Virus Name: Oropouche		Abbreviation: OROV
Status **Probable Arbovirus**	Select Agent **No**	SALS Level **3**

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

Other Information
DOC Permit Required, Hepa Filtration

Antigenic Group
Simbu

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation
TRVL 9760

Accession Number

Original Date Submitted
1/24/1985

Family
Bunyaviridae

Genus
Bunyavirus

Information From
Trinidad Regional Virus Laboratory

Address
P.O. Box 164, Port of Spain, Trinidad

Information Footnote
Reviewed by editor

Section II - Original Source

Isolated By (name)
TRVL (1)

Isolated at Institute
Port of Spain, Trinidad

Host Genus
Man

Species

Host Age/Stage
24 years

Sex
Male

Isolated From

Isolation Details

Signs and Symptoms of Illness
Fever, backache, 1 day cough (malaria parasites scanty on blood smear)

Arthropod

Time Held Alive before Inoculation

Collection Method
Venipuncture

Collection Date
9/26/1955

Place Collected (Minimum of City, State, Country)
Health Unit, Sangre Grande, Trinidad

Latitude
10° 38' N

Longitude
61° 3' W

Macrohabitat
Charcoal burner, Melajo Forest, Northeast Trinidad

Microhabitat
Evergreen seasonal forest, Koppen Af type, at sea level

Method of Storage until Inoculated
Wet ice

Footnotes

Section III - Method of Isolation

Inoculation Date
9/26/1955

Animal (Details will be in Section 6)
nb mice

Route Inoculated
Intracerebral

Reisolation
Yes

Other Reasons

Homologous Antibody Formation by Source Animal
Yes

Test(s) Used
NT

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)	After Treatment Titer **4.3 dex**	Control Titer **7.4 dex**

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	**SMB ext. by sucrose-acetone + sonication, trypsin**	**Goose**
pH Range	pH Optimum	
	5.8	
Temperature Range	Temperature Optimum	
4dC, 22dC, 37dC	**22dC**	

Remarks

Serologic Methods Recommended
CF, NT

Footnotes

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

Oropouche virus (TRVL 9760) has been placed in the Simbu group. For relation to other members of this group see following table taken from results obtained by the Rockefeller Foundation Virus Laboratory.(By permission of the Director).

By CF Method

Antigens	Sera						
	SIM	ORO	ORO (BeAn 19991)	SAT	Akabane	MAN	ING
Simbu (SAAr 53)	64/256+	0/0	4/128+	64/128+	16/128+	0/0	0/0
Oropouche (TRVL 9760)	4/64	64/128	256/128	32/128+	8/64	0/0	4/32
Oropouche (BeAn 19991)	4/128+	64/256+	256/256+	16/128+	4/128+	4/128+	4/64
Sathuperi (IG 11155)	16/128+	0/0	4/128	256+/256+	32/128+	0/0	0/0
Akabane	16/128+	0/0	0/0	64/128+	128/256+	0/0	0/0
Manzanilla (TRVL 3587)	0/0	0/0	4/128+	0/0	0/0	128/256+	128+/256+
Ingwavuma (SAAn 4165)	0/0	0/0	4/128+	0/0	0/0	128/256+	256/256+

For list of viruses not in the Simbu group with which it has been compared, see Reference [1] . The viruses listed in previous registration are included in Reference [1] .
Oropouche virus was antigenically classified as a distinct virus type and placed within the Oropouche complex of the Simbu serogroup [11] , [12] .

Section VI - Biologic Characteristics

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

Lab Methods of Virus Recovery (ALL ISOLATIONS)
Newborn and weanling mice; primary chick embryo and monkey kidney cell culture

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)	
Hamster kidney (CL)	MB 8	4	CPE	4.8**					
Mouse embryo (PC)	MB 2	3	CPE	>4.5					
MK (PC)						Plaques	5.9**		
Chick embryo(PC) BeAn 19991						Plaques (6)			
Vero (CL)	P-5				3	4 mm	6.8 (13)		
LLC-MK2 (CL)					3	8 mm	6.5 (13)		

** 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	1/2,800	3/69 NT	Trinidad
Man		98/507 NT	Belem, Brazil (3)
Man	127		Para, Brazil (3, 4)
Cebus (monkey)	0/26	8/26 NT	Trinidad
Alouatta (monkey)	0/79	9/26 NT	
Cebus and Ateles (monkey)		6/22 NT	Magdalena Valley, Colombia
Bradypus tridactylus	1/45		Brasilia Highway, Brazil (4)
Birds	0/3,000		Trinidad
Small rodents	0/1,000		
Mansonia venezuelensis	1		Bush Bush Forest, Trinidad
Aedes serratus	1		Brasilia Highway, Brazil (4)
Culex quinquefasciatus	3		Para, Brazil (4)
Culicoides paranensis	2		Brazil (10)
Birds, domestic		12/206 HI	Brazil (14)
Birds, wild		34/681 HI	
Rodents		1/80 HI	

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)	SMB 11	ic 0.02	Illness, death	2-6	7.0
Mice (nb)		ip 0.03	Illness, death	2-7	5.0
Mice (nb)		sc			
Mice (wn)		ic 0.03	Illness, death	2-6	6.0
Mice (wn)		ip 0.2	No illness		
chick emb.(7 day)	SMB 9	ys 0.5	Death	3-5	7.0
chick emb. (10 day)		am.s. 0.1	No deaths; virus persists for several days		
Cebus albifrons trin.		ip 1,000 LD50	Viremia		
guinea pigs (ad)	SMB 7	ic 0.05	Paralysis (virus in brain)		
guinea pigs (ad)		ip 0.5	No illness		
hamsters (ad)		ic 0.05	Death (virus in brain)	3-4	4.6
hamsters		ip 0.5	Death	3-4	

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 and Anopheles quadrimaculatus: Virus passaged five times through salivary glands(7).

Culicoides paranensis were capable of biol. transmission of the virus 4-9 days post-feeding on viremia hamsters. No evidence of mechanical transmission of ORO virus by C. paranensis was obtained (8).

Aedes scapularis, Ae serratus, Culex quinquefasciatus and Psorophora ferox: multiplication of virus demonstrated after parenteral inoculation (1).

ORO virus transmitted from viremic man to hamsters by bite of C. paranensis. Threshold dose was approximately 5.3 dex LD50/ml blood. Transmission 6-12 days after C. paranensis took blood meal (9).

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
Significant

Subclinical — Overt Disease
Reported

Clinical Manifestations
Fever, headache, prostration, myalgia, arthralgia, CNS signs (including encephalitis), hemorrhagic signs, leukopenia

Number of Cases
Hundreds

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

Section XII - Geographic Distribution

Known (Virus detected)
Trinidad; Brazil

Suspected (Antibody only detected)
Colombia

Section XIII - References

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Remarks