Virus Name: Hart Park	Abbreviation: HPV

Status
Probable Arbovirus

Select Agent
No

SALS Level
2

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

Other Information

Antigenic Group
Hart Park

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation
Ar70

Accession Number

Original Date Submitted
2/6/1985

Family
Rhabdoviridae

Genus
Not listed

Information From
Harald N. Johnson

Address
California State Health Department, Viral and Rickettsial Disease Laboratory

Information Footnote
Reviewed by editor

Section II - Original Source

Isolated By (name)
Harald N. Johnson (2)

Isolated at Institute
Berkeley, California

Host Genus
Culex tarsalis (pool of 56)

Species

Host Age/Stage
Adult

Sex
Female

Isolated From

Isolation Details

Signs and Symptoms of Illness

Arthropod
Depleted

Time Held Alive before Inoculation

Collection Method
Hand collection with aspirator

Collection Date
8/5/1955

Place Collected (Minimum of City, State, Country)
Hart Park, Kern County, California, USA

Latitude
35° N

Longitude
119° W

Macrohabitat
Public park on Kern River, irrigated grassland and trees

Microhabitat
Natural resting places in park buildings

Method of Storage until Inoculated
Sealed glass tubes stored in dry ice chest

Footnotes

Section III - Method of Isolation

Inoculation Date
12/28/1955

Animal (Details will be in Section 6)
nb mice

Route Inoculated
Intracerebral

Reisolation
Not tried

Other Reasons

Homologous Antibody Formation by Source Animal

Test(s) Used

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	Control Titer

Other (formalin, radiation)

Virion Morphology

Shape
Bullet-shaped (3)

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 **Yes**	Antigen Source **SMB ext. by sucrose-acetone**	Erythrocytes (species used) **Goose**
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

Hart Park virus antigen: Failed to react in the CF test with the following mouse hyperimmune sera: Akabane, Junin, Bunyamwera, Ilesha, California, AR 8226, Piry, Acara, Pacui, Irituia, Mossuril, Ingwavuma, Palyam, Wongal, Mapputa, Witwatersrand, Tacaribe, Tete, Ganjam, Maguari, Germiston, Sororoca, Icoaraci, Tacaiuma, Wanowrie, Lumbo, Nyamaninni, Lukuni, Triniti, Aruac, Oropouche, Sathuperi, Ketapang, Bakau, Navarro, Manzanilla, Simbu, Chenuda, Quaranfil, Cocal, Candiru, Minnal, Nyando, Jurona, Pongola, Nodamura, Lebombo, Wad Medani, AR671, Batai, Melao, Guaroa, trivittatus, Tahyna, SF Naples, SF Sicilian, VSNJ, LCM, VSI, AN32260, Anopheles A, Anopheles B, CTF, AN114, Kern Canyon, Tsuruse, K622, Group A, Group B, Group C, Group Guama, Capim group, California group, Simbu group, Triniti, Sororoco 1, NJ deer, SE65, SE493, Lunyo [4] , [5] .
Hart Park virus hyperimmune serum: Failed to react in the CF test with GD7 mouse polio antigen [6] .

Hart Park hyperimmune serum: Failed to react in the HI test with the following HA antigens: Akabane, Bwamba, SF Naples, Ingwavuma, Tacaiuma, Guama, Icoaraci, Bakau, Ketapang, Sathuperi, Ndumu, dengue 2, Oriboca, Caraparu, Maguari, Germiston, Witwatersrand, Turlock, Umbre, Manzanilla, EEE, VEE, WEE, Mayaro, Aura, Una, Bunyamwera, Ilesha, Guaroa, Tahyna, California [4] , [5] .
Hart Park virus is closely related to Flanders; they may be strains of the same virus, or both members of the Hart Park complex [1] .
Prototype strains of Hart Park (Ar 70) and Flanders (61-7484) antigenically related but different from each other in CF, NT and double-diffusion tests [14] .

Section VI - Biologic Characteristics

Virus Source (all VERTEBRATE isolates)
Blood (LV), pancreas (LV), spleen-heart-kidney-pancreas pool (LV), spleen-heart-kidney-lung pool (LV)

Lab Methods of Virus Recovery (ALL ISOLATIONS)
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)	
LLC-MK2 (CL)	P-29					No plaques (12)			
Vero (CL)					4	1 mm	5.7* (12)		
BHK-21 (CL)		3	No CPE	3.8* (15)					
Vero (CL)			No CPE					- (15)	
E6 (CL)			No CPE					- (15)	
PS (CL)			No CPE					- (15)	
CER (CL)			No CPE					- (15)	
C6/36 (CL)			No CPE					- (15)	
Vero (CL)					7	Plaques (15)			

Virus did not multiply in HeLa, hamster kidney, human diploid, calf kidney or chick embryo tissue culture (7).

* 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	10		California; 1955-60(7)
Cx tarsalis	8		Utah; 1967 (13)
Cx tarsalis	2		Texas; 1961 (8)
Cx tarsalis	31		Texas; 1963 (10)
Cx restuans	1		New Jersey; 1960 (9)
Cx restuans	1		Alabama; 1960 (9)
Cx nigripalpus	1		Florida; 1961 (9)
Cx pipiens	1		New York; 1961 (8)
Culiseta melanura	2		Alabama; 1960 and 1962 (9)
Culiseta melanura	1		New Jersey; 1960 (9)
Culiseta melanura	5		New York; 1961-1962 (8)
Culiseta melanura	30		Georgia; 1963 (9)
Xanthocephalus xantho (bird)	1		California; 1957 (7)
Passer domesticus (bird)	2		
Agelaius tricolor (bird)	1		California; 1960 (7)
Carpodacus mexicanus (bird)	1		California; 1961 (7)
Seiurus aurocapillus (bird)	1		New York; 1961 (8)

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)	SM 15	ic 0.015	Illness and death	4	6
Mice (nb)		ip 0.015	None		
Mice (nb)		sc			
Mice (wn)		ic 0.015	None		
Mice (wn)		ip			
chick embryos		al.c. 0.1	Virus positive		
1/2 day chicks			None; no viremia (9)		
rabbits			None; no viremia (9)		
guinea pigs			None; no viremia (9)		

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
Virus could be maintained for six passages in Aedes aegypti inoculated intrathoracically by passing infected salivary glands (11).									

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)
California, Texas, Illinois, Alabama, Georgia, Florida, New Jersey, New York, Utah, USA

Suspected (Antibody only detected)

Section XIII - References

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Remarks