Virus Name: Edge Hill	Abbreviation: EHV

Status
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
C281

Accession Number

Original Date Submitted
2/5/1985

Family
Flaviviridae

Genus
Flavivirus

Information From
R.L. Doherty

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

Information Footnote
Reviewed by editor

Section II - Original Source

Isolated By (name)
Doherty, et al. (1)

Isolated at Institute
Brisbane

Host Genus
Aedes vigilax

Species

Host Age/Stage
Adult

Sex
Female

Isolated From

Isolation Details

Signs and Symptoms of Illness

Arthropod

Time Held Alive before Inoculation

Collection Method
Aspiration from horses

Collection Date
3/29/1969

Place Collected (Minimum of City, State, Country)
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

Inoculation Date
6/20/1961

Animal (Details will be in Section 6)
nb mice

Route Inoculated

Reisolation
Yes

Other Reasons
Other isolations in the same area

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)	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

Hemaggiutination	Antigen Source	Erythrocytes (species used)
Yes	**SMB ext. by sucrose-acetone or acetone-ether**	**Goose**

pH Range	pH Optimum
6.6-7.6	**7.0-7.3**

Temperature Range	Temperature Optimum
Not determined	**37dC used routinely**

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 Sera	C281 Antigen HI Ht/Ho	C281 Antigen CF Ht/Ho	C281 Antigen NT Ht/Ho	Antigens	C281 Mouse Antiserum HI Ht/Ho	C281 Mouse Antiserum CF Ht/Ho	C281 Mouse Antiserum 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 Sera	C281 Antigen HI Ht/Ho	C281 Antigen CF Ht/Ho	Antigens	C281 Mouse Antiserum CF Ht/Ho
MVE	1280/1280	8/16	MVE	<1/64

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

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)			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 (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
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 (include viremia)

Experimental host and age	Passage history and strain	Inoculation Route-Dose	Evidence of infection	AST (days)	Titer log10/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		

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 quinquefasciatus	Adult mosquitoes intrathroacically inoculated; titration of virus in mice at intervals after inoculation: 5.3/mosquito at 8 days (<1.3 at 2 days) (3) Adult mosquitoes exposed to virus by membrane feeding; <1.87/mosquito at 1-30 days (4.8/mosq. after feeding)								

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. 1963. Aust. J. Exp. Biol. Med. Sci. 41:17-40.
2. Casals, J. Personal communication. 1962.
3. Doherty, R.L., et al. 1964. Aust. J. Exp. Biol. Med. Sci. 42:149-164.
4. Standfast, H.A. and Carley, J.G. Personal communication. 1963.
5. Doherty, R.L., et al. 1968. Trans. R. Soc. Trop. Med. Hyg. 62:862-867.
6. Westaway, E.G. 1966. Am. J. Epidemiol. 84:439-456.
7. Sanderson, C.J. 1969. Am. J. Trop. Med. Hyg. 18:433-439.
8. Karabatsos, N. and Buckley, S.J. 1967. Am. J. Trop. Med. Hyg. 16:99-105.
9. Stim, T.J. 1969. J. Gen. Virol. 5:329-338.
10. Rehacek, J. 1968. Acta Virol. 12:241-246.
11. Marshall, I.D. Personal communication. 1971.

Remarks