

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

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation DakAnD 4611	Accession Number	Original Date Submitted 11/17/1984
Family Arenaviridae	Genus Arenavirus	
Information From Arbovirus Reference Centre	Address Institut Pasteur, BP 220, Dakar, Senegal	
Information Footnote Reviewed by editor		

Section II - Original Source

Isolated By (name) Institut Pasteur	Isolated at Institute Dakar, Senegal	
Host Genus Tatera kempi	Species	Host Age/Stage Adult
Sex Female		
<u>Isolated From</u>	<u>Isolation Details</u>	
Organs/Tissues	Liver	
Signs and Symptoms of Illness	Arthropod	
Time Held Alive before Inoculation		
Collection Method Trapped	Collection Date 2/22/1968	
Place Collected (Minimum of City, State, Country) Saboya, Senegal		
Latitude 13° 36' N	Longitude 16° 25' W	
Macrohabitat Farmed areas in sparse forest around mangrove gallery; sea level; tropical.	Microhabitat Millet and peanuts plantation	Method of Storage until Inoculated Revco at -75dC
Footnotes		

Section III - Method of Isolation

Inoculation Date
8/23/1968

Animal (Details will be in Section 6)
nb mice

Route Inoculated Intracerebral	Reisolation Yes
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Other Reasons
New virus

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 3.0 dex	Control Titer 6.1 dex
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

Hemagglutination No	Antigen Source SMB ext. by sucrose-acetone	Erythrocytes (species used) Goose
pH Range 5.7-6.6	pH Optimum	
Temperature Range 28dC	Temperature Optimum	
Remarks		
Serologic Methods Recommended CF		
Footnotes		

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

CF test. Homologous titer = 16/64. Institut Pasteur, Dakar.

AnD 4611 did not react with the following viruses:

Group A;	Semliki Forest virus, chikungunya, o'nyong-nyong, Begoa (DakHB 543), Sindbis, DakArY 251, Middleburg, Ndumu.
Group B;	Ntaya, Bagaza (DakAr B 209), Wesselsbron, DakArY 310, Usutu, DakArY 276, West Nile, Koutango, Dakar bat, Uganda S, Saboya, Banzi, Bouboui, yellow fever, Zika, Spondweni, Bukalasa bat, (DakAnD 595), Royal Farm, Kadam (UgAr 6640).
Bunyamwera;	Bunyamwera, Germiston, Ilesha, Shokwe, Birao (DakArB 2198).
Simbu;	Simbu, Ingwavuma, DakAnB 331, DakArB 994, DakArB 1351.
Bwamba;	Bwamba, Pongola.
California;	Lumbo.
Olifantsvlei;	Olifantsvlei, Botambi, Bobia (DakArB 1569).
Turlock;	Yaba 1, M'Poko.
Nyando;	Nyando, Eret 147, DakArY 176.
Mossuril;	Mossuril.
Matariya;	DakAnB 423.

Eubenangee;	Pata (DakArB 1327).
Phlebotomus;	Nafada (DakAnD 3150).
NSD;	Dugbe, DakAnB 373.
Kemerovo;	Chenuda, Wad Medani.
Qalyub;	Bandia.
Quaranfil;	Quaranfil.
Others;	Witwatersrand, Okola, Nkolbisson, Tataguine, Lebombo, Tanga, Nyamanini, Thogoto, Jos (DakArD 3491), Bhanja (DakArD 9540), Gossas, Le Dantec, DakArD 4499 (Somone), Keuraliba, Yogue, DakArD 8194 (Hann), Boteke, Zinga (DakArB 1976), Bangoran (DakArB 2053), Sokoumba (DakArB 2078), Yata (DakArB 2181), DakHB 754, DakAnB 769, DakArB 2712, DakArB 2846, DakArB 2882, DakArY 347.
Nonarbovirus;	Herpesvirus (DakHB 3667).

In addition, D 4611 antigen failed to react with the following immune fluids:

Group B;	Entebbe bat, Montana Myotis leukoencephalitis, dengue 1, 2, 3, 4, TH Sman, TH-36.
Simbu;	Sango, Shamonda, Sabo, Shuni, Sathuperi, Yaba 7, IbAn 28558.
California;	Group serum.
Tete;	Tete, Matruh.
EHD-NJ;	IbAr 22619.
Matariya;	Matariya, Burg el Arab.
Corriparta;	Acado.
VSV;	Chandipura (IbAn 9978).
Phlebotomus;	Group serum, Arumowot (IbAn 15736).
Kaisodi-Qalyub-Quaranfil;	Group serum (Johnston Atoll, Kaisodi, Bandia, Silverwater, Quaranfil, Lanjan, Qalyub).
Uukuniemi;	Grand Arbaud7, Ponteves, EgAn 1825.
Congo;	Congo.
Bluetongue;	Type 7 (IbAn 22703), Type 10 (IbAr 22618).
Others;	SudAr 1275-64, Abadina (IbAr 22388), kotonkan, Oyo (IbAn 2898), IbAn 17143, Lagos bat, Mount Elgon bat, IbAn 33709, IbAn 28946, SAAN 4511.
Nonarboviruses;	LCM-rabies, IbAn 27377 and IbH 2977 (related to rabies), IbAn 20433 (NDV).

Yale Arbovirus Research Unit (New Haven): HI test D 4611 antiserum did not react with the following antigens; Oriboca, Itaqui, Marituba, Murutucu, Nepuyo, Gumbo Limbo, Apeu, Caraparu, Pixuna, Aura, Mucambo, EEE, WEE, VEE, Mayaro, (IbAn 15736), Naples, Anhangá, Sororoca, Tacaiuma, Turlock, Umbre, Utinga, Zegla, Sango, (Maru-11709), SLE, Powassan, California, Icoaraci, Tahnya, Guaroa, Taissui, Sicilian, Maguari, Anopheles A, Anopheles B, Bakau, Benfica, Buttonwillow, Guajara, Kairi, Ketapang, Manzanilla, Patois, Itaporanga, Candiru, Chagres, Bujaru, Pacora, Karimabad, Wongal.
 A provisional cross-reaction has been shown by IFA between Toure and LCM and Lassa viruses [3]. Pending confirmation of these findings and the completion of definitive studies, Toure virus is being listed with members of the Tacaribe serogroup (ed).

Section VI - Biologic Characteristics

Virus Source (all VERTEBRATE isolates)
Serum (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 +/- (g)
		Day (c)	Extent (d)	Titer TCD50/ml (e)	Day (c)	Size (f)	Titer PFU/ml (e)	
PS (CL)	SMB 4	4	CPE	6.2*				
BHK-21 (CL)			CPE	4.7 (2)				
Vero (CL)			No CPE (2)					
Xenopus laevis (CL)			No CPE (2)					

* 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
Tatera kempi	3/288		Saboya, Senegal
Man		0/44 CF	

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)	SMB 4	ic 0.02	Death	5	7.8
Mice (nb)		ip 0.02	None		
Mice (nb)		sc			
Mice (wn)		ic 0.03	Death	5	
Mice (wn)		ip 0.1	Production of antibody		
rabbit (2 mo)		iv 0.5	Production of antibody		

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

Section X - Histopathology

Character of lesions (specify host)

Very severe lesions of encephalitis found mostly in rhinencephalus in inoculated suckling mice.

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)

Senegal

Suspected (Antibody only detected)

Section XIII - References

1. Rapport annuel du Centre Regional de Reference pour les Arbovirus, Institut Pasteur de Dakar. 1969.
2. El Mekki, A.A., et al. 1981. Trans. Roy. Soc. Trop. Med. Hyg. 75:799-806.
3. McCormick, J.B., et al. Personal communication. 1985.

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