| Virus Name: Berrimah | Abbreviation: BRMV |
|---|---|

Status
**Possible Arbovirus**

Select Agent
**No**

SALS Level

SALS Basis

Other Information

Antigenic Group
**Bovine Ephemeral Fever**

## SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation
**DPP63**

Accession Number

Original Date Submitted
4/27/1984

Family
**Rhabdoviridae**

Genus

Information From
**Dr. G.P. Gard**

Address
**Dept. Primary Production, Berrimah Laboratory, Box 4160, Darwin, Australia**

Information Footnote

## Section II - Original Source

Isolated By (name)
**Dr. G.P. Gard**

Isolated at Institute
**Dept. Primary Production, Darwin**

Host Genus
**Bovine, sentinel**

Species

Host Age/Stage
**2 years**

Sex
**Male**

| Isolated From | Isolation Details |
|---|---|
| **Whole Blood** | |

Signs and Symptoms of Illness
**None**

Arthropod

Time Held Alive before Inoculation

Collection Method
**Blood collected by venipuncture**

Collection Date
**4/4/1981**

Place Collected (Minimum of City, State, Country)
**Berrimah, Northern Territory, Australia**

Latitude
**12° 26' S**

Longitude
**130° 55' E**

Macrohabitat

Microhabitat

Method of Storage until Inoculated
**4dC**

Footnotes

## Section III - Method of Isolation

Inoculation Date
**4/4/1981**

Animal (Details will be in Section 6)
**(Tissue Culture)**

Route Inoculated

Reisolation
**Not tried**

Other Reasons

Homologous Antibody Formation by Source Animal
**Yes**

Test(s) Used
**NT**

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<br>nm | Range<br>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) |
| pH Range | pH Optimum | |
| Temperature Range | Temperature Optimum | |
| Remarks | | |

Serologic Methods Recommended
**NT, IF, CF**

Footnotes

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

Cross-neutralization tests with the Australian bovine ephemeral fever (BEF) group viruses

| Virus | Antiserum: Standard BEF [a] | Kimberley | Berrimah | Adelaide River |
|---|---|---|---|---|
| Standard BEF[a] | 812 | <2 | <2 | <2 |
| Kimberley [b] | <2 | 1622 | <2 | <2 |
| Berrimah [c] | 20 | <2 | 1622 | <2 |
| Adelaide River | <2 | <2 | <2 | 4096 |

Neutralization titres represent reciprocal of the highest dilution neutralizing 50% of 100 TCD50.

[a] Strain BB7721, Doherty et al.

[b] Strain OR250, Liehne et al.

[c] Strain DPP63, Gard et al.

**Cross-Immunofluorescence of BEF Group Viruses**

| Antigen | Antiserum: BEF | KIM | ADE | BRM |
|---|---|---|---|---|
| BEF | 4+ | 4+ | 3+ | 4+ |
| Kimberley | 3+ | 4+ | 1+ | 4+ |
| Adelaide River | 2+ | 2+ | 4+ | -- |
| Berrimah | 4+ | 4+ | 1+ | 4+ |

Degree of specific fluorescence with 1:8 antiserum;

-- = negative.

## Section VI - Biologic Characteristics

Virus Source (all VERTEBRATE isolates)
**Blood (LV)**

Lab Methods of Virus Recovery (ALL ISOLATIONS)
**BHK-21 cell cultures**

| 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) | |
| BHK-21 (CL) | BHK 9 | 3 | 100% | 4.5* | | | | | |
| Vero (CL) | | 2 | 50% | 3.5 | 5 | 2 mm | | | |
| Aedes albopictus(CL) | | 6 | No CPE | 4.5 | | | | + | |

* 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. tested Test used | Country and region |
|---|---|---|---|
| Cattle (blood) | 1/>5,000 | | Northern Territory, Australia |
| Cattle | | | Prevalence uncertain because of antigenic overlap with BEF |
| Culex annulirostris | 0/779 pools | | North Western Australia |
| Culicoides brevitarsi | 0/>1,000 pools | | SE Queensland, Australia |

## 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) | BHK 9 | ic | Paralysis and death | 6-7 | |
| Mice (nb) | | ip | | | |
| Mice (nb) | | sc | | | |
| Mice (wn) | | ic | | | |
| Mice (wn) | BHK 9 SMB 2 | ip | Antibody | | |

## 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; BHK 9 | | 2.0 | 8 | 25 | | | 6.0 | | Titration and virus isolation in BHK-21 cells |

## 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. Aust J. Sci. 31:365-366.
2. Liehne, P.F.S., et al. 1981. Aust. J. Exp. Biol. and Med. Sci. 59:347-356.
3. Gard, G.P., et al. 1983. Aust. Vet. J. 60:89.

## Remarks