Virus Name: **Nyamanini** **Abbreviation:** **NYMV**

Status: Probable Arbovirus
SALS Level: 2
Antigenic Group: Nyamanini
Taxonomic status: *Not listed*
Other Information: None.

Select Agent:
SALS Basis: S
HEPA Filtration:

Section I - Full Virus Name and Prototype Number

Full Virus Name:
Nyamanini

Prototype Number:
SAAn 2526

Information from: B.M. McIntosh
*

Date:
10/16/1984

Address: National Institute for Virology, P/Bag X4, Sandringham, 2131, South Africa
*
Revised

Section II - Original Source

Isolated by: B.M. McIntosh, et al. (1) **at:** S. Afr. Inst. for Med. Res.
Genus and species: Bubulcus ibis (cattle egret) **Sentinel** X
Age/Stage: Adult **Sex:**

Isolated From	Isolation detail

Signs and symptoms of illness:
Arthropod engorged depleted gravid
Time held alive before inoculation:
Collection date: 11/19/1957 **Method:** Shot
Place collected: Nyamanini Pan, Natal, South Africa
Latitude: 27° ' " S **Longitude:** 32° ' " E
Macrohabitat: Tropical, coastal lowland; savannah woodland
Microhabitat:
Method of storage until inoculated: Solid CO2
Footnotes:

Section III - Method of Isolation and Validity

Inoculation Date: 11/26/1957
Animal: nb mice **Embryonated egg:** **Tissue Culture:**
(Details in Section VI - Biologic Char.)
Route inoculated: Intracerebral **Reisolation:** Yes
Other reasons: Further isolations from cattle egrets
Homologous antibody formation by *source animal* (See Section II):
Test used: HI **CF** **NT**
Other:
Footnotes:

Section IV - Virus Properties

Physicochemical:
RNA: **DNA:** **Single Strand:** **Double Strand:**
Pieces: **Infectivity:** **Sedimentation coefficient(s): /strong>**
Percentage wt. of virion protein **, lipid** **carbohydrate**
Virion polypeptides:
Number: **Details:**
Non-virion polypeptides:
Number: **Details:**
Virion density:
Sedimentation coefficient:
Nucleocapsid density **Sedimentation coefficient:**

Stability of infectivity **(effects) pH**
Lipid solvent:
(ether) 1:4 **After treatment titer** 2.3 dex **Control titer** 5.5 dex
(chloroform) **After treatment titer** **Control titer**
Detergent:
(deoxycholate) 1:1000 **After treatment titer** 2.8 dex **Control titer** 5.7 dex
Other (formalin, radiation):

Virion morphology:
Shape **Dimensions**
Mean (nm) **range (nm)** **how meansured**
Surface projections, envelope
Nucleocapsid dimensions, symmetry

Morphogenesis:
Site of constituent formation in cell
Site of virion assembly
Inclusion bodies
Other

Hemaggiutination:
Hemaggiutination No **Antigen source** SMB ext. by sucrose-acetone
Erthrocytes Goose **pH range** **pH optimum**
Temperature optimum **range**
Remarks
Serologic methods recommended CF, NT
Footnotes:

Section V - Antigenic Relationship And Lack of Relationship To Other Viruses

NYM antigen showed no relationship in CF and/or NT to the following: chikungunya, Sindbis, Banzi, Rift Valley fever, Spondweni, Bwamba, Witwatersrand, bluetongue, horsesickness, Tete, Zika, Pongola, Nairobi sheep disease, Middelburg, WEE, EEE, VEE, Wesselsbron, Simbu, West Nile, Ilheus, dengue 1 and 2, RSSE, yellow fever, JE, MVE, Anopheles A, Anopheles B, Uganda S, EMC, California encephalitis, SLE, Zika, Bunyamwera, Pongola, Semliki Forest, Quaranfil, Germiston, Tahyna, Mossuril, Ndumu, Wad Medani, Ganjam, Bhanja, Wanowrie, Silverwater, Colorado tick fever, Hughes, Dalcairnie [1] , [2] .

NYM virus was shown to be antigenically related to the recently described Midway virus. Both viruses were shown to be antigenically distinct when compared by CF, neutralization and IFA tests [7] .

Section VI - Biologic Characteristics

Virus source (all VERTEBRATE isolates): Blood (M) (LV)
Lab Methods of Virus Recovery (ALL ISOLATIONS): Newborn mice
Susceptibility of Cell Culture Systems:

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)	
BHK-21 (CL)	EgAr 1304 MB 25	6	3+	5.6* (3)					
Vero (CL)	SAAn 2526					No plaques (8)			
LLC-MK2 (CL)	MB 25				6	3 mm	6.9* (8)		

* Expressed in dex

Section VII - Natural Host Range

Vertebrate (species and organ) and arthropod	No. isolations/No. tested	No. with antibody/No. tested Test used	Country and region
Man		3/403 NT	South Africa
Man		0/191 CF	Lower Egypt (4)
Cattle, sheep		0/76 NT	South Africa (1)
Buffalo		3/109 CF	Lower Egypt (4)
Camel		1/137 CF	
Dog		1/101 CF	
Donkey		1/9 NT	South Africa (1)
Donkey		0/197 CF	Lower Egypt (4)
Pig		0/101 CF	
Rodents		0/94 CF	
Bubulcus ibis	5		Natal, S. Africa(1)
Nestling egret	1		Nile Barrage, Egypt (2)
Argas walkerae	12		Transvaal, South Africa (5)
Argas arboreus	2		Nile Barrage, Egypt (2)
Argas arboreus	15/119		Northeast State, Nigeria (6)
Argas arboreus	2/141		Egypt (9)

Section VIII - Susceptibility To Experimental Infection (Record Viremia)

Experimental host and age	Passage history and strain	Inoculation Route-Dose	Evidence of infection	AST (days)	Titer log10/ml

Mice (nb)	An 2526	ic	Death	7-8	7.4
Mice (nb)		ip	Death	7-8	4.8
Mice (nb)		sc			
Mice (wn)		ic	Death occasionally		+1.0
Mice (wn)		ip			
guinea pig (ad)		ic	Antibody response		
rabbit (ad)		ic	Antibody response		
vervet monkey (ad)		sc	Viremia, antibody response		
lamb (6 mo)		sc	Antibody response		
chickens (1 day)		im	Antibody response		
emb. eg (8 day)		ys	Death	4	5.0
cattle egret (nestling)		iv	Viremia		
coot (ad)		iv	Viremia		>6.2

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

Section X - Histopathology

Character of lesions:
Inclusion bodies:
Cytoplasmic:(M) (LV) Intranuclear: (M) (LV) X
Organs-tissues affected:
Category of tropism:

Section XI - Human Disease

Human disease:	**In nature:**	**(S)**	**(R)**
	Death:	**(S)**	**(R)**
	Residua:	**(S)**	**(R)**
Laboratory infections:	**Subclinical:**	**(S)**	**(R)**
	Overt Disease:	**(S)**	**(R)**

Clinical manifestations:
Category: **No. of cases:**

Section XII - Geographic Distribution

Known (virus):
South Africa (1, 5), Egypt (2, 9), Nigeria (6)

Section XIII - References

1. McIntosh, B.M. Unpublished.
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3. Karabatsos, N. and Buckley, S.M. 1967. Am. J. Trop. Med. and Hyg. 16:99-105.
4. Darwish, M.A., et al. 1975. J. Egypt. Pub. Hlth. Assoc. 50:37-42.
5. Jupp, P.G. and McIntosh, B.M. 1981. Proceed. Internat. Conf. on Ticks. Grahamstown, South Africa. p. 177.
6. Kemp, G.E., et al. 1975. J. Med. Ent. 12:535-537.
7. Takahashi, M., et al. 1982. J. Med. Virol. 10:181-193.
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Section XIV - Remarks

Although first isolated in Egypt (strain Ar 1304) strain SAAn 2526 from South Africa was retained as the prototype with the agreement of Dr. R.M. Taylor, since this was the first registered strain.