Virus Name: Tinaroo	Abbreviation: TINV

Status
Possible Arbovirus

Select Agent
No

SALS Level
3

SALS Basis
Isufficient experience with virus; i.e., experience factor from SALS surveys was less than 500 in laboratory facilities with low biocontainment.

Other Information

Antigenic Group
Simbu

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation
CSIRO 153

Accession Number

Original Date Submitted
9/19/1984

Family
Bunyaviridae

Genus
Bunyavirus

Information From
T.D. St. George

Address
CSIRO, Long Pocket Laboratories, Private Bag No. 3, Indooroopilly, Queensland, Australia 4068

Information Footnote
Reviewed by editor

Section II - Original Source

Isolated By (name)
T.D. St. George and A.L. Dyce

Isolated at Institute
CSIRO, Long Pocket Laboratories

Host Genus
Culicoides brevitarsis

Species

Host Age/Stage

Sex
Female

Isolated From

Isolation Details

Signs and Symptoms of Illness

Arthropod
Depleted

Time Held Alive before Inoculation
Nil

Collection Method
Truck trap

Collection Date
10/30/1978

Place Collected (Minimum of City, State, Country)
Kairi Station, Queensland, Australia

Latitude
17° 13' S

Longitude
145° 33' E

Macrohabitat
Wet sclerophyll forest

Microhabitat

Method of Storage until Inoculated
Liquid nitrogen - vapour phase

Footnotes

Section III - Method of Isolation

Inoculation Date
1/25/1979

Animal (Details will be in Section 6)
(Tissue Culture)

Route Inoculated

Reisolation
No

Other Reasons
Cattle in area developed neutralizing antibodies

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) **0.1%**	After Treatment Titer **<1.0 dex**	Control Titer **5.2 dex**

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)
pH Range	pH Optimum	
Temperature Range	Temperature Optimum	
Remarks		

Serologic Methods Recommended
CF, NT in newborn mice, BHK-21 or Vero cell cultur

Footnotes

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

Related to other Simbu Group viruses by CF (Filippich, personal communication) Queensland Institute of Medical Research, Queensland, Australia 4006.
Tinaroo virus was placed within the Simbu complex of the Simbu serogroup primarily by CF tests [2] . Other members of this complex were Simbu, Akabane, Yaba-7, Shamonda, Sabo, Sango, Peaton, Aino, Shuni, Kaikalur, Sathuperi, and Douglas viruses.
Neutralization testing demonstrated that Tinaroo virus was most closely related to Sabo virus although the viruses were differentiated both ways [2] .
Results of serum dilution plaque-reduction neutralization tests [2] :

	Titer of antibody to:	
Virus	**Sabo**	**Tinaroo**
Sabo	5120 *	910
Tinaroo	640	20480

* 90% plaque-reduction titers expressed as the geometric mean of two or more determinations.

Section VI - Biologic Characteristics

Virus Source (all VERTEBRATE isolates)
Blood (LV), CNS (LV), heart (LV), lung (LV), liver (LV), bone marrow (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)	Insect	3 to 4	Complete	6.0**					
Vero (CL	BHK4SM2				<4	0.5 mm	6.3** (3)		
LLC-MK2 (CL)					<4	1.0 mm	6.0 (3)		
CER (CL)					<4	0.5 mm	6.7 (3)		
BHK-21 (CL)					<4	2.6 mm	5.9 (3)		

** 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
Culicoides brevitarsis	5/1,274 (104,900 insects)		Eastern Queensland, Australia
Cattle		58/600 NT	Australia
Buffalo		2/16 NT	
Goats		2/30 NT	
Horses		0/47 NT	
Sheep		4/4 NT	
Man		0/6 NT	
Horses		0/20 NT	Papua, New Guinea
Cattle		0/72 NT	

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)	CSIRO 153; BHK3	ic	Paralysis, death	3-4	6.0
Mice (nb)		ip			
Mice (nb)		sc			
Mice (wn)		ic			
Mice (wn)		ip			

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)

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)
Australia

Suspected (Antibody only detected)

Section XIII - References

1. St. George, T.D., et al. 1979. Aust. J. Exp. Biol. Med. Sci. 57:581-582.
2. Kinney, R.M. and Calisher, C.H. 1981. Am. J. Trop. Med. Hyg. 30:1307-1318.
3. Kinney, R.M. and Calisher, C.H. Personal communication. 1981.

Remarks