Virus Name: Frijoles	Abbreviation: FRIV

Status
Possible Arbovirus

Select Agent
No

SALS Level
2

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

Other Information

Antigenic Group
Phlebotomus Fever

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation
VP-161A

Accession Number

Original Date Submitted
7/6/1984

Family
Bunyaviridae

Genus
Phlebovurs

Information From
Robert B. Tesh

Address
Yale Arbovirus Research Unit

Information Footnote
Revised

Section II - Original Source

Isolated By (name)
R. Tesh and P. Peralta

Isolated at Institute
Middle America Research Unit, Panama

Host Genus
Lutzomyia (mixed species; pool of 50)

Species

Host Age/Stage
Adults

Sex
Female

Isolated From

Isolation Details

Signs and Symptoms of Illness

Arthropod
Depleted

Time Held Alive before Inoculation
4-6 hours

Collection Method
Aspirator

Collection Date
11/24/1969

Place Collected (Minimum of City, State, Country)
Limbo Hunt Club, Canal Zone, Panama

Latitude
9° 10' N

Longitude
79° 44' W

Macrohabitat
Moist climax tropical forest

Microhabitat
Tree buttress collection

Method of Storage until Inoculated
-60dC

Footnotes

Section III - Method of Isolation

Inoculation Date
12/8/1969

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

Route Inoculated

Reisolation
Yes

Other Reasons

Homologous Antibody Formation by Source Animal

Test(s) Used

Footnotes

Section IV - Virus Properties

Physicochemical
RNA, Single Strand

Pieces (number of genome segments) **3**	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) **5%, 10 min**	After Treatment Titer **<2.2 dex**	Control Titer **5.3 dex**
Lipid Solvent (deoxycholate)	After Treatment Titer	Control Titer

Other (formalin, radiation)

Virion Morphology

Shape	Dimensions	
Mean nm	Range 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	**Infected Vero cells (2)**	**Goose**
pH Range	pH Optimum **6.0**	
Temperature Range **Not tested**	Temperature Optimum **22dC**	

Remarks

Serologic Methods Recommended
CF, NT, HI

Footnotes

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

Frijoles virus CF antigen (homologous system titer = >1024/128) did not react with hyperimmune sera for arboviruses of groups A, B, C, Tacaribe, Capim, Simbu, California, Phlebotomus fever, and Bunyamwera; or with specific sera for Anopheles A and B, Turlock, Manzanilla, Pacui, Changuinola, Charleville, VS-Indiana, VS-New Jersey, VS-Alagoas, Cocal, Chandipura, Piry, Naples, Sicilian, Punta Toro, Chagres, Candiru, Itaporanga, Karimabad, Anhanga, Bujaru, Arumowot, Gabek Forest, Salehabad, Urucuri, Caimito, Chilibre, Nique, Aguacate, Cacao or Buenaventura [2;] .
Agucate hyperimmune hamster serum did not react in CF tests with suckling hamster brain antigens for Naples, Sicilian, Punta Toro, Chagres, Candiru, Itaporanga, Karimabad, Anhanga, Bujaru, Arumowot, Gabek Forest, Salehabad, Urucuri, Buenaventura, Caimito, Pacui, Nique, and Aguacate. The same immune serum was also negative in CF against a MA-111 cell culture antigen of Cacao virus [2] .
By CF tests a relationship with Icoaraci virus was demonstrated [2] .

	Antigen	
Antiserum	**Frijoles**	**Icoaraci**
Frijoles	> 1024/128	16/32
Icoaraci	64/64	> 2048/256

Plaque neutralization tests [3] :

	Frijoles						
Antibody	**Virus**	**Homologous**					
Frijoles	*	10240	Frijoles antiserum did not				

Frijoles	10240	10240	Frijoles antiserum did not
Arumowot	20	10240	inhibit any of these tested
Chagres	40	2560	viruses.
Icoaraci	20	1280	
Toscana	40	>5120	
Karimabad	80	80	Negative results were obtained
Naples	40	320	in cross-neutralization tests
Punta Toro	320	10240	between each of the following
Rift Valley Fever	20	5120	viruses and immune reagents:
Rio Grande	20	320	FRI, AGU, ALE, ANH, BUE, BUJ,
Salehabad	80	1280	CAC, CAI, CDU, GOR, TEH, ITA,
Sicilian	160	5120	ITP, NIQ, PAC, and SAF [3] .
Gabek Forest	10	320	
Urucuri	20	640	

* Reciprocal of antibody dilution producing >90% plaque inhibition.

Section VI - Biologic Characteristics

Virus Source (all VERTEBRATE isolates)

Lab Methods of Virus Recovery (ALL ISOLATIONS)
Vero 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)	
Vero (CL)	Vero 2	4-5	4+		6		6.8**		

** 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
Lutzomyia spp. (females)	1/86,202		Canal Zone, Panama(1)
Lutzomyia spp. (males)	0/70,043		
L. trapidoi (females)	0/63,985		
L. trapidoi (males)	0/9,906		
L. ylephilatrix (females)	0/24,376		
Man		0/140 NT	Rural Panama (1)

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)		ic			
Mice (nb)	161A	ip 0.03	Death	7.3	
Mice (nb)	Vero 2, MB 2, HB 1	sc			
Mice (wn)		ic			
Mice (wn)		ip			
hamster (nb)		ic 0.02	Death	7.6	7.8
hamster (wn)		ip 0.1	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
Frijoles virus did not multiply or survive in Aedes albopictus or Culex quinquefasciatus after injection (4).									

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)
Panama

Suspected (Antibody only detected)

Section XIII - References

1. Tesh, R.B., et al. 1974. Am. J. Trop. Med. Hyg. 23:258-269.
2. Tesh, R.B., et al. 1975. Am. J. Trop. Med. Hyg. 24:135-144.
3. Tesh, R.B. Unpublished data.
4. Tesh, R.B. 1975. J. Med. Ent. 12:1-4.

Remarks