

<b>Virus Name: Jutiapa</b>		<b>Abbreviation: JUTV</b>
Status <b>Possible Arbovirus</b>	Select Agent <b>No</b>	SALS Level <b>2</b>
SALS Basis <b>Results of SALS surveys and information from the Catalogue.</b>		
Other Information		
Antigenic Group <b>B</b>		

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

Prototype Strain Number / Designation <b>JG-128</b>	Accession Number	Original Date Submitted <b>2/15/1985</b>
Family <b>Flaviviridae</b>	Genus <b>Flavivirus</b>	
Information From <b>C.H. Calisher and K.S.C. Maness</b>	Address <b>Arbovirology Unit, Center for Disease Control, Atlanta, Georgia 30333, USA</b>	
Information Footnote <b>Reviewed by editor</b>		

**Section II - Original Source**

Isolated By (name) <b>R.D. Lord and L. Rutledge</b>	Isolated at Institute <b>CDC, Atlanta, Georgia</b>	
Host Genus <b>Sigmodon hispidus</b>	Species	Host Age/Stage <b>Adult</b>
Sex <b>Male</b>		
<u>Isolated From</u>	<u>Isolation Details</u>	
<b>Serum/Plasma</b>		
Signs and Symptoms of Illness <b>None observed</b>	Arthropod	
Time Held Alive before Inoculation		
Collection Method <b>Sherman live trap baited with peanut butter</b>	Collection Date <b>8/8/1969</b>	
Place Collected (Minimum of City, State, Country) <b>Laguna Retana, Jutiapa, Guatemala</b>		
Latitude <b>14° 30' N</b>	Longitude <b>89° 55' W</b>	
Macrohabitat <b>Rim of old volcano, drained by ditching, extensively cultivated to corn and rice.</b>	Microhabitat <b>Hedge row between cultivated fields and road</b>	Method of Storage until Inoculated <b>Dry ice in field and during shipment; Revco in laboratory at -65dC</b>
Footnotes		

**Section III - Method of Isolation**

Inoculation Date  
**8/19/1969**

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

Route Inoculated <b>Intracranial</b>	Reisolation <b>Yes</b>
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Other Reasons  
**No other group B arbovirus being used at the time of isolation**

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)	After Treatment Titer	Control Titer
Lipid Solvent (chloroform)	After Treatment Titer	Control Titer
Lipid Solvent (deoxycholate) <b>1:200</b>	After Treatment Titer <b>&lt;2.5 dex</b>	Control Titer <b>6.6 dex</b>
Other (formalin, radiation)		

**Virion Morphology**

Shape <b>Spherical</b>	Dimensions <b>50 nm</b>	
Mean nm	Range nm	
Measurement Method <b>EM of thin section of cerebellum (1)</b>	Surface Projections/Envelope <b>Envelope observed; approx. 7 nm diameter</b>	Nucleocapsid Dimensions, Symmetry <b>Capsid diameter; 36 nm</b>

**Morphogenesis**

Site of Constituent Formation in Cell	Site of Virion Assembly	Site of Virion Accumulation
Inclusion Bodies	Other	

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**Hemagglutination**

Hemagglutination <b>Yes</b>	Antigen Source <b>SMB homogenate, crude hemagglutinin</b>	Erythrocytes (species used) <b>Goose</b>
pH Range <b>6.0-7.0</b>	pH Optimum <b>6.0-6.2</b>	
Temperature Range <b>4dC - 37dC</b>	Temperature Optimum <b>37dC</b>	

Remarks  
**Satisfactory sucrose-acetone antigen produced for CF testing. HA not attempted with this antigen.**

Serologic Methods Recommended  
**HI, CF, NT**

Footnotes  
**Satisfactory sucrose-acetone antigen produced for CF testing. HA not attempted with this antigen.**

	JG 128 Antigen		JG 128 HIAF	
	HI	NT(LNI)	HI	NT(LNI)
JG 128 **	80	5.3	80	5.3
Yellow fever	10/40	1.5/>4.5	10/80	1.0/5.3
St. Louis encephalitis	20/160	2.2/2.4	10/80	0.0/5.3
Ilheus	20/80	2.4/3.0	10/80	0.3/5.3
Bussuquara	40/80	2.7/>2.3	<10/80	1.1/5.3
Modoc	<10/80		20/80	
Rio Bravo	40/80		10/80	
Dengue 2	20/80		10/80	
West Nile	40/40		<10/80	
Japanese Encephalitis	20/160		10/80	

\*\* Heterologous/homologous titers, HI as reciprocals and LNI as dex

At the Yale Arbovirus Reference Unit JG 128 antigen and HIAF were tested by CF against HIAF and antigens prepared from the following Group B arboviruses [2] : Bukalasa bat, MML, Entebbe bat, Dakar bat, Rio Bravo, Modoc, Cowbone Ridge, Powassan, Bussuquara, JBE, Apoi, Koutango, West Nile, Kadam, Alfuy, Edge Hill, MVE, Iouping ill, OMSK, RSSE, SLE, Negishi, Langat, Royal Farm, Tulieniy, Banzi, Spondweni, dengue 1, 2, 3, 4, Israel turkey, Kokobera, Kunjin, Ntaya, Potiskum, Stratford, Tembusu, Uganda S, Wesselsbron, yellow fever, Zika, Saboya, and Phnom-Penh bat (A38D). The only conclusions drawn from the results are that JG 128 cross reacts extensively with most of the Group B viruses but is sufficiently distant antigenically, from even the nearest known antigenic neighbor, for considering this a new Group B arbovirus [2] .

In a cross-neutralization study involving 65 flaviviruses, Jutiapa virus was found to be more closely related to those flaviviruses which were clustered together to form the Modoc complex. In addition to Jutiapa virus, these included Modoc, Sal Vieja, Cowbone Ridge, and San Perlita viruses [3] .

**Section VI - Biologic Characteristics**

Virus Source (all VERTEBRATE isolates)  
 Blood (M), CNS (M), liver (M), spleen (M), kidney (M), lymph  
 node (M), adrenal (M); (M) = experimental infections in  
 patients with malignant disease (9)

Lab Methods of Virus Recovery (ALL ISOLATIONS)  
 Newborn mice

Cell system (a)	Virus passage history (b)	Evidence of Infection						
		CPE			PLAQUES			Growth Without CPE +/- (g)
		Day (c)	Extent (d)	Titer TCD50/ml (e)	Day (c)	Size (f)	Titer PFU/ml (e)	
LLC-MK2 (CL)					7-8	Plaques	6.6 (a)(2)	

(a) 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
Sigmodon hispidus	1/11		Jutiapa, Guatemala

**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)	P-3	ic	Death (b)	6-8	8.7
Mice (nb)		ip	Death	10-12	6.9
Mice (nb)		sc			
Mice (wn)		ic	Death	8-10	6.0
Mice (wn)		ip	None		
Mice (nb)	P-1	ic	Death	10-12	6.5
Mice (nb)	P-5	ic	Death	6-8	8.7

(b) Preceded by tremors, ataxia, not feeding, prostration

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

Arthropod species & virus source(a)	Method of Infection 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)

**sm: moderately severe diffuse necrosis of cerebrum and cerebellum. Slight edema of cord**

Inclusion Bodies

Intranuclear

Organs/Tissues Affected

Category of tropism

**Neurotropic**

**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)

**Guatemala**

Suspected (Antibody only detected)

**Section XIII - References**

1. Murphy, F.A. and Harrison, A.K., CDC. Unpublished observations.
2. Karabatsos, N. and Woodall, J.P., YARU. Unpublished observations.
3. Calisher, C.H., et al. Personal communication. 1983.

**Remarks**