Virus Name: Nugget		Abbreviation: NUGV
Status **Possible Arbovirus**	Select Agent **No**	SALS Level **2**

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

Other Information

Antigenic Group
Kemerovo

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation	Accession Number	Original Date Submitted
MI14847		8/8/1984

Family	Genus
Reoviridae	**Orbivirus**

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

Information Footnote
Reviewed by editor

Section II - Original Source

Isolated By (name)	Isolated at Institute	
Doherty and colleagues	**QIMR**	
Host Genus **Ixodes (Ceratixodes) uriae**	Species	Host Age/Stage **Nymphs**

Sex
Not Answered

Isolated From	Isolation Details
Signs and Symptoms of Illness	Arthropod
Time Held Alive before Inoculation	
Collection Method **By hand**	Collection Date **1/1/1972**

Place Collected (Minimum of City, State, Country)
Macquarie Island, Southern Ocean, Australia

Latitude	Longitude
54° 30' S	**159° 0' E**

Macrohabitat	Microhabitat	Method of Storage until Inoculated
Island in southern ocean 800 miles south-east of Tasmania	**In tussock grass (Poa foliosa) and under planks on the foreshore near a rookery**	**Transported alive to Australia at ambient temp, held at 8-10 C until moulted**

Footnotes

Section III - Method of Isolation

Inoculation Date
2/29/1972

Animal (Details will be in Section 6)
nb mice

Route Inoculated
Intracerebral

Reisolation
No

Other Reasons
Other isolates from same collection; virus distinct from any previously in this lab.

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%**	After Treatment Titer **3.3 dex**	Control Titer **5.6 dex**
Lipid Solvent (chloroform)	After Treatment Titer	Control Titer
Lipid Solvent (deoxycholate) **1:1000**	After Treatment Titer **2.3 dex**	Control Titer **6.1 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 **No**	Antigen Source **SMB and blood ext. by sucrose-acetone**	Erythrocytes (species used) **Gander**
pH Range **6.0-7.6**	pH Optimum	
Temperature Range **37dC**	Temperature Optimum	

Remarks

Serologic Methods Recommended
CF, NT

Footnotes

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

1. Initial studies at QIMR Brisbane detected no relationship to 36 viruses isolated in Australia and New Guinea.

2. Studies by Dr. Andrew J. Main Jr. at Yale Arbovirus Research Unit, New Haven, Conn., U.S.A. showed antigenic relationship to members of the Kemerovo group, but not to some 200 other arboviruses. Cross-complement fixation and neutralization tests with memebers of the Kemerovo group showed:

	Nugget virus or Antigen			Viruses or Antigens	Immune fluid to Nugget		
	CF		NT		CF		NT
Immune Sera or Ascitic Fluids	Ht/Ho	Ratio	Ht/Ho		Ht/Ho	Ratio	Ht/Ho
Great Island (CanAr 41)	256/128	2	0.3/2.7	Great Island	128/512	1/4	0.0/3.2
Bauline (CanAr 14)	128/128	1	0.7/2.4	Bauline	128/512	1/4	0.0/3.2
Yaquina Head (USA 15)	64/128	1/2	0.8/3.9	Yaquina Head	256/512	1/2	0.9/3.2
Kemerovo (R-10)	128/512	1/4		Kemerovo	128/512	1/4	
Lipovnik (Lip 91)	128/128	1		Lipovnik	64/512	1/8	
Tribec (original)	32/128	1/4		Tribec	32/512	1/16	
Huacho (CalAr 883)	16/256	1/16		Huacho	<4/512	<1/128	
Mono Lake (CalAr 861)	32/256	1/8		Mono Lake	<4/512	<1/128	
Chenuda (EgAr 1152)	<4/64	<1/16		Chenuda	8/512	1/64	
Wad Medani (EgAr 492)	<4/128	<1/32		Wad Medani	<4/512	<1/128	

NT: LNI in dex

Section VI - Biologic Characteristics

Virus Source (all VERTEBRATE isolates)
Cerebro spinal fluid (M)

Lab Methods of Virus Recovery (ALL ISOLATIONS)
Weanling 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-EK (CL)	SM 3				4		10.4*		

* 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
Ixodes uriae	10/854		Macquarie Island
Man		0/77 NT	Australia
Domestic fowl		0/60 NT	
Wallabies		0/30 NT	
Feral pig		0/23 NT	
Horses		0/7 NT	
Cattle		0/30 NT	
Buffalo		0/30 NT	
Tern (Sterna sp.)		0/6 NT	
Royal penguin (E.c.schlegeli)		14/42 NT	Macquarie Is.
Adelie penguin (Pygoscelis adeliae)		0/9 NT	Antarctica

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)	SM 3	ic 0.015	Death	2-8	8.4
Mice (nb)		ip 0.03	Death		4.5
Mice (nb)		sc			
Mice (wn)		ic 0.03	Antibody production		
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
No virus detected 1-12 days and 25-30 days after intrathoracic inoculation of adult female Aedes aegypti mosquitoes. Those mosquitoes harvested at 15 and 20 days yielded virus.									

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)
Macquarie Island, Australia

Suspected (Antibody only detected)

Section XIII - References

1. Doherty, R.L., et al. 1975. Am. J. Trop. Med. Hyg. 24:521-526.

Remarks