Virus Name: Issyk-Kul	Abbreviation: IKV

Status
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
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

Isolated From	Isolation Details
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

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
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

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							
		CPE			PLAQUES			Growth Without CPE	
		Day (c)	Extent (d)	Titer TCD50/ml (e)	Day (c)	Size (f)	Titer PFU/ml (e)	+/- (g)	
Chick embryo (PC)						Plaques	6.0*		
Duck embryo (PC)						Plaques	8.0		

* 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
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)		Transmision by bite (d)		Assay of arthropod, log10/ml (e)		
	Feeding	Injected	Days	°C	Host	Ratio	Whole	Organ	System

Aedes caspius caspius: Successful exper. infection and subsequent trans. To white mice. Virus titers in infected mosq. = 2.5 - 4.6 dex LD50/0.02 (2).

Argas vespertilionis ticks: Fifty percent of wild caught ticks transmitted virus to SM by feeding (7).

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
Reported

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 Parozitol Parazit Bolezni. 48:53-56.
3. Lvov, D.K., et al. 1980. Vop. Virusol. 25:61-62.
4. Lvov, D.K., et al. 1984. Vop. Virusol. 29:89-92.
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