Virus Name: Ntaya	Abbreviation: NTAV

Status
Probable 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
Original

Accession Number

Original Date Submitted
2/3/1985

Family
Flaviviridae

Genus
Flavivirus

Information From
J.P. Woodall

Address
YARU, Yale Univ. Sch. Med., New Haven, Connecticut 06510

Information Footnote
Reviewed by editor

Section II - Original Source

Isolated By (name)
Smithburn and Haddow (1)

Isolated at Institute
Entebbe

Host Genus
Mosquitoes (5 genera, 24 spp.)

Species

Host Age/Stage
Adult

Sex
Female

Isolated From

Isolation Details

Signs and Symptoms of Illness

Arthropod

Time Held Alive before Inoculation

Collection Method
Taken off human bait and vegetation

Collection Date
2/5/1943

Place Collected (Minimum of City, State, Country)
Ntaya swamp, Bwamba, Uganda

Latitude
0° 42' N

Longitude
30° 3' E

Macrohabitat
Tropical swamp and relict rain forest (Elaeis oil palms)

Microhabitat
Daylight; ground level, outdoors

Method of Storage until Inoculated
Alive in Barraud cages, air temp.

Footnotes

Section III - Method of Isolation

Inoculation Date
2/22/1943

Animal (Details will be in Section 6)
nb mice

Route Inoculated
Intracerebral

Reisolation
Not tried

Other Reasons
Different from all other arboviruses and mouse viruses 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)	After Treatment Titer	Control Titer
Lipid Solvent (chloroform)	After Treatment Titer	Control Titer
Lipid Solvent (deoxycholate) **1:1000**	After Treatment Titer **2.8 dex loss (3)**	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 acetone-ether; sucrose-acetone; fluorocarbon**	**Goose**

pH Range	pH Optimum
6.0-6.8	**6.5; 6.8 (10)**

Temperature Range	Temperature Optimum
4-37dC	**37dC**

Remarks
HA inhibited by choline-containing phospholipids. * Optimal pH for fluorocarbon or sucrose-acetone antigen at room temp. = 6.8 (10). This is one of the highest-titred and most cross-reactive of Group B antigens. HA inhibited by Choline-contai

Serologic Methods Recommended
CF, HI, NT

Footnotes
HA inhibited by choline-containing phospholipids. * Optimal pH for fluorocarbon or sucrose-acetone antigen at room temp. = 6.8 (10). This is one of the highest-titred and most cross-reactive of Group B antigens. HA inhibited by Choline-contai

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

Member of Casals' Group B [6] .

Laboratory-produced animal immune sera for other Group B viruses sometimes cross-reactive in NT, but agent differentiable by NT [7] .
Ntaya virus was compared in cross-neutralization studies with 60 other registered and 5 unregistered flaviviruses. As a result Ntaya virus provisionally was placed in the Tembusu complex consisting of Tembusu, Ntaya, Yokose, Bagaza and Israel turkey meningoencephalitis viruses [23] .

Section VI - Biologic Characteristics

Virus Source (all VERTEBRATE isolates)
Pool of liver, lung, spleen, kidney, brain (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)
BHK-21 (CL)	MB 5	3	CPE	7.5* (20)				
LLC-MK2 (CL)					4	2 mm	5.4*(22)	
Vero (CL)						No plaques (22)		
PS (CL)						No plaques (23)		
Duck embryo (PC)					7	Plaques	6.9* (23)	

* Expressed in dex

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
Man		43/340 NT	Tanzania; Uganda (1, 17)
Man		12/177 NT	Philippines
Man		118/204 NT	Malaya, Malaysia (9, 14)
Man		41/50 NT	N. Vietnam (9)
Man		37/50 NT	Thailand (9)
Man		15/83 NT	Singapore (11)
Man		28/55 NT	Borneo, Indonesia (11, 14)
Man		35%/327 NT	Egypt (15)
Man		23/247 NT	India (16
Mosquitoes: Mixed spp	1/1,318		Uganda
Culex spp.	5		Cameroun (18)
Culex guiarti	1		Centr. Afr. Rep.(19)

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)	P 17	ic 0.02	Death (10)	6	9.5
Mice (nb)		ip			
Mice (nb)		sc			
Mice (wn)	P 2-11	ic 0.03	Death (1)	8.1	4.0-5.0
Mice (wn)	P-56	ic 0.03	Death		6.5
Mice (5 wk)	P-91-100	ic 0.03	Death	5.9	6.5
Mice (5 wk)	up to 100	ip 0.1	Antibody		
hamsters (yg)		ic,sc	Poor antibody response(1)		
rhesus	Mosquito pool	sc	None, no antibody produced (1)		
monkey	Early MB	sc	Antibody appeared after more than 2 inocs.		
chick embryo (12 day)	P-106	ys, am.s.	Death (12)		
chick embryo	P-9-10	CAM, al.c.	Virus mult., occasional death		

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
Culex tarsalis	Haemocoele inoculation; 5 serial passages succeeded. (8)								
Other insect spp.	Haemocoele inoculation; 5 serial passages succeeded. (8)								
Ae aegypti inoculated parenterally maintained the virus through 9 serial salivary gland passages, and Cx quinquefasciatus through 3 passages; An quadrimaculatus failed (21).									

Section X - Histopathology

Character of lesions (specify host)
In mice: viral encephalitis

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)
Africa: Uganda, Cameroun, Central African Republic

Suspected (Antibody only detected)
Far East (9,16): But NT results closely parallel the incidence of Japanese encephalitis positives (4), Tanzania, Egypt.

Section XIII - References

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Remarks