

Virus Name: D'aguilar

Abbreviation: DAGV

Status: Possible Arbovirus
SALS Level: 2
Antigenic Group: Palyam
Taxonomic status: *Orbivirus*
Other Information: None.

Select Agent:
SALS Basis: S

HEPA Filtration:

Section I - Full Virus Name and Prototype Number

Full Virus Name: D'aguilar
Prototype Number: B8112
Information from: R.L. Doherty *
Date: 11/21/1984
Address: Queensland Institute of Medical Research, Brisbane *

Reviewed by editor

Section II - Original Source

Isolated by: R.L. Doherty, et al. (1) **at:** Brisbane
Genus and species: *Culicoides brevitarsis* Kieffer **Sentinel** X
Age/Stage: Adult **Sex:** F

Isolated From	Isolation detail
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Signs and symptoms of illness:
Arthropod engorged **depleted** **gravid**
Time held alive before inoculation:
Collection date: 4/2/1968 **Method:** Aspirated from cattle
Place collected: Bunya, Queensland, Australia
Latitude: 27° 22' " S **Longitude:** 152° 57' " E
Macrohabitat: East coastal plain, south Queensland
Microhabitat: Cattle stud, eucalypt forest partly cleared for pasture
Method of storage until inoculated: Overnight at 5dC, then stored at -60dC
Footnotes:

Section III - Method of Isolation and Validity

Inoculation Date: 4/26/1968
Animal: nb mice **Embryonated egg:** **Tissue Culture:**
(Details in Section VI - Biologic Char.)
Route inoculated: Intracerebral **Reisolation:** No
Other reasons: Additional isolate in same area in 1970; widespread antibody in cattle
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: Sedimentation coefficient:
Nucleocapsid density Sedimentation coefficient:

Stability of infectivity (effects) pH

Lipid solvent:

(ether) 50% final After treatment titer 5.0 dex Control titer 5.4 dex
(chloroform) After treatment titer Control titer

Detergent:

(deoxycholate) 1:1000 final After treatment titer 4.6 dex (3P) Control titer 2.3 dex (3P)

Other (formalin, radiation): 4.7 dex (11P) (after), 4.5 dex (11P) (contrl_ttr)

Virion morphology:

Shape Orbivirus morphology Dimensions 66 + - 4 nm; 70 + - 3 nm
Mean (nm) range (nm) how measured Thin-sect.; neg. contrast EM (5)
Surface projections, envelope Spherical polygonal particles with obvious capsome
Nucleocapsid dimensions, symmetry Core = 36 + 3 nm

Morphogenesis:

Site of constituent formation in cell

Site of virion assembly

Inclusion bodies

Other

Hemagglutination:

Hemagglutination No Antigen source SMB ext. by sucrose-acetone + prot. tr., sonication or trypsin

Erythrocytes Goose pH range 6.0-7.6 pH optimum

Temperature optimum range

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 by complement-fixation and neutralization tests to any arbovirus or suspected arbovirus isolated or available at this laboratory:

Group A	(Sindbis, Ross River, Getah, Bebaru);		
Group B	(Murray Valley encephalitis, Kunjin, Kokobera, Edge Hill, Stratford, Alfuy, JBE, SLE, dengue types 1-4);		
Koongol group	(Koongol, Wongal);		
Mapputta group	(Mapputta, Trubanaman, MK7532);		
Simbu group	(Akabane, Aino, (Samford));	Quaranfil group	(Abal);
Corriparta group	(Corriparta);	Eubenangee group	(Eubenangee);
Warrego group	(Warrego, Mitchell River);		
others	(Kowanyama, Almpiwar, Upolu, ephemeral fever, Belmont, Charleville, Wallal, Wongorr, Ngaingan).		

Studies at Yale Arbovirus Research Unit

J.G. Carley and R.E. Shope found B8112 antigen non-reactive by CF test to immune ascitic fluids to 13 groups (A, B, C, Guama, Capim, Simbu, Bunyamwera, vesicular stomatitis, Anopheles A, Turlock California, Phlebotomus fever and Tacaribe) and 103 other arboviruses.

R.E. Shope subsequently found B8112 related to but recognizably distinct from members of the Palyam group:

Immune Ascitic Fluids	B8112 Antigen			B8112 Immune Ascitic Fluid			Ht/Ho
	CF		NT	CF		NT	
	Ht/Ho	Ratio	Ht/Ho	Antigens	Ht/Ho	Ratio	
Palyam	16/32	1/2	0/>2.4	Palyam	64/128	1/2	0.3/>4.0
Kasba (G155)	512/1024	1/2	0/>2.8	Kasba (G155)	64/128	1/2	1.4/>4.0
Vellore (68886)	512/1024	1/2	1.2/>3.3	Vellore (68886)	64/128	1/2	3.0/>4.0

NT: NT results as LNI expressed in dex

These complement-fixation results, and tests against 22 other solvent-resistant arbovirus, have been published .

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 +/- (g)
		Day (c)	Extent (d)	Titer TCD50/ml (e)	Day (c)	Size (f)	Titer PFU/ml (e)	
PS (CL)	SMB 11					Plaques	6.8* (3)	

* 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
Culicoides brevitarsis	1/17,907		Southeast Queensland, Australia, 1968 (1)
Culicoides brevitarsis	1/2,755		Southeast Queensland, Australia, 1970
Cattle		104/132	Queensland, Australia (1)
Sheep		9/23	Western Queensland, Australia (1)
Various other vertebrates		1/244	Queensland, Australia(1)
Cow (blood)	9 *		Australia (6)

* 9 isolations in a span of 11 days from same animal.

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 log10/ml
Mice (nb)	SMB 3, 11	ic	Death	4-5	6.7, 7.4
Mice (nb)		ip	No overt sign of illness		<3.5
Mice (nb)		sc			
Mice (wn)	SMB 11	ic	No overt sign of illness		<3.5
Mice (wn)		ip	Antibody formation		

Section IX - Experimental Arthropod Infection And Transmission

Arthropod species & virus source(a)	Method of Infection log10/ml (b)		Incubation period (c)		Transmission by bite (d)		Assay of arthropod, log10/ml (e)		
	Feeding	Injected	Days	°C	Host	Ratio	Whole	Organ	System
Aedes aegypti SMB 11									
Intrathoracically inoculated with 0.0006 ml= 1.9 LD50/mosquito. Titration of whole mosquitoes at intervals 1-20 days after inoculation; virus undetectable (<1.3 LD50 per mosquito) 0.5 and 1 days, then rise to >4 LD50 per mosquito days 12-20 (4).									

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

1. Doherty, R.L., et al. 1972. Aust. Vet. J. 48:81-86.
2. Borden, E.C., et al. 1971. J. Gen. Virol. 13:261-271.
- 3.* Westaway, E.G. 1966. Am. J. Epidem. 84:439-456 **.
4. Carley, J.G., et al. 1973. J. Med. Ent. 10:244-249.
5. Schnagl, R.D. 1971. Aust. J. Biol. Sci. 24:1151-1162.
6. St. George, T.D. and Dimmock, C.K. 1976. Aust. Vet. J. 52:598.

** Reference to cell line, not to results with D'Aguilar virus.

Section XIV - Remarks
