Virus Name: Paramushir	Abbreviation: PMRV

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
Sakhalin

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation
LEIV-2268Ku

Accession Number

Original Date Submitted
8/21/1984

Family
Bunyaviridae

Genus
Nairovirus

Information From
D.K. Lvov

Address
Inst. of Virology, USSR Acad. of Med. Sciences, Gamaleya, 16, Moscow, USSR

Information Footnote
Reviewed by editor

Section II - Original Source

Isolated By (name)
D.K. Lvov, et al.

Isolated at Institute
Moscow, USSR

Host Genus
Ixodes signatus, pool of 10 ticks

Species

Host Age/Stage
Adult

Sex
Female

Isolated From

Isolation Details

Signs and Symptoms of Illness

Arthropod

Time Held Alive before Inoculation

Collection Method
Hand collected from nest substrates

Collection Date
9/2/1972

Place Collected (Minimum of City, State, Country)
Paramushir island, Sea of Okhotsk, USSR

Latitude
51° 16' N

Longitude
155° 20' E

Macrohabitat
Area consisting of seabird colonies

Microhabitat
In the soil

Method of Storage until Inoculated
Alive at +4dC in refrigerator

Footnotes

Section III - Method of Isolation

Inoculation Date
10/25/1972

Animal (Details will be in Section 6)
nb mice

Route Inoculated
Intracerebral

Reisolation
Yes

Other Reasons
Virus different from those existing in the laboratory

Homologous Antibody Formation by Source Animal

Test(s) Used

Footnotes

Section IV - Virus Properties

Physicochemical
RNA

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) **50%**	After Treatment Titer **0 dex**	Control Titer **3.3 dex**
Lipid Solvent (chloroform)	After Treatment Titer	Control Titer
Lipid Solvent (deoxycholate) **1:1000**	After Treatment Titer **0 dex**	Control Titer **3.0 dex**

Other (formalin, radiation)

Virion Morphology

Shape	Dimensions **50-100 nm**	
Mean nm	Range nm	
Measurement Method **Filtration**	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	
5.5-7.0		
Temperature Range	Temperature Optimum	
+4dC, +22dC		

Remarks
*** Type of nucleic acid determined by sensitivity of the virus to 5-bromo-2- deoxyuridine.**

Serologic Methods Recommended
CF

Footnotes
*** Type of nucleic acid determined by sensitivity of the virus to 5-bromo-2- deoxyuridine.**

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

Paramushir antigen in the CF test did not react with polyvalent MIAF to arbovirus groups A, B, Bakau, Bunyamwera. It did not react with MIAF to arboviruses: Getah, Sindbis of group A; tickborne encephalitis, Powassan, Langat, Japanese encephalitis, West Nile, Karshi, Kadam, St. Louis encephalitis, Sokuluk of group B; Tahyna, trivittatus of group California; Dugbe of group NSD; CHF of group CHF-CON; Batai, Shokwe of group Bunyamwera; Kaisodi, Lanjan, Silverwater of group Kaisodi; Kemerovo, Baku, Okhotskiy, Wad Medani, Chenuda of group Kemerovo; Qalyub, Bandia of group Qalyub; C-5502 of group Quaranfil; Simbu, Akabane, Sabo, Sango, Shamonda, Sathuperi, Aino of group Simbu; Turlock, Umbre of group Turlock; Hughes, Soldado of group Hughes; Uukuniemi, Zaliv Terpeniya, Grand Arbaud of group Uukuniemi; Matariya of MTY group; Tete, Bahig, Matruh of group Tete; Sakhalin of group Sakhalin; Bhanja of group Bhanja; Colorado tick fever of CTF group; Dera Ghazi Khan of DGK group; Nyamanini of Nyamanini group; Sawgrass of Sawgrass group; Upolu of Upolu group; Wanowrie, Dhori, Lone Star, Matucare, Chobar Gorge, Jos, Batken, Issyk-Kul, Oyta, Khasan, Tamdy, Razdan, Artashat, Chim of ungrouped arboviruses. Ectromelia, reovirus, type 3, and LCM were serologically excluded. The then ungrouped Khasan virus is now a member of the CHF-CON group (ed.)
Polyvalent MIAF's were obtained from YARU.

Paramushir virus subsequently was shown to be serologically identical to Avalon virus [3] .

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)	
Chicken, duck and human embryo fibroblast (PC)		Virus multiplication without CPE; interference with WEE virus		3.5-5.5**				+	
L cell cultures (CL)			CPE noted	2.5					
A1 cell cultures (CL)			CPE noted	4.5					
RH cell cultures (CL)			No CPE						
HeLa (CL)			CPE noted	6.0					
Vero (CL)			No CPE						

** 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
Ixodes signatus	1/130 pools (7,244 ticks)		Paramushir Island (Northern Kuril Islands) Sakhalinsk region, USSR
Ixodes (Ceratixodes) putus	3/335 pools (8,302 ticks)		Tyuleniy Island, Sakhalinsk region, USSR
Ixodes (Ceratixodes) putus	1/400 pools (20,270 ticks)		Bering Island (Commodore Islands) Kamchatsk region, USSR

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)	SMB 5	ic 0.01	Paralysis and death	5-7	8.8
Mice (nb)		ip 0.10	No illness		
Mice (nb)		sc			
Mice (wn)		ic 0.03	Antibody		
Mice (wn)		ip 0.20	Antibody		
Mice (ad)		ip 0.20	Antibody		
hamsters (ad)		ip 0.50	No illness		
guinea pigs (ad)		ip 1.00	No illness		
rats (ad)		ip 1.00	No illness		
rats (nb)		ic 0.03	No illness		

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)
USSR

Suspected (Antibody only detected)

Section XIII - References

1. Lvov, D.K., et al. 1970. Vop. Virusol. 5:440-444.
2. Lvov, D.K., et al. 1976. Arch. Virol. 51:157-164.
3. Lvov, D.K., et al. 1981. Vop. Virusol. No. 2, p. 148-152.

Remarks