Virus Name: Kadam	Abbreviation: KADV

Status
Possible Arbovirus

Select Agent
No

SALS Level
2

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

Other Information

Antigenic Group
B

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation
AMP 6640

Accession Number

Original Date Submitted
8/9/1984

Family
Flaviviridae

Genus
Flavivirus

Information From
Dr. Peter Tukei

Address
East African Virus Research Institute, Entebbe, Uganda

Information Footnote
Reviewed by editor

Section II - Original Source

Isolated By (name)
Dr. Peter M. Tukei (1)

Isolated at Institute
E.Afr. Virus Research Institute

Host Genus
Rhipicephalus pravus, pool of 20 ticks

Species

Host Age/Stage
Adult

Sex
Not Answered

Isolated From

Isolation Details

Signs and Symptoms of Illness

Arthropod

Time Held Alive before Inoculation

Collection Method
Hand picked from cattle

Collection Date
9/8/1967

Place Collected (Minimum of City, State, Country)
Namalu, South Karamoja, Uganda

Latitude
14° 30' N

Longitude
89° 55' W

Macrohabitat
Open savannah

Microhabitat
Body of cow

Method of Storage until Inoculated
Ticks kept alive on moist sand

Footnotes

Section III - Method of Isolation

Inoculation Date
8/22/1967

Animal (Details will be in Section 6)
nb mice

Route Inoculated
ic, ip and sc

Reisolation
Yes

Other Reasons
Two strains (AMP 6640 and AMP 6641) isolated from 2 pools of 20 ticks each from same cow.

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 **6.1 dex**	Control Titer **8.3 dex**
Lipid Solvent (chloroform)	After Treatment Titer	Control Titer
Lipid Solvent (deoxycholate)	After Treatment Titer	Control Titer

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**	**Goose***
pH Range	pH Optimum	
6.0-6.6	**6.3-6.4**	
Temperature Range	Temperature Optimum	
4dC - 37dC	**4dC**	

Remarks
*** Also Bush-babies, monkeys, squirrels, rats (2).**

Serologic Methods Recommended
CF, HI, NT

Footnotes
*** Also Bush-babies, monkeys, squirrels, rats (2).**

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

Kadam virus was screened in HI and CF tests against a range of hyperimmune sera and it was shown to be a member of arbovirus group B.
CF and HI tests with 11 group B arboviruses gave the following results:

	Kadam Antigen		Kadam Antiserum	
	HI Ht/Ho	CF Ht/Ho	HI Ht/Ho	CF Ht/Ho
YF	10/80	<5/40	80/320	<5/80
ZIKA	<10/320	<5/40	40/320	<5/80
WSL	<10/40	<5/80	160/320	<5/80
Bukalasa bat	10/160	<5/80	40/320	5/80
DB	10/80	10/160	80/320	<5/80
UGS	10/80	<5/40	80/320	<5/80
BAN	80/640	5/80	80/320	5/80
WN	40/640	5/320	160/320	5/80
NTA	10/80	<5/80	160/320	5/80

USU	40/160	<5/40	40/320	<5/80
Dengue 1		<5/80		<5/80

HI tests between Kadam and group B tick viruses of RSSE complex (Powassan and KFD) gave a titre of 1:10 only with 8 units of Kadam antigen.
The following NT results were obtained when Kadam virus cross-tested with WSL and UGS viruses.

Serum	Virus		
	Kadam	WSL	UGS
Kadam	3.2 *	1.6	1.3
WSL	0.1	> 3.7	
UGS	0.2		> 3.0

* LNI in dex

See also References [3] and [4] .

Section VI - Biologic Characteristics

Virus Source (all VERTEBRATE isolates)
Blood (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)	

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
Rhipicephalus pravus	2/several		S. Karamoja, Uganda
Male Hyalomma dromedarii (from dead camel)	1		Saudi Arabia (5)

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)	AMP 6640	ic 0.01	Sickness	5-6	8.5
Mice (nb)		ip			
Mice (nb)		sc			
Mice (wn)	AMP 6640	ic 0.03	Sickness, paralysis, death	6-7	6.5
Mice (wn)		ip			
Arvicanthis abyssinicus (nb)		ic 0.05	Sickness, death (2)	7-9	>8.5
A. abyssinicus (ad)		sc 0.5	None (2)		

Kadam virus did not circulate in 2 adult grivet monkeys (C. aethiops)(inoc. sc and ip, respectively), nor in Arvicanthis rats inoc. sc (2).

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 aegypti fed on viremic baby mice yielded 1.6-3.8 LD50 of virus when tested immediately after engorgement but failed to demonstrate virus when tested at 21 days pi; likewise no virus was transmitted by bite at 21 days. Adult ticks (Dermacentor variabilis), inoculated with virus, were positive and transmitted virus to baby mice by bite when tested at 10 and 21 days pi (2 ticks) (4).									

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)
Uganda, Saudi Arabia (5)

Suspected (Antibody only detected)

Section XIII - References

1. Tukei, P.M., et al. 1968. E. Afr. Virus Res. Inst. Rep. No. 17. pp. 25-26.
2. Mutanda, L.N. and Munube, G.M.R. 1971. E. Afr. Virus Res. Inst. Rep. No. 20. pp. 36-38.
3. Henderson, B.E., et al. 1970. E. Afr. Med. J. 47:273-276.
4. Mugo, W.N. and Shope, R.E. 1972. Trans. Royal Soc. Trop. Med. and Hyg. 66:300-304.
5. Wood, O.L., et al. 1982. J. Med. Ent. 19:207-208.

Remarks