Virus Name: Guanarito	Abbreviation: GTOV

Status
Not Arbovirus

Select Agent
Yes

SALS Level

SALS Basis

Other Information
DOC Permit Required

Antigenic Group
Tacaribe

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation
INH-95551

Accession Number

Original Date Submitted
8/28/1993

Family
Arenavirus

Genus

Information From
Robert B. Tesh

Address
Yale Arbovirus Res. Unit, Yale Med. School, New Haven, CT

Information Footnote

Section II - Original Source

Isolated By (name)
Dr. Rosalba Salas, Inst. Nacional de Salud

Isolated at Institute
Caracas, Venezuela

Host Genus
human

Species

Host Age/Stage
20 years

Sex
Male

Isolated From	Isolation Details
Organs/Tissues	**spleen**

Signs and Symptoms of Illness
hemorrhagic fever

Arthropod

Time Held Alive before Inoculation

Collection Method
autopsy

Collection Date
11/29/1990

Place Collected (Minimum of City, State, Country)
hospital in Guanare

Latitude
8° 44' N

Longitude
68° 56' W

Macrohabitat
patient resided in La Trinidad, Portuguesa State, Venezuela (1)

Microhabitat
savannah

Method of Storage until Inoculated
-70dC

Footnotes

Section III - Method of Isolation

Inoculation Date
12/1/1990

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)	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	Control Titer

Other (formalin, radiation)

Virion Morphology

Shape **oval, pleomorphic**	Dimensions **70 - 280 nm**
Mean nm	Range nm
Measurement Method	Surface Projections/Envelope **yes**

Nucleocapsid Dimensions, Symmetry

Morphogenesis

Site of Constituent Formation in Cell **internal electron-dense granules resembling ribosomes**	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		
Footnotes		

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

Using hyperimmune mouse ascitic fluids as well as hamster and guinea pig immune sera, Guanarito virus shows varying degrees of relationship to Junin, Machupo, Tacaribe, Amapari, Latino, Parana, Tamiami, Flexal, Pichinde, Sabia and LCM viruses by complement-fixation and immunofluorescent tests [1] . Guanarito antigen did not react with polyvalent group A, B, C, VSV, California grouping reagents.
By cross-neutralization tests, Guanarito is distinct from Junin, Machupo, Lassa, Flexal, Amapari, Tacaribe, Sabia and LCM viruses [1] .

Results of cross-neutralization tests with Guanarito and 7 other arenaviruses

Source and Specificity of Antibody		LNI * of Antiserum against virus							
Species	Virus	GNT	JUN	MAC	LAS	LCM	FLE	AMA	TCR
HMAF	Guanarito	2.6	0.2	0.0	0.1	0.0	0.1	0.0	0.0
Human (IgG)	Junin	0.0	2.2	0.1	0.1	0.0	0.1	0.0	0.0
GP (d31)	Junin	0.2	2.7	0.2	0.3	0.0	0.0	0.0	0.0
Monkey	Machupo	0.1	2.5	>3.9	0.1	0.0	0.1	0.0	0.0
Human (IgG)	Lassa	0.0	0.0	0.0	3.2	0.0	0.0	0.0	0.0
GP (d31)	LCM (Arm)	0.1	0.2	0.2	0.3	1.3	0.1	0.0	0.0
GP (d273)	LCM (Arm/WE)	0.0	0.1	0.1	0.1	3.7	0.1	0.0	0.0
MAF	Flexal	0.0	0.0	0.0	0.1	0.0	0.2	0.0	1.1
MAF	Amapari	0.0	0.1	0.0	0.1	0.0	0.0	1.5	0.0
HMAF	Tacaribe	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3

* Log/10\ neutralization index.

GNT=Guanarito, JUN=Junin, MAC=Machupo, LAS=Lassa, LCM=lymphocytic choriomeningitis, FLE=Flexal, AMA=Amapari, TCR=Tacaribe.
HMAF=hyperimmune mouse ascitic fluids (4 injections); GP(d31)=guinea pig (day 31 post-infection); GP)d2730=guinea pig (day 273 post-infection); MAF=mouse immune ascitic fluid (1 injection).

Section VI - Biologic Characteristics

Virus Source (all VERTEBRATE isolates)
blood, spleen & liver (man); spleen (LV), blood (LV)

Lab Methods of Virus Recovery (ALL ISOLATIONS)
vero and RD cells, 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)		8-10	little					
Aedes albopictus (CL)			-					-

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 alstoni	19/40	2/39 (IFA)	Guanarito, Portuguesa, Venezuela (2)
Zygodontomys brevicauda	12/106	15/100	"
Oligoryzomys fulvescens	0/22	2/21	"
Helochilus brasiliensis	0/3	0/3	"
Heteromys anomalus	0/1	0/1	"
Oecomys flavicans	0/1	0/1	"
Oecomys speciosus	0/2	0/2	"
Proechimys guairae	0/25	1/24	"
Rattus rattus	0/34	2/32	"
Marmosa robinsoni	0/16	-	"
Didelphis marsupialis	0/2	-	"
humans	12/>30	5/195	Venezuela (2, 3)

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)	INH-95551	ic	runting, paralysis, death (1)	>11	
"" (nb)		ip			
"" (nb)		sc			
"" (wn)		ic			
"" (wn)		ip			
"" (adult)	""	ip	antibody		
guinea pig (adult)	""	sc (10^3.4)	hemorrhage and death (4)	11-14	
rheusus monkey (adult)	""	sc (10^3.4)	viremia and anitbody (1)		<0.7-2.6 PFU

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

Section X - Histopathology

Character of lesions (specify host)
edema, focal hemorrhages, congestion

Inclusion Bodies — Intranuclear

Organs/Tissues Affected
lungs, liver, spleen, brain, heart gil tract (3)

Category of tropism

Section XI - Human Disease

In Nature
Significant

Residual

Death
Significant

Subclinical

Overt Disease

Clinical Manifestations
fever, chills, headache, myalgia, prostration, nausea, vomiting, sore throat, convulsions, leukopenia, hemorrhagic manifestations, thrombocytopenia (3); 36% mortality rate

Number of Cases

Category (i.e. febrile illness, etc.)

Section XII - Geographic Distribution

Known (Virus detected)
southern part of Portuguesa and adjacent areas of Barinas states)

Suspected (Antibody only detected)

Section XIII - References

1. Tesh, R.B., et al. 1994. Am. J. Trop. Med. Hyg. 50:452-459.
2. Tesh, R.B., et al. 1993. Am. J. Trop. Med. Hyg. 49:227-235.
3. Salas, R., et al. 1991. Lancet 338:1033-1036.
4. Geisbert, T.W., et al. 1993. Vet. Pathol. (submitted).

Remarks