Virus Name: Zirqa		Abbreviation: ZIRV
Status **Possible Arbovirus**	Select Agent **No**	SALS Level **2**

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

Other Information

Antigenic Group
Hughes

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation	Accession Number	Original Date Submitted
A2070-1		8/8/1984

Family	Genus
Bunyaviridae	**Nairovirus**

Information From	Address
Dr. D.I.H. Simpson	**Arbovirus Unit, London School of Hygiene and Tropical Medicine, Gower St. WC1E 7HT**

Information Footnote
Reviewed by editor

Section II - Original Source

Isolated By (name)	Isolated at Institute	
Dr. M.G.R. Varma	**London**	
Host Genus	Species	Host Age/Stage
Ornithodoros (Alectorobius) muesebecki (pool of 25)		**Nymphs**

Sex
Not Answered

Isolated From	Isolation Details
Signs and Symptoms of Illness	Arthropod
Time Held Alive before Inoculation	
Collection Method **By hand**	Collection Date **11/2/1969**

Place Collected (Minimum of City, State, Country)
Zirqa Island, Persian Gulf

Latitude	Longitude
24° 53' N	**53° 4' E**

Macrohabitat	Microhabitat	Method of Storage until Inoculated
Barren sandy island inhabited by ground nesting birds	**Cormorant nests**	**Ticks kept at 23dC with 80% R.H.**

Footnotes

Section III - Method of Isolation

Inoculation Date
11/7/1969

Animal (Details will be in Section 6)
nb mice

Route Inoculated
ic and sc

Reisolation
Yes

Other Reasons
No related viruses held in laboratory

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) **50%**	After Treatment Titer **1.7 dex**	Control Titer **5.1 dex**
Lipid Solvent (chloroform)	After Treatment Titer	Control Titer
Lipid Solvent (deoxycholate) **1:1000**	After Treatment Titer **<0.5 dex**	Control Titer **5.1 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)
Yes	**SMB ext. with sucrose-acetone, tr. with sonication, trypsin and protamine**	**Goose**
pH Range	pH Optimum	
Temperature Range	Temperature Optimum	

Remarks

Serologic Methods Recommended
HI and CF

Footnotes

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

In a screening CF test at YARU (J. Casals) with immune sera for Zirqa virus and antigens from about 40 non-group B tick-borne viruses, the virus was found to be related to agents of the Hughes group [1] :

Antigen	Antiserum		
	Zirqa	Farallon	Punta Salinas
Zirqa	512/128 *	64/64	8
Farallon	64/512	512/512	32
Hughes	16/16+		32
Soldado	16/16		8 traces
Punta Salinas			128
Normal serum	0/0	0/0	0

* Serum titre/antigen titre; % = <8/<4: 0 = <8

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)	

Grows in primary cell cultures of Hyalomma dromedarii without cytopathic effects.

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
Ornithodoros (Alectorobius) muesebecki	1/25 pools		Zirqa Island, Persian Gulf

Note: Additional strains of the virus were also isolated from ticks sent to NAMRU-3, Cairo, by Dr. R.E. Williams (1).

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 3	ic 0.02	Sickness and death	7-9	9.0
Mice (nb)		ip			
Mice (nb)		sc			
Mice (wn)	SMB 4	ic 0.03	Sickness and death	7-10	8.5
Mice (wn)		ip			

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)
Persian Gulf

Suspected (Antibody only detected)

Section XIII - References

1. Varma, M.G.R., et al. 1973. Nature, (Lond), 244:452.

Remarks