Virus Name: Stratford		Abbreviation: STRV
Status **Possible 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	Accession Number	Original Date Submitted
C338		2/5/1985

Family	Genus
Flaviviridae	**Flavivirus**

Information From	Address
R.L. Doherty	**Queensland Institute of Medical Research, Herston, Brisbane, Australia**

Information Footnote
Reviewed by editor

Section II - Original Source

Isolated By (name)	Isolated at Institute	
Doherty, et al. (1)	**Brisbane**	
Host Genus **Aedes (Ochlerotatus) vigilax (Skuse)**	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
Aspirated while biting man	**4/1/1961**

Place Collected (Minimum of City, State, Country)
Stratford suburb of Cairns, Australia

Latitude	Longitude
16° 55' S	**145° 47' E**

Macrohabitat	Microhabitat	Method of Storage until Inoculated
Coastal plain, originally rainforest	**In rainforest on hillside, about 400 yards from mangroves on Barron River**	**Dry ice for 1 week; then Revco**

Footnotes

Section III - Method of Isolation

Inoculation Date
6/29/1961

Animal (Details will be in Section 6)
nb mice

Route Inoculated
Intracerebral

Reisolation
Yes

Other Reasons
One other isolation 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 **Yes**	Antigen Source **SMB ext. by sucrose-acetone or acetone-ether**	Erythrocytes (species used) **Goose**
pH Range **6.4-7.6**	pH Optimum **6.8-7.0**	
Temperature Range **Not tested**	Temperature Optimum **37dC used routinely**	

Remarks

Serologic Methods Recommended
CF, HI, NT

Footnotes

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

Initial studies in Brisbane [1] are listed below.

	Stratford (C338) Antigen					Stratford (C338) Antiserum				
	HI		CF		NT	HI		CF		NT
Immune Sera or Antigens/ viruses	Ht/Ho	Indx	Ht/Ho	Indx	Ht/Ho	Ht/Ho	Indx	Ht/Ho	Indx	Ht/Ho
MVE	160/>640	1/4	32/128	1/4	2.0/3.0	40/80	1/2	<8/64	<1/8	3.0/3.0
JBE	320/320	1	16/32	1/2	2.0/>6.0	10/80	1/8	<8/64	<1/8	3.0/3.0
Kunjin	640/320	2	64/64	1		20/80	1/4	8/64	1/8	
Kokobera	80/640	1/8	32/32	1	1.1/>5.0	40/80	1/2	8/64	1/8	4.8/3.0
Edge Hill	40/320	1/8	16/128	1/8	1.1/>3.2	40/80	1/2	32/64	1/2	2.6/3.0
Dengue 1			8/16	1/2		<10/80	<1/8	<8/64	<1/8	
Dengue 2	40/160	1/4	<8/64	<1/8		40/80	1/2	<8/64	1/8	

NT: LNI given in dex.

Further investigations at the Rockefeller Foundation Virus Laboratories, New York showed C338 to be distinct from Tembusu, Rio Bravo, Bussuquara, dengue 1, dengue 2, dengue 3, dengue 4, Edge Hill, Ilheus, Japanese B encephalitis, Kokobera, Kunjin, Modoc, MVE, Negishi, Ntaya, Powassan, RSSE, Usutu, Banzi, Spondweni, St. Louis encephalitis, Israel turkey meningo-encephalitis, Uganda S, West Nile, yellow fever and Zika.
For further information on antigenic classification, see Reference [7] .

Section VI - Biologic Characteristics

Virus Source (all VERTEBRATE isolates)
tongue and foot lesions (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)	P-9	14	2+-3+	5.0* (4)	8	1.5 mm	5.1 (4)		
BHK-21 (CL)	MB 5		No CPE (5)						
Vero (CL)	P-6					No plaques (6)			
LLC-MK2 (CL)					4	2 mm	9.6 (6)		

* 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
Aedes vigilax	2/1,720		Cairns, north Queensland, AS; 1961
Cattle			Suggestive evidence of antibody in Queensland cattle(3)

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)	C338,	ic 0.01	Death	7-9	8.0
Mice (nb)	SMB 3	ip 0.03	Death	8-12	7.2
Mice (nb)		sc			
Mice (wn)		ic 0.03	Death	>14	4.0
Mice (wn)		ip 0.03	Antibody formation		

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 intrathoracically inoculated; virus content of mosquitoes titrated in mice: 2.8/mosquito at 10 days (<1.3/mosquito days 1-8) (2). Adult mosquitoes exposed to virus by membrane feeding; <1.87/mosquito days 1-20 (2).								

Section X - Histopathology

Character of lesions (specify host)
Not studied

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. Standfast, H.A. and Carley, J.G. 1963. Personal communication.
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4. Westaway, E.G. 1966. Am. J. Epidemiol. 84:439-456.
5. Karabatsos, N. and Buckley, S.J. 1967. Am. J. Trop. Med. Hyg. 16:99-105.
6. Stim, T.B. 1969. J. Gen. Virol. 5:329-338.
7. De Madrid, A.T. and Porterfield, J.S. 1974. J. Gen. Virol. 23:91-96.

Remarks