

Virus Name: Estero Real		Abbreviation: ERV
Status Possible Arbovirus	Select Agent No	SALS Level 3
SALS Basis Insufficient experience with virus; i.e., experience factor from SALS surveys was less than 500 in laboratory facilities with low biocontainment.		
Other Information		
Antigenic Group Ungrouped		

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation K 329	Accession Number	Original Date Submitted 4/30/1985
Family Not listed	Genus Not listed	
Information From D. Malkova	Address Inst. Parasit., Czech. Acad. of Sciences, 166 32 Prague 6, Flemingovo NAM 2, Czechoslovakia	
Information Footnote Reviewed by editor		

Section II - Original Source

Isolated By (name) D. Malkova	Isolated at Institute Prague, Czech.	
Host Genus Ornithodoros tadaridae (pool of 40 ticks)	Species	Host Age/Stage Nymph
Sex Not Answered		
<u>Isolated From</u>	<u>Isolation Details</u>	
Signs and Symptoms of Illness	Arthropod Engorged	
Time Held Alive before Inoculation 3 days		
Collection Method Manual collection off leaves	Collection Date 4/26/1980	
Place Collected (Minimum of City, State, Country) EI Estero Real, Sancti Spiritus, Cuba		
Latitude 22° 20' N	Longitude 79° 4' W	
Macrohabitat Palm forest	Microhabitat Leaves of the head of a palm	Method of Storage until Inoculated Held alive
Footnotes		

Morphogenesis

Site of Constituent Formation in Cell Site of Virion Assembly Site of Virion Accumulation

Inclusion Bodies Other

Hemagglutination

Hemagglutination Antigen Source Erythrocytes (species used)
No **SMB ext. with sucrose-acetone** **Sheep**

pH Range pH Optimum
6.0-6.8

Temperature Range Temperature Optimum
37dC

Remarks
*** Virus multiplication not inhibited by BUDR, 50 mcg/ml or actinomycin D, 0.2 mcg/ml.**

Serologic Methods Recommended
NT, CF, IFA

Footnotes
*** Virus multiplication not inhibited by BUDR, 50 mcg/ml or actinomycin D, 0.2 mcg/ml.**

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

Using IFA, NT, and PRNT, a relationship to the following tick-borne viruses was excluded: Hughes, Soldado, Wad Medani, Sawgrass and African swine fever, all of which occur in the Carribean area. Other tick-borne viruses which were negative included Powassan, Eyach, TBE, and Tribec. In addition, Estero Real virus was not related to the following mosquito-borne viruses: Group A (WEE, VEE, EEE, chikungunya, Sindbis), Group B (WN, SLE, dengue 1 - 4, and YF), California group (Tahyna), mouse rabies and Tettnang (MHV related) viruses.

Using the CF method [1] no reaction was detected with MAF for the following: (Grouping) Bunyamwera, Kemerovo, Quaranfil, Polyvalent rabies, etc. (rabies, LCM, NDV, herpes, and vaccinia), and Tacaribe, Polyvalent 1 (Bahig, Tete, Matruh, Matariya, EgAn 1398-61, Burg el Arab), Polyvalent 2 (Jurona, Minatitlan, MARU 11079, Gamboa, BeAn 141106), Polyvalent 3 (Koongol, Wongal, Bakau, Ketapang, Mapputta, Trubanaman, Maprik), Polyvalent 4 (Nyamanini, Uukuniemi, Grand Arbaud, Thogoto), Polyvalent 5 (Hughes, Soldado, Sawgrass, Matucare, Lone Star), Polyvalent 6 (Marco, Chaco, Timbo, Pacui), Polyvalent 7 (Hart Park, Flanders, Kern Canyon, Klamath, Mt. Elgon bat), Polyvalent 8 (epizootic hemorrhagic disease of deer, Changuinola, Irituia, Colorado tick fever, bluetongue, IbAr 22619), Polyvalent 9 (Navarro, Trinita, Aruac, Pacora), Polyvalent 10 (Upolu, Dera Ghazi Khan, Wanowrie, Dhor), Polyvalent 12 (Okola, Olifantsvlei, Witwatersrand, Bobia, Tataguine). Estero Real virus also was unrelated by CF to the following individual viruses: Avalon, Aransas Bay, Colorado tick fever, Bauline, Great Island, Hughes, Huacho, Matucare, Mono Lake, Lone Star, New Minto, Powassan, Punta Salinas, Sakhalin, Sawgrass, Silverwater, Sixgun City, Soldado, Sunday Canyon, Tyuleniy, Uukuniemi, Wad Medani and Yaquina Head [1].

Estero Real virus is related by IFA and CF to Abras virus and by CF to Zegla virus, both of the Patois antigenic group [2].

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)	
PS (CL)			No CPE			No plaques		+
CV-1 (CL)		2	3+	5.3*		1-2 mm	6.4*	
Vero (CL)		2	2+	4.6		Minute	>5.0	
LLC-MK2 (CL)		3	1+	3.2		Barely visible plaques		
BHK-21 (CL)		3	No CPE			No plaques		+
LB (CL)			No CPE			No plaques		-
HeLa (CL)			No CPE			No plaques		-
XTC-2 (CL)		3	2+	5.2		Minute	>5.0	
Chick embryo (PC)			No CPE			No plaques		-

* 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
Ornithodoros tadaridae	8/12 pools		Sancti Spiritus, Cuba

Experimental host and age	Passage history and strain	Inoculation Route-Dose	Evidence of infection	AST (days)	Titer log ₁₀ /ml	
Mice (nb)	K 329	ic	Sickness, death		6.2-7.0	
Mice (nb)		ip	Sickness, death		2.1-2.6	
Mice (nb)		sc				
Mice (wn)		ic	Negative			
Mice (wn)		ip				
™ (ad)		ic	Negative			
™ (ad)		ip	Negative			
™ (ad)		sc	Negative			
hamsters (nb)		ic	Negative			
™ (nb)		ip	Negative			
™ (nb)		sc	Negative			
1-2 day chicks		ic	Negative			
™™™™		ip	Negative			
™™™™		sc	Negative			
embryonated chick eggs		CAC	Survival, but mult. in embryo			
		am.s.	Survival, but mult. in embryo			
	ys	Death following mult.in yolk sac and embryo			3-4	

Section IX - Experimental Arthropod Infection and Transmission

Arthropod species & virus source(a)	Method of Infection log ₁₀ /ml (b)		Incubation period (c)		Transmission by bite (d)		Assay of arthropod, log ₁₀ /ml (e)		
	Feeding	Injected	Days	°C	Host	Ratio	Whole	Organ	System

Section X - Histopathology

Character of lesions (specify host)

Mouse: encephalitis. No changes in lungs, liver, spleen, kidney, and myocardium.

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)

Cuba

Suspected (Antibody only detected)

Section XIII - References

1. Calisher, C.H., et al. 1983. Personal communication.
2. Zeller, H. et al. 1989. II. Arch. Virol. Submitted.

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