

Virus Name: New Minto		Abbreviation: NMV
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 Sawgrass		

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation 0579	Accession Number	Original Date Submitted 9/27/1984
Family Rhabdoviridae	Genus Not listed	
Information From Donald G. Ritter	Address Arctic Health Research Center, Fairbanks, Alaska, USA 99701	
Information Footnote Reviewed by editor		

Section II - Original Source

Isolated By (name) Donald G. Ritter (1)	Isolated at Institute AHRC, Fairbanks, Alaska	
Host Genus Haemaphysalis leporispalustris (Packard), pool of 9 ticks	Species	Host Age/Stage Adult
Sex Female		
<u>Isolated From</u>	<u>Isolation Details</u>	
Signs and Symptoms of Illness	Arthropod Engorged	
Time Held Alive before Inoculation Frozen immediately		
Collection Method Removed from asymptomatic hare (Lepus americanus)	Collection Date 6/19/1972	
Place Collected (Minimum of City, State, Country) 65 miles west of New Minto, Alaska, USA		
Latitude 65° 9' N	Longitude 149° 23' W	
Macrohabitat Boreal forest sloping southeastward toward Minto Flats	Microhabitat Recently cut road through mixed black spruce, birch, alder forest	Method of Storage until Inoculated Liquid nitrogen, then electrical freezer at -85dC
Footnotes		

Section III - Method of Isolation

Inoculation Date
2/20/1973

Animal (Details will be in Section 6)
nb mice

Route Inoculated
ic and ip

Reisolation
Yes

Other Reasons

Two other strains isolated from *H. leporispalustris* ticks removed from *L. americanus* hares at New Minto.

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) 1:1000	After Treatment Titer <3.2 dex	Control Titer 5.7 dex
Other (formalin, radiation)		

Virion Morphology

Shape Rhabdovirus morphology (2)	Dimensions 220 x 65 nm (2)	
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

Antigen Source

Erythrocytes (species used)

No

SMB ext. by sucrose-acetone

Goose

pH Range

pH Optimum

6.0-6.7

Temperature Range

Temperature Optimum

Remarks

Serologic Methods Recommended

CF, NT

Footnotes

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

Sucrose-acetone extracted antigen prepared from brains of SM infected with strain 0579 failed to react by CF with antisera representing 30 arbovirus groups. Hyperimmune mouse ascitic fluid prepared with strain 0579 was tested with antigens representing 204 individual arboviruses; reaction was noted only with Sawgrass antigen at 1:4.

Antigen	CF Antibody to:		
	0579	SAW	Normal
0579	256	<8	<8
SAW	32	128	<8
Normal	<8	<8	<8

Results of cross-neutralization tests in Vero cells with strain 0579 and Sawgrass Viruses [1]			
Virus	Antibody to:		
	0579	Sawgrass	Normal
0579	160 ^a	10	<8
Sawgrass	40	320	<8

^a Reciprocal of highest dilution producing >90% plaque-reduction.

Section VI - Biologic Characteristics

Virus Source (all VERTEBRATE isolates)
CNS (M)

Lab Methods of Virus Recovery (ALL ISOLATIONS)
Newborn and weanling mice; embryonated eggs

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)	
Vero (CL)	None		No CPE (b)					
Vero (CL)	SM 2					Plaques	3.7 (c)	
Duck embryo (PC)							<1.7	

(b) No virus isolated after one blind passage

(c) Expressed in dex

Vertebrate (species and organ) and arthropod	No. isolations/No. tested	No. with antibody/No. tested Test used	Country and region
H. leporispalustris	3/59 pools		New Minto, Alaska, USA (1)
H. leporispalustris	0/589 pools		East central and central Alaska
Aedes spp. ^(a)	0/3,647		New Minto
Aedes spp.	0/13,592		East central and central Alaska
Other mosquitoes ^(b)	0/282		
Other mosquitoes	0/1		New Minto
Other (biting flies) ^(c)	0/2,866		
Other (biting flies)	0/48,633		East central and central Alaska
Mammals	0/712		
Mammals	0/39		New Minto
Birds	0/56		East central, central, south central, north slope Alaska
Human	0/325		East central Alaska

^(a) New Minto - *Ae excrucians* (2,611); *Ae punctor* complex (256); *Ae cinereus* (130); *Ae intrudens* (115); *Ae communis* (41); *Ae* spp. dark legged (146); *Ae fitchii* (147); *Ae* spp. (201).

Central and East central - *Ae excrucians* (2,042); *Ae punctor* complex (6,051); *Ae intrudens* (247); *Ae cinereus* (498); *Ae* spp. dark legged (1,919); *Ae fitchii* (569); *Ae communis* (965); *Ae* spp. (1,301).

^(b) New Minto - *Culiseta alaskaensis* (1). Central and East central - *Culiseta alaskaensis* (209); *Cs impatiens* (58); *Anopheles earlei* (14); *Culex territans* (1).

^(c) New Minto - *Simuliidae* (453); *Ceratopogonidae* (2,411); *Tabanidae* (2). Central - *Simuliidae* (34,696); *Ceratopogonidae* (13,821); *Tabanidae* (116).

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 log ₁₀ /ml
Mice (nb)	SM2	ic	Death	8	5.8
Mice (nb)		ip	None		<3.2
Mice (nb)	SM1	ic	Moribund days 8-10	12-14	3.5
Mice (wn)	SM2	ic	None		<2.9
Mice (wn)		ip	None		<2.9
Mice (wn)		sc	None		<2.9

Section IX - Experimental Arthropod Infection and Transmission

Arthropod species & virus source(a)	Method of Infection log ₁₀ /ml (b)		Incubation period (c)		Transmission by bite (d)		Assay of arthropod, log ₁₀ /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) Alaksa, USA
Suspected (Antibody only detected)

Section XIII - References

1. Ritter, D.G. et al. 1978. Can. J. Microbiol. 24:422-426. 2. Murphy, F.A., and Whitfield, S. Personal communication. 1977.

Remarks

By CF all 3 strains appear to be identical. AST of all 3 strains decreased from 12-14 days (SM1) to 8 days (SM3). Both New Minto and the serologic relative, Sawgrass virus, were shown to be rhabdoviruses by electron microscopy (2).
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