

Status: Arbovirus

SALS Level: 2

Antigenic Group: B

Taxonomic status: *Flavivirus*

Other Information: None.

Select Agent:

SALS Basis: S

HEPA Filtration:

**Section I - Full Virus Name and Prototype Number**

Full Virus Name:

Prototype Number:

C281

Edge Hill

Information from: R.L. Doherty

Date:

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2/5/1985

Address: Queensland Institute of Medical Research, Herston N9, Brisbane, Australia

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Reviewed by editor

**Section II - Original Source**

Isolated by: Doherty, et al. (1)

at: Brisbane

Genus and species: Aedes vigilax

Sentinel X

Age/Stage: Adult

Sex: F

Isolated From

Isolation detail

**Signs and symptoms of illness:**

Arthropod engorged      depleted      gravid

**Time held alive before inoculation:**

Collection date: 3/29/1969      Method: Aspiration from horses

Place collected: Edge Hill, a suburb of Cairns, N. Queensland, Australia

Latitude: 16° 55' " S      Longitude: 145° 47' " E

Macrohabitat: Coastal plain, formerly rainforest, now mostly under sugar cane

Microhabitat: In secondary forest between road and large drain

Method of storage until inoculated: Dry ice (-70dC) for few days, then Revco at -60dC

Footnotes:

**Section III - Method of Isolation and Validity**

Inoculation Date: 6/20/1961

Animal: nb mice      Embryonated egg:      Tissue Culture:

(Details in Section VI - Biologic Char.)

Route inoculated:      Reisolation: Yes

Other reasons: Other isolations in the same area

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:  
Nucleocapsid density      Sedimentation coefficient:  
Sedimentation coefficient:

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### Stability of infectivity (effects) pH

Lipid solvent:  
(ether)      After treatment titer      Control titer  
(chloroform)      After treatment titer      Control titer  
Detergent:  
(deoxycholate)      After treatment titer      Control titer  
Other (formalin, radiation):

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### Virion morphology:

Shape      Dimensions  
Mean (nm)      range (nm)      how measured  
Surface projections, envelope  
Nucleocapsid dimensions, symmetry

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### Morphogenesis:

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

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### Hemagglutination:

Hemagglutination Yes      Antigen source SMB ext. by sucrose-acetone or acetone-ether  
Erthrocytes Goose      pH range 6.6-7.6      pH optimum 7.0-7.3  
Temperature optimum 37dC used routinely      range Not determined  
Remarks C281 gives a very reactive HA which gives high HI titres with most group B antisera.  
Serologic methods recommended CF and NT  
Footnotes: C281 gives a very reactive HA which gives high HI titres with most group B antisera.

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

Studies in Brisbane [1]

Immune Seras	C281 Antigen			Antigens	C281 Mouse Antiserum		
	HI Ht/Ho	CF Ht/Ho	NT Ht/Ho		HI Ht/Ho	CF Ht/Ho	NT Ht/Ho
MVE (MRM66)	160/640	128/128	1.6/3.0	MVE	160/320	16/128	<2.0/>3.2
Kunjin (MRM16)	640/320	128/64	1.7/>6.0	Kunjin	40/320	<8/128	<1.5/>3.2
Kokobera (MRM32)	80/640	8/32	1.2/>5.0	Kokobera	20/320	<8/128	1.0/>3.2
Stratford (C338)	40/80	32/64	2.6/3.0	Stratford	40/320	16/128	1.1/>3.2

Studies at RFVL, New York [2]

Immune Seras	C281 Antigen		Antigens	C281 Mouse Antiserum	
	HI Ht/Ho	CF Ht/Ho		CF Ht/Ho	
MVE	1280/1280	8/16	MVE	<4/64	
dengue 1	2560/2560	64/256	dengue 1	<4/64	
dengue 2	320/1280		Tembusu	<4/64	
dengue 3	1280/2560		Usutu	<4/64	
dengue 4	1280/5120	64/256	JBE	<4/64	
JBE	640/1280	64/256	dengue 4	<4/64	
West Nile	1280/640		YF	<4/64	
SLE	80/640				
YF	1280/2560	8/128			
Banzi	640/1280				
Zika	160/160				
Spondweni	160/80				
Wesselsbron	80/640				
Israel turkey mening.	160/640				
Ilheus	1280/1280				
Ntaya	1280/2560				
Powassan	160/640				
Tembusu	320/2560	8/64			
Bussuquara	1280/				
Negishi	320/1280				
Kunjin	160/1280				
Rio Bravo	2560/1280				
Modoc	160/640				
Usutu		32/128			

NT: LNI in dex

## Section VI - Biologic Characteristics

Virus source (all VERTEBRATE isolates):

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 TCID <sub>50</sub> /ml (e)	Day (c)	Size (f)	Titer PFU/ml (e)	+/- (g)
PS (CL)			CPE			Plaques (6)		
BHK-21 (CL)			CPE (8)					
Vero (CL)	P-2				15	1 mm	7.0* (9)	
LLC-MK2 (CL)					3	2 mm	6.9 (9)	
Aedes aegypti (CL)			No CPE				- (10)	

\* 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
Wallabies:			
Wallabia rufogrisea		9/26 HI *	Southeast Queensland, Australia
Wallabia elegans		2/4 HI *	
Aedes vigilax pools	10		Nelson Bay, N.S.W. Australia (11)
Aedes vigilax	2/1,720		Cairns, Queensland Australia
Culex annulirostris	1/1,191		
Anopheles meraukensis	1/101		Mitchell River Mission Queensland, Australia

\* Neutralization tests suggested that the infecting agent was Edge Hill, but some sera neutralized several group B viruses (3).

Serological responses interpreted as due to Edge Hill virus have been detected in bandicoots in NE Queensland (5), and possibly in domestic fowl (6) and cattle (7) in S. Queensland.

## 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 log <sub>10</sub> /ml	
Mice (nb)	SMB 3	ic 0.01	Death	4.0	9.2	
Mice (nb)		ip 0.03	Death	7.0	8.9	
Mice (nb)		sc				
Mice (wn)		ic 0.03	Death	7.2	9.3	
Mice (wn)		ip 0.03	Antibody production			

rabbit (ad)	SMB 3	iv, ip 0.2	Antibody production			
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## Section IX - Experimental Arthropod Infection And Transmission

Arthropod species & virus source(a)	Method of Infection log10/ml (b)		Incubation period (c) Days	Transmision by bite (d)		Assay of arthropod, log10/ml (e)		
	Feeding	Injected		Host	Ratio	Whole	Organ	System
Culex quinquefasciatus								

## Section X - Histopathology

Character of lesions:

Inclusion bodies:

Cytoplasmic:(M) (LV) Intranuclear: (M) (LV)

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):

Australia

## Section XIII - References

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7. Sanderson, C.J. 1969. Am. J. Trop. Med. Hyg. 18:433-439.
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11. Marshall, I.D. Personal communication. 1971.

## Section XIV - Remarks