Virus Name: Salehabad		Abbreviation: SALV
Status **Possible Arbovirus**	Select Agent **No**	SALS Level **2**

SALS Basis
Results of SALS surveys and information from the Catalogue.

Other Information

Antigenic Group
Phlebotomus Fever

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation
I-81

Accession Number

Original Date Submitted
7/9/1984

Family
Bunyaviridae

Genus
Phlebovirus

Information From
Robert B. Tesh

Address
Yale Arbovirus Research Unit

Information Footnote
Revised

Section II - Original Source

Isolated By (name)
William Suyemoto (1)

Isolated at Institute
Walter Reed Army Institute of Research

Host Genus
Phlebotomus spp. (pool of 105)

Species

Host Age/Stage
Adult

Sex
Female

Isolated From

Isolation Details

Signs and Symptoms of Illness

Arthropod

Time Held Alive before Inoculation

Collection Method
Caught by hand

Collection Date
9/8/1959

Place Collected (Minimum of City, State, Country)
Salehabad, Iran

Latitude
32° 0' N

Longitude
49° 0' E

Macrohabitat
Rural village

Microhabitat
Houses

Method of Storage until Inoculated
At -70dC

Footnotes

Section III - Method of Isolation

Inoculation Date
1/15/1960

Animal (Details will be in Section 6)
nb mice

Route Inoculated
Intracerebral

Reisolation
Yes

Other Reasons

Homologous Antibody Formation by Source Animal

Test(s) Used

Footnotes

Section IV - Virus Properties

Physicochemical
RNA, Single Strand

Pieces (number of genome segments) **3**	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) **20%**	After Treatment Titer **1.5 dex**	Control Titer **5.7 dex (1)**
Lipid Solvent (deoxycholate) **1:1000**	After Treatment Titer **3.2 dex**	Control Titer **7.0 dex (1)**

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)
Yes	**SMB ext. by sucrose-acetone + sonication (2)**	**Various**
pH Range	pH Optimum	
6.0-6.4	**6.0**	
Temperature Range	Temperature Optimum	
	Not dependent	

Remarks
Use of trypsin-treated erythrocytes enhances agglutination (2)

Serologic Methods Recommended
CF, NT, HI

Footnotes
Use of trypsin-treated erythrocytes enhances agglutination (2)

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

In cross-CF tests using SAL antigen and immune serum, no reactions were obtained with FRI, CAI, NIQ, AGU, CAC, BUE, PT, CHG, ICO, CDU, ITP, URU, PAC, ANH, BUJ, AMT, SFS, SFN, GF, KAR, or CHV antigens or immune sera [2] .
Plaque neutralization tests [3] :

Virus	Antibody	
	Salehabad	Homologous
Salehabad	1280 *	1280
Arumowot	40	10240
Candiru	10	320
Frijoles	80	10240
Itaporanga	80	160

* Reciprocal of highest serum dilution producing >90% plaque reduction.

In cross-neutralization tests, SAL virus and immune serum were negative when tested against AGU, ALE, ANH, BUE, BUJ, CAC, CAI, CHG, CHI, GF, GOR, TEH, ICO, TOS, ITA, KAR, SFN, SFS, NIQ, PAC, PT, RVF, RG, TUA, and URU viruses and immune reagents [4] , [5] .

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)	
Vero (CL)	SM16 Vero 1				6-8	1 mm	6.2** (4)		
Hamster embryo (PC)	SM18	2	CPE produced		8	3-4 mm	8.0 (6)		
BHK-21 (CL)	SM16	4-5	3+	7.0** (7)					
LLC-MK2 (CL)	SM16				3	1 mm	7.5 (10)		

** 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
Phlebotomus spp. (females)	1/40 pools		Iran (1)
Phlebotomus spp. (females)	0/10,615		Iran (8)
Man		6/245 HI	Pakistan (1)
Man		6/93 HI	Bangladesh (1)
Cattle		0/68 HI	Pakistan (1)
Sheep		2/21 HI	
Rattus norvegicus		0/12 HI	
Pigeon		0/20 HI	
Quail (pools of 2 each)		0/16 HI	
Sparrow (pools of 3 each)		0/5 HI	

Plaque neutralization tests done on a large number of human sera from Iran and elsewhere in the Middle East as well as animal sera were all negative for Salehabad antibodies (5,9). Infection with this virus is apparently much less common than with SFS, SFN, or KAR viruses.

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)	SM 11, I-81	ic 0.02	Death	4.5	5.6 (1)
Mice (nb)		ip			
Mice (nb)		sc			
Mice (wn)	SM 22, I-81	ic 0.03	Death		6.7 (1)
Mice (wn)		ip			
hamsters (nb)	SM 16, I-81	ic	Death (4)		

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)
Iran (1)

Suspected (Antibody only detected)
Pakistan, Bengladesh

Section XIII - References

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Remarks