| Virus Name: Ilesha | Abbreviation: ILEV |
|---|---|

Status
**Probable Arbovirus**

Select Agent
**No**

SALS Level
**2**

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

Other Information

Antigenic Group
**Bunyamwera**

## SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation
**KO/2**

Accession Number

Original Date Submitted
2/17/1985

Family
**Bunyaviridae**

Genus
**Bunyavirus**

Information From
**J.S. Porterfield**

Address
**National Institute for Medical Research, Mill Hill, London, N.W.7, England**

Information Footnote
**Reviewed by editor**

## Section II - Original Source

Isolated By (name)
**D.C. Morley (1)**

Isolated at Institute
**Ilesha Hospital, Western Nigeria**

Host Genus
**Man**

Species

Host Age/Stage
**9 years**

Sex
**Female**

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

Signs and Symptoms of Illness
**Fever for a few days, losing weight; no rash**

Arthropod

Time Held Alive before Inoculation

Collection Method
**Venipuncture**

Collection Date
**4/26/1957**

Place Collected (Minimum of City, State, Country)
**Ilesha, Western Nigeria**

Latitude
**7° 39' N**

Longitude
**4° 38' E**

Macrohabitat
**Large town**

Microhabitat
**Tropical, hot, humid**

Method of Storage until Inoculated
**Room temperature**

Footnotes

## Section III - Method of Isolation

Inoculation Date
**4/26/1957**

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

Route Inoculated
**Intracerebral**

Reisolation
**Yes**

Other Reasons
**No viruses present in field laboratory. Two other isolations from children May 1957.**

Homologous Antibody Formation by Source Animal
**Not tested**

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)<br>**50%** | After Treatment Titer<br>**3.1 dex** | Control Titer<br>**5.2 dex** |
| Lipid Solvent (chloroform) | After Treatment Titer | Control Titer |
| Lipid Solvent (deoxycholate)<br>**1:1000** | After Treatment Titer<br>**2.0 dex** | Control Titer<br>**6.2 dex** |

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) |
|---|---|---|
| **Yes** | **SMB ext. by sucrose-acetone** | **Goose** |
| pH Range | pH Optimum | |
| **5.8-6.4** | **6.0-6.2** | |
| Temperature Range | Temperature Optimum | |
| **4dC - 37dC** | **37dC** | |

Remarks

Serologic Methods Recommended
**HI, CF, PRNT**

Footnotes

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

By CF, Ilesha is more closely related to Bunyamwera and Cache Valley than to the remaining members of the Bunyamwera group.
By HI, the closest relationship is with the Cache Valley virus [2] .

There is little cross-neutralization between Ilesha and Bunyamwera viruses, whether the tests are carried out in mice, or by plaque methods in chick embryo fibroblasts.

| Immune Serum<br>Bunaymwera 3 dose | Ilesha Virus<br>50% PRNT titer<br>Ht/Ho | Virus<br>Bunyamwera | NT in mice<br>Ht/Ho | Ilesha Immune Serum (3 doses)<br>50% PRNT titer<br>Ht/Ho |
|---|---|---|---|---|
| | 16/1024 | | 0.2/2.7 | 4/128 |

NT: LNI given in dex

SIRACA has antigenically classified Ilesha virus as a distinct virus type in the Bunyamwera serogroup [12] .

## Section VI - Biologic Characteristics

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

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) | |
| Chick embryo (PC) | MB 8 | | | | 4-5 | Plaques | 7.0* | | |
| Vero (CL) | P-12 | | | | 6 | 3 mm | 5.4 (10) | | |
| LLC-MK2 (CL) | | | | | 4 | 1 mm | 5.1 (10) | | |

* 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 | 3 | 13/33 NT | Ilesha area, Nigeria |
| Man | | 4/35 NT | West Nile region, Uganda, (3) |
| Man | 2 | | Uganda (3) |
| Man | 1 | | Cameroun (5) |
| Man | 2 * | | Central African Republic (6) |
| Anopheles gambiae | 1 | | Central African Republic (9) |

* 7 cases listed in 1969, 1970 Annual Report (9).

## 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 4 | ic 0.02 | Sickness and death | 2.0 | 8.6 |
| Mice (nb) | | ip | | | |
| Mice (nb) | | sc | | | |
| Mice (wn) | MB 3 | ic 0.03 | Sickness and death | 3.6 | 4.8 |
| Mice (wn) | | ip | | | |
| embryonated egg (7 day) | MB 4 | embryo | Nil | | |
| embryonated egg (13 day) | | CAM | Nil | | |
| rabbit (ad) | MB 7 | sc 1.0 | Nil | | |
| rabbit (ad) | | iv 1.0 | Nil | | |
| Erythrocebus patas (ad) | MB 5 | ic 1.0 | Nil | | |
| Macaca mulatta (nb) | MB 7 | sc | Nil (3) | | |
| Macaca mulatta (pregnant female) | | sc | Nil | | |

## 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 became infected following parenteral inoculation. Transmitted virus by bite to infant mice after 12 days incubation (4). | | | | | | | | | |

## Section X - Histopathology

Character of lesions (specify host)
**Encephalitis in mice**

Inclusion Bodies — Intranuclear

Organs/Tissues Affected
**Brain (LV)**

Category of tropism

## Section XI - Human Disease

In Nature — Residual — Death
**Reported**

Subclinical — Overt Disease

Clinical Manifestations
**Fever (R)**

Number of Cases
**3 cases by virus isolation (6 reported)**

Category (i.e. febrile illness, etc.)
**Febrile illness; with rash**

## Section XII - Geographic Distribution

Known (Virus detected)
**Nigeria, Uganda, Cameroun, Central African Republic, Senegal (11)**

Suspected (Antibody only detected)
**Niger delta, Ghana**

## Section XIII - References


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## Remarks