Virus Name: Upolu	Abbreviation: UPOV

Status
Possible Arbovirus

Select Agent
No

SALS Level
2

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

Other Information

Antigenic Group
Upolu

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation
C5581

Accession Number

Original Date Submitted
11/2/1984

Family
Bunyaviridae

Genus
Bunyavirus-like

Information From
R.L. Doherty

Address
Queensland Institute of Medical Research, Brisbane

Information Footnote
Reviewed by editor

Section II - Original Source

Isolated By (name)
Doherty and colleagues

Isolated at Institute
QIMR, Brisbane

Host Genus
Ornithodoros capensis Neumann

Species

Host Age/Stage
Adult

Sex
Female

Isolated From

Isolation Details

Signs and Symptoms of Illness

Arthropod

Time Held Alive before Inoculation

Collection Method

Collection Date
7/21/1966

Place Collected (Minimum of City, State, Country)
Upolu Cay, Great Barrier Reef, Queensland, AS

Latitude
16° 40' S

Longitude
146° 0' E

Macrohabitat
Coral atoll, 400 x 70 meters

Microhabitat
In sand under succulent vegetation in colony of terns (Sternafuscata and Sterna berghia)

Method of Storage until Inoculated
At room temperature, 24 hrs., at 4dC for 72 hrs.; then in Revco at -60dC

Footnotes

Section III - Method of Isolation

Inoculation Date
11/24/1966

Animal (Details will be in Section 6)
nb mice

Route Inoculated
Intracerebral

Reisolation
No

Other Reasons
Unrelated to any virus held in the 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 **<3.0 dex**	Control Titer **5.4 dex**

Other (formalin, radiation)

Virion Morphology

Shape	Dimensions **<100 nm**	
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)
No	**SMB, blood ext. by sucrose-acetone**	**Goose**
pH Range	pH Optimum	
6.0-7.6		
Temperature Range	Temperature Optimum	
37dC		

Remarks

Serologic Methods Recommended
CF

Footnotes

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

Brisbane studies:

No relation demonstrated by neutralization or complement-fixation tests between C5581 and the following viruses: Murray Valley encephalitis, Kunjin, Kokobera, Edge Hill, Stratford, Alfuy, Ross River, Getah, Sindbis, Koongol, Wongal, Corriparta, Mapputta, Kowanyama, Eubenangee, Trubanaman, MRM4059, Japanese B encephalitis, dengue types 1,2,3,4, Bebaru, mouse hepatitis, lymphocytic choriomeningitis, psittacosis.
Yale Arbovirus Research Unit studies (Casals, personal communication): antiserum to C5581 failed to react by CF test to the following: Bandia, Bhanja, Chenuda, Colorado tick fever, DGK, Dugbe, Farallon, Ganjam, Grand Arbaud, Hazara, Johnston Atoll, Kaisodi, Kemerovo, Lanjan, Lipovnik, Mutucare, Nyamanini, Manawa, Pak T 487, Qalyub, Quaranfil, Sawgrass, Silverwater, Soldado, Thogoto, Tribec, URB-TM-1381, Uukuniemi, Wad Medani, Wanowrie, Hughes, Thailand tick no. 39 (Nyamanini).
Upolu virus antigenically related by CF, immunofluorence and NT to the presently unregistered Aransas Bay virus. The latter also was isolated from Ornithodoros capensis ticks [4] .

Section VI - Biologic Characteristics

Virus Source (all VERTEBRATE isolates)
heart and liver pools (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)	
PS (CL)	SMB 4		CPE			Plaques	6.4*		

* 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
Ornithodoros capensis	1/c.1000		Upolu Reef, Queensland, AS
Man		0/149 NT	N. and W. Queensland, AS
Birds		0/57 NT	N. Queensland, AS
Cattle		1/36 NT	Mitchell River, AS
Cattle		0/55 NT	SE Queensland; Innisfail, AS
Kangaroo		1/48 NT	W. Queensland, AS

Negative NT results with sera from following species collected between 1958 and 1969 in various areas of Queensland (2): horse, 55; sheep, 36; pig, 35; goat, 8; kangaroo, 4; wallaby, 69; bandicoot, 39; rat spp., 44; Pteropus sp, 5; bat, 8; and domestic fowl, 59.

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)	SMB 4	ic 0.015	Death	5-10	7.8
Mice (nb)		ip 0.03	None		<3.8
Mice (nb)		sc			
Mice (wn)		ic 0.03	Death	4-5	4.4
Mice (wn)		ip 0.1	Antibody		

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
Aedes aegypti	Intrathoracically inoculated; no multiplication (3).								

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. Doherty, R.L., et al. 1969. Aust. J. Sci. 31:363-364.
2. Doherty, R.L., et al. 1970. Trans. R. Soc. Trop. Med. Hyg. 64:748-753.
3. Carley, J.G., et al. 1973. J. Med. Ent. 10:244-249.
4. Yunker, C.E., et al. 1979. J. Med. Ent. 16:453-460.

Remarks