Virus Name: Nique	Abbreviation: NIQV

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
Nique-9C

Accession Number

Original Date Submitted
7/6/1984

Family
Bunyaviridae

Genus
Phlebovirus

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 panamensis (pool of 6 sandflies)

Species

Host Age/Stage
Adults

Sex
Female

Isolated From

Isolation Details

Signs and Symptoms of Illness

Arthropod
Depleted

Time Held Alive before Inoculation
<12 hours

Collection Method
Light trap

Collection Date
4/22/1972

Place Collected (Minimum of City, State, Country)
Cerro Nique, Darien Prov., Panama

Latitude
7° 40' N

Longitude
77° 45' W

Macrohabitat
Tropical forest (700 meter elevation)

Microhabitat
Ground level

Method of Storage until Inoculated
Liquid nitrogen, then at -70dC

Footnotes

Section III - Method of Isolation

Inoculation Date
5/17/1972

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

Route Inoculated

Reisolation
Not tried

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 **3.7 dex**	Control Titer **5.4 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 **Not tried**	Antigen Source	Erythrocytes (species used)
pH Range	pH Optimum	
Temperature Range	Temperature Optimum	
Remarks		
Serologic Methods Recommended **CF, NT**		
Footnotes		

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

Nique CF antigen (homologous = >2056/512) did not react with immune sera for Groups A, B, C, PHL, TCR, CAP, SIM, CAL, and BUN; or with specific antisera for ANA, ANB, TUR, MAN, VSI, VSNJ, VSA, COC, PIRY, CHP, PAC, CGL, SFN, SFS, PT, CHG, ICO, CDU, ITP, KAR, ANH, BW, AMT, GF, URU, BUE, SAL, FRI, CHI, CAI, CAC and AGU.
Nique hyperimmune hamster serum did not react in CF tests with suckling hamster brain antigens for SFN, SFS, CHG, ICO, ITP, KAR, ANH, PAC, BUJ, AMT, GF, BUE, SAL, CAC, URU, FRI, CAI, CHV and AGU viruses [1] .
CF or NT relationships were demonstrated between Nique and four other Phlebotomus fever group agents (Candiru, Punta Toro, Icoaraci and Agucate) as noted below.

	Antigen or Virus									
	Nique		Candiru		Punta Toro		Aguacate		Icoaraci	
Antiserum	CF	NT	CF	NT	CF	NT	CF	NT	CF	NT
Nique	>2048/512	128	8/64	16	16/64	0	16/16	0	0	16
Candiru	128/512	0	256/512	512	0	0	0	0	0	0
Punta Toro	0	64	0	512	64/256	8192	0	0	0	64
Agucate	0	0	0	0	0	0	>512/128	512	0	0
Icoaraci	0	32	0	512	0	1024	0	0	>2048/256	32000

CF: Antibody titer/antigen titer; 0 = <4/<4.

NT: Results as reciprocal of highest serum dilution producing >90% plaque reduction; 0 = <16.

Cross-neutralization tests (plaque method) using Nique virus and hyperimmune serum (homologous titer = 128) were done against each of the following viruses and specific antisera with negative results: SFN, SFS, CHG, GF, RVF, ITP, KAR, ANH, BUJ, AMT, BUE, SAL, ITA, GOR, SAF, SAL, URU, TUA, FRI, CAI, CHI, CAC, and CHV [1] , [2] .
In addition, see References [4] , [5] .

Section VI - Biologic Characteristics

Virus Source (all VERTEBRATE isolates)
heart (LV), skeletal muscle (LV)

Lab Methods of Virus Recovery (ALL ISOLATIONS)
Vero cell cultures, 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)	Vero 2, HB 1, MB 1				5	1-2 mm	5.8*		

* 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 panamensis	1/12		Darien Prov., Panama
Lutzomyia trapidoi (males)	0/197		
Lutzomyia trapidoi (females)	0/1,257		
Lutzomyia sp. (both sexes)	0/252,512		Panama Prov., Panama

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)	(N-9c)	ic	Death	7.5	5.0
Mice (nb)	Vero2, HB1, MB1	ip			
Mice (nb)		sc			
Mice (wn)		ic			
Mice (wn)		ip			
hamster (nb)		ic 0.02	Death	9.3	
hamster (wn)		sc 0.1	Survival and 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
Nique virus did not multiply or survive in Aedes albopictus or Culex quinquefasciatus after inoculation (3).									

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. 1975. Am. J. Trop. Med. and Hyg. 24:135-144.
2. Tesh, R.B. Unpublished data.
3. Tesh, R.B 1975. J. Med. Ent. 12:1-4.
4. Tesh, R.B., et al. 1982. Am. J. Trop. Med. Hyg. 31:149-155.
5. Travassos da Rosa, A.P.A., et al. 1983. Ibid. 32:1164-1171.

Remarks