storage until Inoculated
Tropical moist forest life zone	**Heron colony "El Arenal" in flooded swamp forest**	**Whole animal at -60dC dry ice box**

Footnotes

Section III - Method of Isolation

Inoculation Date
12/27/1967

Animal (Details will be in Section 6)
nb mice

Route Inoculated
Intracerebral

Reisolation
Not tried

Other Reasons
Unrelated to any other virus held in the laboratory.

Homologous Antibody Formation by Source Animal
Yes

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 **<1.3 dex**	Control Titer **5.3 dex**

Other (formalin, radiation)

Virion Morphology

Shape	Dimensions	
Mean nm	Range nm	
Measurement Method	Surface Projections/Envelope	Nucleocapsid Dimensions, Symmetry

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, liver ext. by sucrose-acetone. It yields better titer from brain than from liver and from the 7th day after inoculation than from the 5th day.**	**Goose**

pH Range	pH Optimum
6.0-6.8	**6.4**

Temperature Range	Temperature Optimum
RT - 37dC	**Room temperature**

Remarks

Serologic Methods Recommended
CF, HI, NT

Footnotes

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

159 antigens in the YARU collection were tested by CF test against an M67U5 mouse ascitic fluid [2] with lack of cross-reaction. The only positive reaction at 1:4 or greater was with the homologous antigen, the ascitic fluid titer being 1024.
In addition, the M67U5 antigen was tested by CF with hyperimmune ascitic fluids of groups A, B, C, Guama, Capim, California, Simbu, Bunyamwera, Anopheles A, Anopheles B, Turlock, Phlebotomus fever, Quaranfil, Kaisodi, Lanjan, VSV, Tacaribe, and ascitic fluids of herpes simplex, vaccinia, LCM, NDV, rabies, ectromelia, reovirus 3, and Rift Valley fever.
HI and N testing has been done but not as completely as by CF tests.

M67U5 virus antigen gave a titer of 20 only against a group C polyvalent ascitic fluid. This test was performed twice in two different laboratories (Instituto Nacional de Virologia and Cornel University Medical College).
These data indicate that M67U5 is a new virus, belonging in the Bunyamwera supergroup, but not pertaining to any of the established groups within the supergroup.
More recent data indicate that Minatitlan virus is closely related by CF and NT to Palestina virus, which was registered in 1982 [5] . Therefore, the two viruses comprised the Minatitlan serogroup.
Cross-reactivity of Palestina and Minatitlan and Mirim viruses by CF and serum dilution-plaque reduction neutralization tests.

	MIAF					
	CF			NT		
Antigen or Virus	76V-1565	MNT	MIR	76V-1565	MNT	MIR
Palestina	64	128	8	160	<20	<20
Minatitlan	16	256	8	40	2560	<20
Mirim	8	8	256	<20	<20	320

NT titer: reciprocal of highest dilution producing >90% plaque-reduction.

Section VI - Biologic Characteristics

Virus Source (all VERTEBRATE isolates)
Heart and liver pool (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)	
BS-C-1 (CL)	SM 2		None						
Hamster kidney (PC)			None						

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
Sentinel hamsters	1/171		Minatitlan, Veracruz, Mexico, 1964-67
Sentinel hamsters	3		Jutiapa Dept., Guatemala 1970-72(4)

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 1	ic 0.01	Neurological illness, death	4-8	7.8
Mice (nb)		ip 0.02	Neurological illness, death		
Mice (nb)		sc			
Mice (wn)		ic 0.02	1/5 ill but recovered	4-9	>6.8
Mice (wn)		ip 0.02	No illness-antibody production		
hamster (6 mo.)	SM 2	ic 0.02**	Neurological illness, death	4-14	
hamster (6 mo.)		sc 0.02**	Neurological illness, death	7-14	

** Dose = 5000 SMicLD50

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)
Adult and baby mice experimentally infected showed lesions in liver, brain, and kidney characterized by perivascular infiltration and diffuse necrosis (3)

Inclusion Bodies — Intranuclear

Organs/Tissues Affected
Brain (LV), liver (M), kidney (M),

Category of tropism
Neurotropic and hepatotropic

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)
Mexico, Guatemala (4)

Suspected (Antibody only detected)

Section XIII - References

1. Scherer, W.F. Personal communication.
2. Shope, R.E. Personal communication.
3. Davalos, A. Mata Inst. Salubridad. Enfermedades, Tropicales, Mexico D.F. Personal communication.
4. Scherer, W.F. Personal communication. 1976.
5. Calisher, C.H., et al. 1983. Am. J. Trop. Med. Hyg. 32:877-885.

Remarks