

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

**SECTION I - Full Virus Name and Prototype Number**

Prototype Strain Number / Designation <b>BFN 3187</b>	Accession Number	Original Date Submitted <b>9/7/1984</b>
Family <b>Rhabdoviridae</b>	Genus <b>Not listed</b>	
Information From <b>Robert P. Scrivani</b>	Address <b>Arbovirus Research Laboratory, School of Public Health, University of California, Berkeley</b>	
Information Footnote <b>Reviewed by editor</b>		

**Section II - Original Source**

Isolated By (name) <b>Dr. W.C. Reeves</b>	Isolated at Institute <b>Berkeley, California</b>	
Host Genus <b>Culex tarsalis, pool of 36</b>	Species	Host Age/Stage <b>Adult</b>
Sex <b>Female</b>		
<u>Isolated From</u>	<u>Isolation Details</u>	
Signs and Symptoms of Illness	Arthropod	
Time Held Alive before Inoculation		
Collection Method <b>CO2 bait trap</b>	Collection Date <b>8/4/1971</b>	
Place Collected (Minimum of City, State, Country) <b>Gray Lodge Wildlife Area, Butte Co., California</b>		
Latitude <b>39° N</b>	Longitude <b>122° W</b>	
Macrohabitat <b>Agricultural and riparian habitat adjacent to Sacramento River</b>	Microhabitat <b>Tule swamp and barley field</b>	Method of Storage until Inoculated <b>Revco storage at -70dC</b>
Footnotes		



**Morphogenesis**

Site of Constituent Formation in Cell

Site of Virion Assembly

Site of Virion Accumulation

Inclusion Bodies

Other

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**Hemagglutination**

Hemagglutination

Antigen Source

Erythrocytes (species used)

No

SMB, Vero cell cultures

Goose

pH Range

pH Optimum

5.8-7.0

Temperature Range

Temperature Optimum

Remarks

\* Replication not inhibited by 5-bromodeoxyuridine.

Serologic Methods Recommended

CF, NT, IFA

Footnotes

\* Replication not inhibited by 5-bromodeoxyuridine.

Complement fixation and plaque-reduction neutralization test results with Gray Lodge viral antigen and antibody to some rhabdoviruses:

Antibody <sup>a</sup>	Complement fixation	Plaque-reduction neutralization
Gray Lodge	16 <sup>b</sup>	160 <sup>b</sup>
Hart Park (AR70)	< 8	< 5
Hart Park (V4038) <sup>c</sup>	16	5
Flanders (R11987) <sup>d</sup>	< 8	< 5
Flanders (63V162) <sup>e</sup>	16	5
Grouping Ascitic Fluids <sup>f</sup>		
Ployvalent 7	< 8	< 5
Polyvalent Rabies	< 8	< 5
Group VSV	< 8	< 5

<sup>a</sup> Hyperimmune mouse sera or ascitic fluid

<sup>b</sup> Reciprocal of highest antibody dilution giving 3+ to 4+ complement-fixation or 80% reduction of a viral challenge of 60-70 PFU

<sup>c</sup> Obtained from Dr. R. Emmons, California State Dept. of Public Health

<sup>d</sup> Obtained from Dr. R. Shope, YARU

<sup>e</sup> Obtained from CDC, Fort Collins, Colorado

<sup>f</sup> Reference grouping rhabdoviral ascitic fluids obtained from NIAID.

No inhibition by BFN 3187 hyperimmune mouse serum (HIMS) of hemagglutination with WEE, SLE, POW, MOD, RB, CE, LOK, MD, BUT TUR, and VEE antigens. No indirect fluorescent antibody (IFA) was observed between BFN 3187 infected Vero cells and 1:5 dilutions of polyvalent grouping mouse ascitic fluids for Group C, Group Guama, Group Simbu, Group VSV, Group Bunyamwera, Group California, Group Tacaribe, Group Phlebotomus fever, Group A, Polyvalent Quarantil, Polyvalent Anopheles A, Polyvalent Bwamba, Polyvalent Patois, Group Capim, Group B, Polyvalent 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, and Polyvalent Rabies. Plaque-reduction neutralization tests with BFN 3187 antigen against the above polyvalent grouping fluids were also negative (BFN 3187 homologous titer was 160). By CF test, BFN 3187 antigen did not react with polyvalent grouping fluids for Group VSV, Polyvalent Rabies, and Polyvalent 7, whereas the homologous reaction with HIMS was 16. BFN 3187 antigen reacted at low titers [16] with HIMS to 2 of 4 Hart Park/Flanders viral strains in CF tests where homologous titers to Hart Park/Flanders strains ranged from 250 to <1024.

Since registration of Gray Lodge virus, it was tested by by CF against 36 other known rhabdoviruses, including members of the Hart Park serogroup, and it did not cross-react with any of the other rhabdoviruses [2]. Subsequently, antibody to Gray Lodge virus was tested against 50 known rhabdo- viruses without any evidence of cross-reaction [3]. On the basis of these studies, Gray Lodge virus was omitted from the Hart Park serogroup (ed.).

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 +/- (g)
		Day (c)	Extent (d)	Titer TC50/ml (e)	Day (c)	Size (f)	Titer PFU/ml (e)	
Vero (CL)	P19	3	4+	7.5(h)	3	2-3 mm	7.2(h)	
Duck embryo (g) (PC)	P3				4	< 1 mm	1.0	
Cx tarsalis (CL)	P19							-
Ae dorsalis (CL)								+
PS-Y-15(CL)					3	2-3 mm	5.8	
BHK-21 (CL)		2	CPE	7.2 (4)				
Vero (CL)		3	CPE	6.7 (4)				
E6 (CL)		3	CPE	6.0 (4)				
CER (CL)		2	+ -	5.0 (4)				+
C6/36 (CL)								- (4)
Vero (CL)					4	Plaques (4)		

(g) Passage of infected duck embryo cell cultures resulted in loss of virus as assayed by plaquing in Vero cell cultures.

(h) 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
Culex tarsalis	1/thousands		Central Valley, California, U.S.A.

None from thousands of samples of other mosquito species, wild avian and mammalian bloods collected in the Central Valley of California.

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 log <sub>10</sub> /ml
Mice (nb)	Vero P18	ic 0.01	Asymptomatic in mice		5.0*
Mice (nb)		sc 0.03	None		
Mice (wn)		ic 0.10	Antibody after 2-4 injections		
Mice (wn)		ip	7 days apart, but not after 1 injection—no viremia		
rabbits	Vero P19; 3.0 dex	sc 0.10	None		
hamsters		sc 0.10	None		
guinea pigs		sc 0.01	None		
1-week old chicks		sc 0.10	None		

\* Virus titer in brain tissue; brain suspension gave CPE in Vero cell cultures 3 and 4 days post inoculation.

**Section IX - Experimental Arthropod Infection and Transmission**

Arthropod species & virus source(a)	Method of Infection log10/ml (b)		Incubation period (c)		Transmission by bite (d)		Assay of arthropod, log10/ml (e)		
	Feeding	Injected	Days	°C	Host	Ratio	Whole	Organ	System
Culex tarsalis; Vero P21		5.7	10	26	Drop of blood(1)	5/21	<1.0 day 1 to 4.7 day 10		Vero CC
			7						
Culex tarsalis; Vero P21		7.0	14	26	Drop of blood(1)	2/17			Vero CC
			21						
Culex tarsalis; Vero P21	7.0		13,21	26	Drop of blood(1)		Neg.		Vero CC
Aedes dorsalis; Vero P21		6.0	12	26		2/4	>3.0		Vero CC

**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)  
**Central Valley, California, USA**

Suspected (Antibody only detected)

**Section XIII - References**

1. Gubler, D.J. and Rosen, L. 1976. Am. J. Trop. Med. Hyg. 25:146-150.
2. Frazier, C.L. and Shope, R.E. Personal communication.
3. Tesh, R., et al. 1983. J. Gen. Virol. 64:169-176.
4. Kerschner, J. Personal communication. 1983.

**Remarks**