

|  |                           |                           |
|--|---------------------------|---------------------------|
| <b>Virus Name: Kimberley</b>                     |                           | <b>Abbreviation: KIMV</b> |
| Status<br><b>Possible Arbovirus</b>              | Select Agent<br><b>No</b> | SALS Level                |
| SALS Basis                                       |                           |                           |
| Other Information                                |                           |                           |
| Antigenic Group<br><b>Bovine Ephemeral Fever</b> |                           |                           |

**SECTION I - Full Virus Name and Prototype Number**

|   |  |   |
|---|--|---|
| Prototype Strain Number / Designation<br><b>CSIRO 368</b> | Accession Number   | Original Date Submitted<br><b>4/26/1984</b> |
| Family<br><b>Rhabdoviridae</b>                            | Genus  |   |
| Information From<br><b>Dr. N.F. Stanley</b>               | Address<br><b>University of Western Australia, Nedlands, Perth, W.A. 6009, Australia</b> |   |
| Information Footnote                                      |  |   |

**Section II - Original Source**

|  |  |  |
|--|--|--|
| Isolated By (name)<br><b>D.H. Cybinski (prototype)</b>   | Isolated at Institute<br><b>Long Pocket Laboratories</b> |  |
| Host Genus<br><b>Bovine, sentinel</b>  | Species  | Host Age/Stage                                   |
| Sex<br><b>Female</b>   |  |  |
| <u>Isolated From</u>   | <u>Isolation Details</u>                                 |  |
| <b>Whole Blood</b>   |  |  |
| Signs and Symptoms of Illness  | Arthropod  |  |
| Time Held Alive before Inoculation<br><b>1-2 days</b>  |  |  |
| Collection Method<br><b>Heparinized blood collected by venipuncture</b>                                  | Collection Date<br><b>2/26/1980</b>                      |  |
| Place Collected (Minimum of City, State, Country)<br><b>Tortilla Flat, Northern Territory, Australia</b> |  |  |
| Latitude<br><b>13° 13' S</b>   | Longitude<br><b>131° 8' E</b>                            |  |
| Macrohabitat   | Microhabitat   | Method of Storage until Inoculated<br><b>4dC</b> |
| Footnotes  |  |  |

**Section III - Method of Isolation**

|   |                          |
|---|--------------------------|
| Inoculation Date  |                          |
| Animal (Details will be in Section 6)<br><b>(Tissue Culture)</b>    |                          |
| Route Inoculated  | Reisolation<br><b>No</b> |
| Other Reasons   |                          |
| Homologous Antibody Formation by <u>Source Animal</u><br><b>Yes</b> |                          |
| Test(s) Used<br><b>NT</b>   |                          |
| Footnotes   |                          |

**Section IV - Virus Properties**

|   |   |                                      |
|---|---|--------------------------------------|
| Physicochemical<br><b>RNA</b>   |   |                                      |
| Pieces (number of genome segments)  | Infectivity                                 | Sedimentation Coefficients(s)<br>(S) |
| Percentage wt, of Virion Protein  | Lipid                                       | Carbohydrate                         |
| Virion Polypeptides: Number   | Details                                     |                                      |
| Non-virion Polypeptides: Number   | Details                                     |                                      |
| Virion Density  | Sedimentation Coefficients(s)<br>(S)        |                                      |
| Nucleocapsid Density  | Sedimentation Coefficients(s)<br>(S)        |                                      |
| <hr/>   |   |                                      |
| <b><u>Stability of Infectivity (effects)</u></b>  |   |                                      |
| pH (infective range)  |   |                                      |
| Lipid Solvent (ether - % used to test)<br><b>10%</b>  | After Treatment Titer<br><b>2.5 dex</b>     | Control Titer<br><b>5.0 dex</b>      |
| Lipid Solvent (chloroform)<br><b>10%</b>  | After Treatment Titer<br><b>&lt;1.0 dex</b> | Control Titer<br><b>5.0 dex</b>      |
| Lipid Solvent (deoxycholate)  | After Treatment Titer                       | Control Titer                        |
| Other (formalin, radiation)<br><b>Inact. at 56C, 1 hr. Stabilized by foetal calf serum at 4C, 37C and -20C.</b> |   |                                      |
| <hr/>   |   |                                      |
| <b><u>Virion Morphology</u></b>   |   |                                      |
| Shape<br><b>Bullet-shaped and cone-shaped</b>   | Dimensions<br><b>50-85 x 125-185 nm</b>     |                                      |
| Mean<br>nm  | Range<br>nm                                 |                                      |
| Measurement Method<br><b>Electron microscopy</b>  | 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**

Hemagglutination                      Antigen Source                      Erythrocytes (species used)

**Not tried**

pH Range                      pH Optimum

Temperature Range                      Temperature Optimum

Remarks

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

Footnotes

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

| Complement fixation titres for BEF and CSIRO 368 viruses with their respective ascitic fluids. |               |           | Cross-Immunofluorescence of BEF Group                             |           |     |     |     |
|--|---------------|-----------|---|-----------|-----|-----|-----|
| Antigen  | Ascitic fluid |           | Antigen   | Antiserum |     |     |     |
|  | BEF           | CSIRO 368 |   | BEF       | KIM | ADE | BRM |
| BEF  | 2048/64       | 16/16     | BEF   | 4+        | 4+  | 3+  | 4+  |
| CSIRO 368  | 64/16         | 512/32    | Kimberley   | 3+        | 4+  | 1+  | 4+  |
|  |               |           | Adelaide River  | 2+        | 2+  | 4+  | -   |
|  |               |           | Berrimah  | 4+        | 4+  | 1+  | 4+  |
| Titre of ascitic fluid/titre of antigen  |               |           | Degree of specific fluorescence with 1:8 antiserum; - = negative. |           |     |     |     |

| Cross-neutralization tests with the Australian bovine ephemeral fever (BEF) group viruses |           |           |           |          |                |
|---|-----------|-----------|-----------|----------|----------------|
| Virus   | Antiserum |           |           |          |                |
|   | BEF       | CSIRO 368 | Kimberley | Berrimah | Adelaide River |
|   |           |           |           |          |                |

|                             |     |     |      |      |      |
|-----------------------------|-----|-----|------|------|------|
| BEF <sup>a</sup>            | 812 | <2  | <2   | <2   | <2   |
| CSIRO 368 <sup>b</sup>      | <2  | 616 | 1413 | <2   | <2   |
| Kimberley <sup>c</sup>      | <2  | 707 | 1622 | <2   | <2   |
| Berrimah <sup>d</sup>       | 20  | <2  | <2   | 1622 | <2   |
| Adelaide River <sup>e</sup> | <2  | <2  | <2   | <2   | 4096 |

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

<sup>a</sup> Strain BB7721, Doherty et al.

<sup>b</sup> Cybinski and Zakrzewski

<sup>c</sup> First isolate, strain OR250, Liehne et al.

<sup>d</sup> Strain DPP63, Gard et al.

<sup>e</sup> Unpublished G.P. Gard

NOTE: The original isolate (OR250) of Liehne et al. [3] was made from Cx annulirostris; however, the characterizations were made using virus strain CSIRO 368 prior to antigenic identity being demonstrated.

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<br>+/- (g) |
|                       |                           | Day (c)               | Extent (d) | Titer TCD50/ml (e) | Day (c) | Size (f)   | Titer PFU/ml (e) |                               |
| BHK-21 (CL)           | Original Inoculum         | 5                     | 100%       | 4.5*               |         |            |                  |                               |
| Vero (CL)             | BHK 10                    | 2                     | 20%        | 4.5                | 6       | 0.5-1.5 mm | 4.5*             |                               |
| Aedes albopictus (CL) | AA3 BHK 2                 |                       | No CPE     |                    |         |            |                  | +                             |
| Bovine kidney (CL)    | BHK 9                     | 3                     | 50%        | 4.25               |         |            |                  |                               |

\* 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<br>Test used | Country and region                          |
|--|---------------------------|---|---|
| Culex annulirostris                          | 1/779 pools               |   | North Western Australia (First isolation)   |
| Culicoides brevitarsis                       | 1/>1,000 pools            |   | SE Queensland, Australia                    |
| Bovine blood                                 | 3/>5,000                  |   | Northern Territory SE Queensland, Australia |
| Cattle                                       |                           | 1,850/3,000 NT                            | North, Central and Eastern Australia        |
| Buffalo                                      |                           | 16/45 NT                                  | Northern Territory Australia                |
| Cattle                                       |                           | 19/40 NT                                  | Papua, New Guinea                           |
| Cattle                                       |                           | 56/360 NT                                 | New Caledonia                               |

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 log <sub>10</sub> /ml |
|---------------------------|----------------------------|------------------------|-----------------------|------------|-----------------------------|
| Mice (nb)                 | BHK 10; HB 3               | ic                     | Paralysis             | 3          | 4.5                         |
| Mice (nb)                 |                            | ip                     | None                  |            |                             |
| Mice (nb)                 |                            | sc                     |                       |            |                             |
| Mice (wn)                 |                            | ic                     |                       |            |                             |
| Mice (wn)                 |                            | ip                     |                       | Antibody   | 21                          |

**Section IX - Experimental Arthropod Infection and Transmission**

| Arthropod species & virus source(a) | Method of Infection<br>log <sub>10</sub> /ml (b) |          | Incubation period (c) |    | Transmission by bite (d) |       | Assay of arthropod, log <sub>10</sub> /ml (e) |       |        |
|-------------------------------------|--|----------|-----------------------|----|--------------------------|-------|---|-------|--------|
|                                     | Feeding  | Injected | Days                  | °C | Host                     | Ratio | Whole   | Organ | System |
|                                     |  |          |                       |    |                          |       |   |       |        |
|                                     |  |          |                       |    |                          |       |   |       |        |

**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)

**Papua, New Guinea; New Caledonia**

**Section XIII - References**

1. Doherty, R.L., et al. 1973. Aust. J. Sci. 31:365-366.
2. Cybinski, D.H. and Zakrzewski, H. 1983. Vet. Micro. 8:221-235.
3. Liehne, P.F.S., et al. 1981. Aust. J. Exp. Biol. and Med. Sci. 59:347-356.
4. Gard, G.P., et al. 1983. Aust. Vet. J. 60:89.

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