Virus Name: Alfuy	Abbreviation: ALFV

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
MRM3929

Accession Number

Original Date Submitted
10/31/1984

Family
Flaviviridae

Genus
Flavivirus

Information From
R.L. Doherty

Address
Queensland Institute of Medical Research, Brisbane

Information Footnote
Reviewed by editor

Section II - Original Source

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

Isolated at Institute
Queensland Inst. of Medical Research

Host Genus
Centropus phasianius ("swamp pheasant")

Species

Host Age/Stage
Adult

Sex
Not Answered

Isolated From	Isolation Details
Whole Blood	
Organs/Tissues	**Separate isolates also from liver and heart**

Signs and Symptoms of Illness

Arthropod

Time Held Alive before Inoculation

Collection Method
Shot

Collection Date
4/1/1966

Place Collected (Minimum of City, State, Country)
Mitchell River Mission, Australia

Latitude
15° 28' S

Longitude
141° 40' E

Macrohabitat
Near Aboriginal Mission, 20km from Gulf of Carpentaria, altitude 5 meters, in low plain

Microhabitat
vegetation-mixture of tropical tussock grassland and tropical woodland

Method of Storage until Inoculated
Over liquid nitrogen for transport to Brisbane, then in Revco at -57dC

Footnotes

Section III - Method of Isolation

Inoculation Date
4/22/1966

Animal (Details will be in Section 6)
nb mice

Route Inoculated
Intracerebral

Reisolation
Yes

Other Reasons
Isolation from organs of same bird, and from mosquitoes collected in the same area at about the same time.

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) **50 % final**	After Treatment Titer **2.8 dex**	Control Titer **5.5 dex**
Lipid Solvent (chloroform)	After Treatment Titer	Control Titer
Lipid Solvent (deoxycholate) **1:200 final**	After Treatment Titer **<3.0 dex**	Control Titer **5.3 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)
Yes	**SMB ext. by sucrose-acetone**	**Gander**
pH Range	pH Optimum	
6.2-7.0	**6.6**	
Temperature Range	Temperature Optimum	
37dC used routinely		

Remarks

Serologic Methods Recommended

Footnotes

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

MRM3929 was inhibited by antisera to group B viruses; no relation was found by HI, CF or neutralization tests to group A, Koongol group or ungrouped viruses isolated in Australia .
CF and neutralization tests with available group B antigens and antisera give these results.

Immune Sera [a] or Antigens	MRM3929 Antigen			MRM3929 Antiserum		
	CF		NT [b]	CF		NT [b]
	Ht/Ho	Ratio	Ht/Ho	Ht/Ho	Ratio	Ht/Ho
MVE (MRM66)	32/64	1/2	2.9/4.8	64/>128	<1/2	2.8/5.0
Kunjin (MRM16)	64/>128	<1/2	4.0/6.0	64/>128	<1/2	4.2/5.0
West Nile (Sarafend)	64/64	1	>4.2/>7.2	32/>128	<1/4	2.4/5.0
JBE (Nakayama)	32/32	1	3.7/4.8	32/>128	<1/4	2.8/5.0
SLE (Hubbard)	64/>128	1/>2	3.5/>6.2	64/>128	<1/2	3.5/5.0
Kokobera (MRM32)	<8/64	<1/8		8/>128	<1/16	<2.0/5.0
Edge Hill (C281)	<8/128	<1/16		16/>128	<1/8	<2.0/5.0
Stratford (C338)			1.9/2.8			2.1/5.0

[a] Antisera prepared by 3 weekly intraperitoneal inoculations in weaned mice 10088 .

[b] Log neutralization indices of sera diluted 1:5 and heated 56C/30 mins., determined by intraperitoneal inoculation of infant mice 10088 , and expressed in dex.

Section VI - Biologic Characteristics

Virus Source (all VERTEBRATE isolates)
Blood (LV), heart (LV), liver (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)
Vero (CL)		P-3 SM 1			9		6.4 *	(4)
LLC-MK2 (CL)					9		6.3	(4)
PS (CL)					7		7.3	(4)
PS-EK (CL)		SM 5				0.5-1.0mm	8.6	(5)

* 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. tsted Test used	Country and region
Centropus phasianinus	1/3		Mitchell River Mission,North Queensland ; 1965-66 (1)
Aedeomyia catasticta	1/513		Mitchell River Mission,North Queensland ; 1963-66 (2)

Antibody to the subgroup of group B which includes Murray Valley encephalitis, Kunjin and Alfuy, is common in north Queensland in man and other vertebrates, but identification of which of the three caused infection is often not possible. However, reactions interpreted as likely to indicate infection by Alfuy have been described in wild birds (1) and domestic fowl (2).

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 0.15	Death	3-5	10.2
Mice (nb)		ip 0.03	Death	4-7	10.0
Mice (nb)		sc			
Mice (wn)		ic 0.03	Death	6-10	9.7
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
Culex quinquefasciatus : SMB 3	Intrathoracically inoculated; 5 serial weekly passages of salivary gland successfully completed (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)
North Queensland, Australia

Suspected (Antibody only detected)

Section XIII - References

1. Whitehead, R.H., et al. 1968. Trans. R. Soc. Trop. Med. Hyg. 62:439-445.
2. Doherty, R.L., et al. 1968. Trans. R. Soc. Trop. Med. Hyg. 62:430-438.
3. Director, Qld Inst. Med. Res. Personal communication. 1967.
4. Calisher, C.H., et al. Personal communication.
5. Gorman, B.M., et al. 1975. Aust. J. Med. Technol. 6:65-71.

Remarks