Virus Name: Abu Hammad	Abbreviation: AHV

Status
Possible Arbovirus

Select Agent
No

SALS Level
2

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

Other Information

Antigenic Group
Dera Ghazi Khan

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation
ArT 1194

Accession Number

Original Date Submitted
11/28/1984

Family
Bunyaviridae

Genus
Nairovirus

Information From
Robert E. Williams

Address
U.S. NAMRU-3, c/o U.S.I.S., Spanish Embassy, Cairo, Egypt

Information Footnote
Reviewed by editor

Section II - Original Source

Isolated By (name)
US NAMRU-3

Isolated at Institute
Cairo, Egypt

Host Genus
Argas hermanni

Species

Host Age/Stage
Nymphus

Sex
Not Answered

Isolated From

Isolation Details

Signs and Symptoms of Illness

Arthropod

Time Held Alive before Inoculation

Collection Method
By hand from pigeon houses

Collection Date
6/7/1971

Place Collected (Minimum of City, State, Country)
Abu Hammad, Abu Hammad Sharqiya, Egypt

Latitude
30° 32' N

Longitude
31° 40' E

Macrohabitat
Pigeon farm in eastern Nile Delta

Microhabitat
Pigeon House

Method of Storage until Inoculated
Ticks held alive until triturated and inoculated

Footnotes

Section III - Method of Isolation

Inoculation Date
6/25/1971

Animal (Details will be in Section 6)
nb mice

Route Inoculated
Intracerebral

Reisolation
Not tried

Other Reasons

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) **1:100**	After Treatment Titer **<1.0 dex**	Control Titer **>4.0 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 **5.8-7.2**	pH Optimum	
Temperature Range	Temperature Optimum	
Remarks		
Serologic Methods Recommended **CF**		
Footnotes		

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

Not related to: SIN, DEN-1, LGT, POW, Royal Farm (ArT 371), UGS, WN, YF, ZIKA, BUN, MTR, COR, ACD, DUG, CNU, KEM, TRB, WM, LJN, SIL, BEA, MTY, QYB, QRF, AMT, SFS, GA, MWA, DHO, THO, NYM, UPO, WAN, EgAn 6165-63 (SIM group), EgAn 1825-61 (UUK group), ArT 619, ArT 1147, SudAr 1275-64, SudAr 1225-64, SudAr 1169-64.

Abu Hammad Antigen			Abu Hammad Immune Serum		
	CF			CF	
Immune Sera	Ht/Ho	Ratio	Antigens	Ht/Ho	Ratio
EgAn 4996-63 *	16/256	1/16	EgAn 4996-63	16/128	1/8
ArT 427 **	64/512	1/8	ArT 427	32/128	1/4
DGK	4/512	1/128	DGK	0/128	-

* Isolated by J.R. Schmidt in May 1963 from the blood of a northward migrating turtle dove (Streptopelia turtur 177155) trapped at Bahig, Egypt AF-00-EG-00 .

** Isolated by R.E. Williams in May 1969 from the tick Argas (Persicargas) streptopelia 34601 collected from date palm trees in which herons (Bubulcus ibis ibis 110668) were nesting near Mut, Dakhla Oasis, Egypt AF-00-EG-00 .

Abu Hammad is distantly related by CF test to DGK. This relationship is verified through other DGK related agents as shown below.

DGK Antigen			DGK Immune Serum		
	CF			CF	
Immune Sera	Ht/Ho	Ratio	Antigens	Ht/Ho	Ratio
EgAn 4996-63	0/256		EgAn 4996-63	4/512	1/128
ArT 427	8/256	1/32	ArT 427	4/512	1/128
Pathum Thani	8/128	1/16	Pathum Thani	32/512	1/16

Pathum Thani: Isolated by R.E. Williams in May 1970 from the tick Argas robertsi 253473 collected from an open billed stork colony (Anastomus ascitans) in Phathumtani, Thailand AS-SA-TH-00 .

Abu Hammad virus and members of the DGK serogroup share intergroup relationships with viruses of serogroups CHF-CON, HUG, NSD, QYB, and SAK, all of which comprise the Nairovirus genus [2] , [3] .

Section VI - Biologic Characteristics

Virus Source (all VERTEBRATE isolates)	Lab Methods of Virus Recovery (ALL ISOLATIONS)
	Newborn mice

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. tsted Test used	Country and region
Argas hermanni	2/22		Abu Hammad, Egypt
Argas hermanni	2/2 (115 ticks)		Dormain Village,Iran (1)
Argas hermanni	2/23		Egypt (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)	SMB 4	ic 0.01	Death	7-8	5.6 *
Mice (nb)		ip 0.02	Death	9	3.7 *
Mice (nb)		sc			
Mice (wn)	SMB 6	ic 0.03	Antibody		
Mice (wn)	SMB 4	ip 0.2	Antibody		
leg horn chick (nh)	SMB 6	im 0.03	Death	5	
leg horn chick (nh)		ip 0.03	Death	5	
leg horn chick (nh)		sc 0.03	Death	5	
leg horn chick eggs (7-8 day)		ys 0.1	Death	4-5	
leg horn chick eggs (7-8 day)		al.c. 0.1	Death	4-5	
leg horn chick eggs (7-8 day)		am.s. 0.1	Death	4-5	
guinea pig (7 day)		ic .03	Antibody		
hamster (21 day)		ic .03	Antibody		
rabbit (3-4 wk)		ic .05	Antibody		

* Using lyophilized virus

** Some survived im, ip, sc inoculation; however, all viremic on day 4 pi.

Section IX - Experimental Arthropod Infection and Transmission

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)
Egypt, Iran (1)

Suspected (Antibody only detected)

Section XIII - References

1. Tesh, R.B. Personal communication. 1976.
2. Casals, J. and Tignor, G.H. 1980. Intervirology 14:144-147.
3. Bishop, D.H.L., et al. 1980. Intervirology 14:125-143.
4. Converse, J.D., et al. 1974. Arch. ges. Virusforsch. 46:29-35.

Remarks