Virus Name: Wallal	Abbreviation: WALV

Status
Possible Arbovirus

Select Agent
No

SALS Level
2

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

Other Information

Antigenic Group
Wallal

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation
CH12048 (5)

Accession Number

Original Date Submitted
11/14/1984

Family
Reoviridae

Genus
Orbivirus

Information From
R.L. Doherty

Address
Queensland Institute of Medical Research, Herston Rd., Brisbane, Q4006, Australia

Information Footnote
Reviewed by editor

Section II - Original Source

Isolated By (name)
Doherty, et al.

Isolated at Institute
Brisbane

Host Genus
Culicoides dycei Lee and Reye

Species

Host Age/Stage
Adult

Sex
Female

Isolated From

Isolation Details

Signs and Symptoms of Illness

Arthropod

Time Held Alive before Inoculation

Collection Method
Truck-trap

Collection Date
2/22/1970

Place Collected (Minimum of City, State, Country)
Charleville, Queensland, Australia

Latitude
26° 10' S

Longitude
145° 50' E

Macrohabitat
Near town of Charleville, 965 ft; open eucalypt forest and grassland; truck-trap

Microhabitat
route between Charleville and Wallal, parallel to Warrego River

Method of Storage until Inoculated
5dC overnight, transported in liquid nitrogen then in Revco at -60dC

Footnotes

Section III - Method of Isolation

Inoculation Date
4/17/1970

Animal (Details will be in Section 6)
nb mice

Route Inoculated
Intracerebral

Reisolation
Yes

Other Reasons
Six other isolates from same area and period

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 **4.0 dex**	Control Titer **4.5 dex**
Lipid Solvent (chloroform)	After Treatment Titer	Control Titer
Lipid Solvent (deoxycholate) **1:1000 final**	After Treatment Titer **4.3 dex**	Control Titer **4.2 dex**

Other (formalin, radiation)

Virion Morphology

Shape **Orbivirus taxon (5)**	Dimensions **<220 nm**	
Mean nm	Range nm	
Measurement Method **Passed filter APD 220nm, failed to**	Surface Projections/Envelope	Nucleocapsid Dimensions, Symmetry

pass APD 100nm

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, then protamine tr., sonication or trypsin**	**Goose**
pH Range **6.0-7.6**	pH Optimum	
Temperature Range **RT**	Temperature Optimum	

Remarks

Serologic Methods Recommended
CF

Footnotes

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

Studies at Queensland Institute of Medical Research:

No antigenic relationship was detected by complement-fixation or neutralization tests between CH12048 antigen or antiserum and the following arboviruses or suspected arboviruses isolated or available in Australia: Group A (Sindbis, Ross River, Getah, Bebaru); Group B (Murray Valley encephalitis, Kunjin, Kokobera, Edge Hill, Stratford, Alfuy, JBE, SLE, dengue types 1, 2, 3, and 4); Koongol group (Koongol, Wongal); Mapputta group (Mapputta, Trubanaman, MK7532); Quaranfil group (Abal); Simbu group (Akabane, Aino, (Samford)); Corriparta group (Corriparta); Eubenangee group (Eubenangee); Warrego group (Warrego, Mitchell River); others (Kowanyama, Almpiwar, Upolu, ephemeral fever, Belmont, Charleville, Wongorr and Ngaingan).
A virus strain isolated from Culicoides marksi was shown to be antigenically related to but distinct from Wallal virus. The name Mudjinbarry virus was suggested for it [5] .

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)						Plaques	5.7 *		

* 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
Culicoides spp.	7/16,529		Charleville, Queensland, AS, 1970 (1)
Wallabies		9/66 NT	Queensland, AS (1)
Kangaroos		6/20 NT	Queensland, AS
Various other vertebrate species		2/340 NT	

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 0.015	Death	4	6.7
Mice (nb)		ip 0.03	No overt signs of infection		<3.5
Mice (nb)		sc			
Mice (wn)		ic 0.03	No overt signs of infection		<3.5
Mice (wn)		ip 0.1	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
Aedes aegypti, SMB 5	Intrathoracically inoculated with 0.0006 ml = 1.0 LD50 per mosquito; virus content per mosquito assayed by titration in infant mice. No virus detected at 0.5, 1 and 2 days; detectable thereafter reaching 3.7-4.3 LD50 per mosquito at 10-15 days.								

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. 1973. Trans. R. Soc. Trop. Med. and Hyg. 67:536-543.
2. Carley, J.G., et al. 1973. J. Med. Ent. 10:244-249.
3. Director, Queensland Inst. Med. Res. Personal communication. 1972.
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5. Doherty, R.L., et al. 1978. Aust. J. Biol. Sci. 31:97-103.

Remarks