

Virus Name: Olifantsvlei		Abbreviation: OLIV
Status Possible Arbovirus	Select Agent No	SALS Level 2
SALS Basis Results of SALS surveys and information from the Catalogue.		
Other Information		
Antigenic Group Olifantsvlei		

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation SaAr 5133	Accession Number	Original Date Submitted 9/30/1975
Family Bunyaviridae	Genus Bunyavirus	
Information From B.M. McIntosh;	Address South African Institute for Medical Research, P.O. Box 1038, Johannesburg 2001	
Information Footnote		

Section II - Original Source

Isolated By (name) B.M. McIntosh	Isolated at Institute S.A.I.M.R. Johannesburg	
Host Genus Culex pipiens pool of 250 mosquitoes	Species	Host Age/Stage adults
Sex Female		
<u>Isolated From</u>	<u>Isolation Details</u>	
Signs and Symptoms of Illness	Arthropod	
Time Held Alive before Inoculation 12 hours		
Collection Method Solid CO2 baited traps	Collection Date 1/8/1963	
Place Collected (Minimum of City, State, Country) Olifantsvlei sewage farm, Johannesburg, S. Africa		
Latitude 26° S	Longitude 28° E	
Macrohabitat Grassland, plateau, 1500 m.	Microhabitat Riverine reed bed, ground level	Method of Storage until Inoculated Solid CO2
Footnotes		

Section III - Method of Isolation

Inoculation Date
2/15/1963

Animal (Details will be in Section 6)
nb mice

Route Inoculated
Intracerebral

Reisolation
Not tried

Other Reasons

AR 5133 immunologically distinct from other viruses in laboratory; isolated from mosquitoes collected elsewhere in Africa

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) 1:1000	After Treatment Titer <1.8	Control Titer 4.8
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

Hemagglutination Antigen Source Erythrocytes (species used)
Yes **Infant mouse brain sucrose-acetone extracted** **Goose**

pH Range pH Optimum
5.8-6.2 **5.8**

Temperature Range Temperature Optimum
Room

Remarks
Low HA titers 1/64-1/128 not obtained consistently

Serologic Methods Recommended
CF, HI, NT

Footnotes
Low HA titers 1/64-1/128 not obtained consistently

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

1. ?? a, Ilesha, Germiston, Kairi, Cache Valley ?? Shokwe viruses, but by HI an AR 5133 antigen was inhibited by Bunyamwera group antiserum (32 Units of antigen inhibited), Bunyamwera (8 units), Shokwe (8 units), Kairi (4 units), Ilesha (2 units), [2].
2. CF tests at YARU and at Institute Pasteur, Dakar, showed a reciprocal cross- relationship between Olifantsvlei and Bobia viruses [1], [6]. In addition, neutralization tests also conducted at the Institute Pasteur, Dakar, have confirmed an antigenic relationship between the two viruses [6].
3. By HI Olifantsvlei and Bobia viruses were classified as a serogroup (Olifantsvlei) within the Bunyamwera super-group [1].

Section VI - Biologic Characteristics

Virus Source (all VERTEBRATE isolates)

Lab Methods of Virus Recovery (ALL ISOLATIONS)
Vero cell cultures

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)		

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
Culex pipiens	1		Transvaal, S. Africa
Mansonia uniformis	1		Sudan (5)
Culex poicilipes	1		Ethiopia (7)

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 log ₁₀ /ml
Mice (nb)		ic	Death	3	6.6
Mice (nb)		ip			
Mice (nb)		sc	Death	6-10	5.0
Mice (wn)		ic			
Mice (wn)		ip			

Section IX - Experimental Arthropod Infection and Transmission

Arthropod species & virus source(a)	Method of Infection log ₁₀ /ml (b)		Incubation period (c)		Transmission by bite (d)		Assay of arthropod, log ₁₀ /ml (e)		
	Feeding	Injected	Days	°C	Host	Ratio	Whole	Organ	System
Culex fatigans		Intrathoracic inoc.					Multiplication of virus in 1 out of 25 mosquitoes (2).		
Culex univittatus		Intrathoracic inoc.					Multiplication of virus in 2 out of 25 mosquitoes (2).		

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	Residual	Death
Subclinical	Overt Disease	
Clinical Manifestations		
Number of Cases	Category (i.e. febrile illness, etc.)	

Section XII - Geographic Distribution

Known (Virus detected) South Africa (2), Sudan (5), Ethiopia (7)
Suspected (Antibody only detected)

Section XIII - References

<ol style="list-style-type: none">1. Shope, R.E., Director, YARU. 1969. Personal communication.2. McIntosh, B.M. 1963. Unpublished work.3. Murphy, F.A., et al. 1973. Intervirology 1:297-316.4. Porterfield, J.S., et al. 1973-74. Intervirology 2:270-272.5. Schmidt, J.R., et al. 1965. East African Virus Res. Report 15:24-26.6. Bres, P. 1969. Personal communication.7. Ota, W., et al. 1976. J. Med. Entomol. 13:173-178.

Remarks

On the basis of immunological relationships Olifantsvlei group viruses were assumed to possess similar morphologic and morphogenetic characteristics as other Bunyamwera and Bunyamwera-like viruses and listed as members of the Bunyavirus genus. (3, 4).
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