| Virus Name: Manzanilla | | Abbreviation: MANV |
|---|---|---|
| Status<br>**Possible Arbovirus** | Select Agent<br>**No** | SALS Level<br>**2** |

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

Other Information

Antigenic Group
**Simbu**

## SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation
**TRVL 3587**

Accession Number

Original Date Submitted
1/24/1985

Family
**Bunyaviridae**

Genus
**Bunyavirus**

Information From
**Trinidad Regional Virus Laboratory**

Address
**P.O. Box 164, Port of Spain, Trinidad**

Information Footnote
**Reviewed by editor**

## Section II - Original Source

Isolated By (name)
**TRVL (1)**

Isolated at Institute
**Port of Spain, Trindad**

Host Genus
**Alouatta seniculus insularis**

Species

Host Age/Stage
**Adult**

Sex
**Female**

| Isolated From | Isolation Details |
|---|---|
| **Serum/Plasma** | |

Signs and Symptoms of Illness

Arthropod

Time Held Alive before Inoculation

Collection Method
**Shot by shotgun; heart blood taken by syringe**

Collection Date
**6/16/1954**

Place Collected (Minimum of City, State, Country)
**Brigand Hill, Trinidad**

Latitude
**10° 30' N**

Longitude
**61° 5' W**

Macrohabitat
**Evergreen seasonal forest (Koppen: Af) altitude about 300'**

Microhabitat
**Forest canopy**

Method of Storage until Inoculated
**Thermos (wet ice) for no more than six hours**

Footnotes

## Section III - Method of Isolation

Inoculation Date
**6/16/1954**

Animal (Details will be in Section 6)
**nb mice**

Route Inoculated
**Intracerebral**

Reisolation
**Yes**

Other Reasons
**No other isolations of this virus have as yet been made from this or other laboratories.**

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) | After Treatment Titer | Control Titer |
| Lipid Solvent (chloroform) | After Treatment Titer | Control Titer |
| Lipid Solvent (deoxycholate) | After Treatment Titer<br>**1.5 dex** | Control Titer<br>**6.8 dex** |

Other (formalin, radiation)

**Virion Morphology**

| | | |
|---|---|---|
| Shape | Dimensions<br>**101 nm** | |
| Mean<br>nm | Range<br>nm | |
| Measurement Method<br>**Electron microscopy (3)** | 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) |
|---|---|---|
| **Yes** | **SMB crude borate saline susp., pH 9.0; centrifuged.** | **Goose** |
| pH Range | pH Optimum | |
| **6.0-6.4** | **6.2** | |
| Temperature Range | Temperature Optimum | |
| **4dC - 37dC** | **4dC** | |

Remarks

Serologic Methods Recommended
**CF, NT**

Footnotes

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

Mainly on the basis of CF tests, Manzanilla virus has been placed in the Simbu group; in it Manzanilla is closely related to Ingwavuma virus (see Catalogue card) and less so to Oropouche [2] . For a list of viruses with which it has been compared and no relation detected, see Reference [1] .
Antigenic relationships were determined for 24 viruses of the Simbu serogroup [5] . Manzanilla virus was placed in the Manzanilla complex, one of as many as ten complexes comprising the Simbu serogroup. Ingwavuma, Mermet, and Inini viruses were determined to be subtypes of Manzanilla virus [5] , [6] .

## Section VI - Biologic Characteristics

Virus Source (all VERTEBRATE isolates)
**CNS (LV), heart (LV), liver (LV), spleen (LV)**

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) | |
| Vero (CL) | MB 4 | | | | 3 | 3 mm | 6.7** (4) | | |
| LLC-MK2 (CL) | | | | | 3 | 1 mm | 5.7 (4) | | |
| BHK-21 (CL) | MB 2 | 2 | 4+ | 5.7** (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 |
|---|---|---|---|
| Man | 0/2,800 | 8/142 NT | Trinidad* |
| Alouatta seniculus insularis | 1/79 | | |
| Cebus | 0/26 | | |
| Cebus | | 0/13 NT | Colombia |
| Aotus | | 0/4 NT | |
| Ateles | | 0/5 NT | |
| Alouatta | | 0/11 NT | |
| Wild birds | 0/3,000 | | Trinidad |
| Small rodents | 0/1,000 | | |
| Arthropods (including mosquitoes, Simuliidae, Heleiidae, Tabanidae, Mallophaga, Anoplura, ticks, trombiculid mites) | 0/1,162,230 | | |

## 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) | MB 10 to 15 | ic | Illness and death | 2 | 5.5 |
| Mice (nb) | | ip | Illness and death | 3 | 5.9 |
| Mice (nb) | | sc | | | |
| Mice (wn) | | ic | Illness and death | 3 | 6.0 |
| Mice (wn) | | ip | No illness | | |
| chick embryo (7 day) | SMB 3 | ys | Death | 3 | 7.0 |
| | | al.c. | Death | 3 | |
| | | am.s. | Death | 3 | |
| chicks (1 day) | | ic,1000 LD | None | | |
| rabbits (ad) | | ic, ip | Not susceptible | | |
| hamsters (ad) | | ic | Paralysis, death | 5-8 | 5.0 |
| hamsters (ad) | | ip | Develop antibody | | |
| guinea pigs (ad) | | ic, ip | Develop antibodies | | |

NOTE: The AST's given above are with virus dosages exceeding 100 LD50.

NOTE: AST's are with EID50 exceeding 100. Carried through 34 egg passages by ys route.

## 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 scapularis, Aedes serratus and Culex quinquefasciatus inoculated with virus did not transmit by bite, but had virus in bodies after 2-3 weeks. | | | | | | | | | |

## 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)
**Trinidad**

Suspected (Antibody only detected)

## Section XIII - References


1. Anderson, C.R., et al. 1960. Am. J. Trop. Med. and Hyg. 9:78-80.
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7. Karabatsos, N. and Buckley, S.M. 1967. Am. J. Trop. Med. Hyg. 16:99-105.


## Remarks