Virus Name: New Minto	Abbreviation: NMV

Status
Possible Arbovirus

Select Agent
No

SALS Level
3

SALS Basis
Isufficient 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

Isolated From

Isolation Details

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

Hemaggiutination	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	
		Day (c)	Extent (d)	Titer TCD50/ml (e)	Day (c)	Size (f)	Titer PFU/ml (e)	+/- (g)	
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

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
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 log10/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 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)
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).