Virus Name: Nkolbisson		Abbreviation: NKOV
Status **Possible Arbovirus**	Select Agent **No**	SALS Level **2**

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

Other Information

Antigenic Group
Ungrouped

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation	Accession Number	Original Date Submitted
YM 31-65		10/23/1984

Family	Genus
Not listed	**Not listed**

Information From	Address
Dr. J.J. Salaun	**Institut Pasteur, B.P. 490, Abidjan, Cote d'Ivoire**

Information Footnote
Reviewed by editor

Section II - Original Source

Isolated By (name)	Isolated at Institute	
J.J. Salaun, H. Brottes, A. Rickenbach	**Inst. Pasteur, Yaounde**	
Host Genus **Eretmapodites leucopus**	Species	Host Age/Stage **Adult (Imago)**

Sex
Female

Isolated From	Isolation Details
Signs and Symptoms of Illness	Arthropod
Time Held Alive before Inoculation	
Collection Method **Human bain and netted**	Collection Date

Place Collected (Minimum of City, State, Country)
Nkolbisson, 8 km from Yaounde, Cameroun

Latitude	Longitude	
4° N	**11° 30' E**	
Macrohabitat **Plateau 600 meters above sea level. Tropical rain semideciduous forest**	Microhabitat **Ground level; outdoors**	Method of Storage until Inoculated **Revco at -65dC**

Footnotes

Section III - Method of Isolation

Inoculation Date
4/20/1965

Animal (Details will be in Section 6)
nb mice

Route Inoculated
ic and ip

Reisolation
No

Other Reasons
First isolation of the strain at Yaounde

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) **1:2**	After Treatment Titer **4.4 dex**	Control Titer **7.6 dex**
Lipid Solvent (chloroform) **1:1000**	After Treatment Titer	Control Titer
Lipid Solvent (deoxycholate)	After Treatment Titer **4.1 dex**	Control Titer **7.0 dex**

Other (formalin, radiation)

Virion Morphology

Shape **Rhabdovirus (5)**	Dimensions **220 nm**	
Mean nm	Range nm	
Measurement Method **EM (5)**	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 **No**	Antigen Source **SMB ext. by fluorocarbon and sucrose-acetone**	Erythrocytes (species used) **Goose**
pH Range **5.7-7.0**	pH Optimum	
Temperature Range	Temperature Optimum	
Remarks		
Serologic Methods Recommended		
Footnotes		

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

HI test gives negative results with the following viruses: Chikungunya, O'nyong nyong, Sindbis, Semliki, Middelburg, Ntaya, Wesselsbron, Usutu, West Nile, Dakar bat, Uganda S, yellow fever, Zika, Bunyamwera.
CF homologous titer = 32/32.

CF screening: YM 31/65 antigen gives negative results with the following sera from mice:

Group A:		**Bwamba group:**	
Chikungunya	128/10 *	Bwamba	32/8
O'nyong nyong	64/8	Pongola	32/8
Semliki Forest			
Sindbis	64/32	**Group Simbu:**	
Middelburg	32/8	Simbu	64/128
Ndumu	64/8	Ingwavuma	128/128
Group B:		**Others:**	
Ntaya	16/16	Quaranfil	64/8
Wesselsbron	128/32	Chenuda	64/4
Usutu	256/8	Nyamanini	128/64

West Nile	32/32	Wad Medani	**
Dakar bat	32/8	Thogoto	16/8
Uganda S	32/6	Mossuril	32/128
Yellow fever	16/16	Nyando	16/64
Zika	64/6	Lumbo	128/4
Spondweni	64/16	Bandia	256/128
Bukalasa	64/16	Lagos bat	**
Entebbe Bat	80/80	Olifantsvlei	40/40
		Gossas	64/16
Group Bunyamwera:			
Bunyamwera	16/32	**Ungrouped:**	
Germiston	128/8	Lebombo	
Ilesha	32/256	Tanga	16/32
Shokwe	521/128	Tataguine	64/64
		Witwatersrand	256/256
		YM 176	64/32
		BA 40	32/64
		IPD/A 318	256/128
		IPD/A 763	16/8

* Homologous antiserum titre/antigen titre. The antiserum titres are the maxima. The antigen titres given are the highest at which the antiserum is maximal (i.e. optimal).

** Antiserum supplied by International Reference Center.

Nkolbisson virus is related to Kern Canyon, Barur and the unregistered Fukuoka virus and they form the Kern Canyon antigenic group [5] . On basis of these tests, Nkolbisson is apparently an unrelated virus.

Section VI - Biologic Characteristics

Virus Source (all VERTEBRATE isolates)
Pooled brain, liver, heart, spleen, kidney (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
Eretmapodites leucopus	1/499		Yaounde, Cameroun
Er chrysogaster	1/5,634		
Eretmapodites sp.	1/1,724		
Culex telesilla	1/3,275		
Aedes mutilus + argenteopunctatus	1/646		
Aedes cumminsi	1/2,058		
Other mosquitoes	0/44,236		
Man	0/881		
Bat	0/107		

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)	16th P	ic 0.02	Death	2	8.6
Mice (nb)		ip			
Mice (nb)		sc			
Mice (wn)	5th P	ic 0.03	Death	5	
Mice (wn)		ip 0.1	None		

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)
Suckling mice: no specific meningoencephalitis

Inclusion Bodies — Intranuclear

Organs/Tissues Affected
Brain (LV)

Category of tropism
Neurotropic

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)
Yaounde, Cameroon

Suspected (Antibody only detected)

Section XIII - References

1. Rapports sur le fonctionnement technique de l'Institut Pasteur du Cameroun. 1965, 1966, 1967.
2. Brottes, H., et al. 1966. Bull. World Health Organ. 35:811-825.
3. Salaun, J.J., et al. 1969. Ann. Inst. Pasteur, 116:254.
4. Salaun, J.J., et al. 1969. Bull. World Health Organ. 41:233-241.
5. Calisher, C.H. et al. 1989. Intervirology. In Press.

Remarks