

Virus Name: Issyk-Kul		Abbreviation: IKV
Status 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 Ungrouped		

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation LEIV-315K	Accession Number	Original Date Submitted 11/26/1984
Family Not listed	Genus Not listed	
Information From Dr. D.K. Lvov	Address Ivanovsky Institute of Virology, Gamaleya St., 16, Moscow 123098, USSR	
Information Footnote Reviewed by editor		

Section II - Original Source

Isolated By (name) D.K. Lvov and colleagues	Isolated at Institute Moscow, USSR	
Host Genus Nyctalus noctula (bat)	Species	Host Age/Stage Adult
Sex Not Answered		
<u>Isolated From</u>	<u>Isolation Details</u>	
Organs/Tissues	Brain, liver, spleen and kidney pool	
Signs and Symptoms of Illness	Arthropod	
Time Held Alive before Inoculation		
Collection Method Hand capture	Collection Date 5/15/1970	
Place Collected (Minimum of City, State, Country) Dzety-Oguzsk Region, Kirghiz SSR, USSR		
Latitude 42° 15' N	Longitude 77° 40' E	
Macrohabitat Along the coast of the Issyk-Kul Sea	Microhabitat In the garret of an apartment house	Method of Storage until Inoculated -50dC
Footnotes		

Section III - Method of Isolation

Inoculation Date
5/21/1970

Animal (Details will be in Section 6)
nb mice

Route Inoculated Intracerebral	Reisolation Yes
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Other Reasons
No virus of this type previously encountered

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 3.0 dex	Control Titer 5.8 dex
Lipid Solvent (chloroform)	After Treatment Titer	Control Titer
Lipid Solvent (deoxycholate) 1:500	After Treatment Titer 3.3 dex	Control Titer 6.2 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
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Inclusion Bodies	Other
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Hemagglutination

Hemagglutination No	Antigen Source SMB ext. by sucrose-acetone	Erythrocytes (species used) Goose
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pH Range 5.5-7.0	pH Optimum
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Temperature Range 4dC, 22dC	Temperature Optimum
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Remarks

Serologic Methods Recommended
CF, NT

Footnotes

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

Issyk-Kul antigen in the CF test did not react with poly-antisera to arbovirus groups A, B, C. It did not react with antisera to: arboviruses Simbu, Akabane, Sabo, Samford, Sango, Shamonda, Sathuperi in the Simbu group; Uukuniemi, Grand Arbaud, Manawa, Zaliv Terpeniya in the Uukuniemi group; California, Tahyna, Kaspiy in the California group; Qalyub, Bandia in the Qalyub group; Kaisodi, Silverwater, Lanjan in the Kaisodi group; Japanese encephalitis, tick-borne encephalitis, Tyuleniy, Sokuluk in group B; Bakau, Ketapang in the Bakau group; Palyam in the Palyam group; Quaranfil in the Quaranfil group; SF Sicilian, SF Naples, Candiru, Bujaru, Chagres in the SF group; Bunyamwera, Batai in the Bunyamwera group; Chandipura in the VSV group; Hughes in the Hughes group; Kemerovo, Wad Medani, Baku, Okhotskiy in the Kemerovo group; and various other viruses such as Dhori, Upolu, Matucare, Lone Star, DGK, KHF, Bhanja, CTF, Lagos bat, Ogunpa, Nyamanini, Jos, Wanowrie, Sawgrass, LEIV-65A, LEIV-1308 Uz, LEIV-858 Uz, LEIV-1682 Tu, Dugbe, IbAr 2012. Ectromelia, reovirus 3, EMC, lymphocytic choriomeningitis and rabies were serologically excluded.

Issyk-Kul and Keterah viruses have been shown to be closely related or identical by complement-fixation [5]. Cross-neutralization testing will determine whether they are the same virus or antigenic relatives. Pending the results of that testing, these viruses are being listed in the ungrouped category (Ed.).

Section VI - Biologic Characteristics

Virus Source (all VERTEBRATE isolates)
Blood (M)(LV); brain, liver, spleen, kidney pool (LV)

Lab Methods of Virus Recovery (ALL ISOLATIONS)
Newborn mice

Cell system (a)	Virus passage history (b)	Evidence of Infection							Growth Without CPE +/- (g)
		CPE			PLAQUES				
		Day (c)	Extent (d)	Titer TCD50/ml (e)	Day (c)	Size (f)	Titer PFU/ml (e)		
Chick embryo (PC)						Plaques	6.0*		
Duck embryo (PC)						Plaques	8.0		

* Expressed in dex

Vertebrate (species and organ) and arthropod	No. isolations/No. tested	No. with antibody/No. tested Test used	Country and region
Nyctalus noctula	1/11		Dzety-Oguzsk Region, Kirghiz SSR, USSR
Vespertilio serotinus	2/230		Sokuluksk Region, Kirghiz SSR
Myotis blythi	1/65		
Vespertilio pipistrellus	2		Tadzhikistan SSR (6)
Argas vespertilionis	3/500		Sokuluksk Region, Kirghiz SSR
Anopheles hyrcanus	1		USSR (4)
Aedes caspius caspius	1		
Man		29/896 CF	Oshsk Region, Kirghiz SSR
Domestic animals		0/1078 CF	
Man (blood)	1		Kumsangir Region, Tadzhikistan SSR, USSR(3)
Man		2.9%/4186 CF	Tadzhikistan SSR (4)
Man (blood)	1		Dushanbe, Tadzhikistan SSR
Man (blood)	16/20		Kumsangirsk District, Tadzhikistan SSR; 1982(4)
Man (blood)	1		Parkhar District, Tadzhikistan SSR; 1982(4)
Wild birds	7		USSR (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)		ic 0.01	Death	5	9.0
Mice (nb)		ip			
Mice (nb)		sc			
Mice (wn)		ic 0.03		6	8.5
Mice (wn)		ip			
hamsters (ad)		ip	None		
rats (ad)		ip	None		
guinea pigs (ad)		ip	None		
chick embryos(9-day)		al.c.	None		

Section IX - Experimental Arthropod Infection and Transmission

Arthropod species & virus source(a)	Method of Infection log10/ml (b)		Incubation period (c)		Transmission by bite (d)		Assay of arthropod, log10/ml (e)		
	Feeding	Injected	Days	°C	Host	Ratio	Whole	Organ	System
<p><i>Aedes caspius caspius</i>: Successful exper. infection and subsequent trans. To white mice. Virus titers in infected mosq. = 2.5 - 4.6 dex LD50/0.02 (2).</p> <p><i>Argas vespertilionis</i> ticks: Fifty percent of wild caught ticks transmitted virus to SM by feeding (7).</p>									

Section X - Histopathology

Character of lesions (specify host)	
<u>Inclusion Bodies</u>	<u>Intranuclear</u>
Organs/Tissues Affected	
Category of tropism	

Section XI - Human Disease

In Nature Reported	Residual	Death
Subclinical	Overt Disease Reported	
Clinical Manifestations Fever, headache, myalgia, dizziness, cough, nausea, vomiting		
Number of Cases >60(3,4)	Category (i.e. febrile illness, etc.) Febrile illness	

Section XII - Geographic Distribution

Known (Virus detected) USSR
Suspected (Antibody only detected)

Section XIII - References

1. Lvov, D.K., et al. 1973. Arch. ges. Virusforsch. 42:207-209.
2. Bulychev, V.P., et al. 1980. Med Parazitol Parazit Bolezni. 48:53-56.
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5. Shope, R.E. Personal communication. 1977.
6. Kostyukov, M.A., et al. 1979. Ecology of Viruses. Dushanbe. pp. 31-32.
7. Vargina, S.G., et al. 1982. Sborn. Nauch. Trud. Inst. Virus imeni D.I. Ivanosky, Akad. Med. Nauk. SSR. pp. 123-127.
8. The Subcommittee on Arbovirus Laboratory Safety of The American Committee on Arthropod-Borne Viruses. 1980. Am. J. Trop. Med. Hyg. 29:1359-1381.

Remarks

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