Virus Name: Grand Arbaud	Abbreviation: GAV

Status
Arbovirus

Select Agent
No

SALS Level
2

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

Other Information

Antigenic Group
Uukuniemi

SECTION I - Full Virus Name and Prototype Number

Prototype Strain Number / Designation
Argas 2

Accession Number

Original Date Submitted
10/24/1984

Family
Bunyaviridae

Genus
Uukivirus

Information From
C. Hannoun

Address
Laboratoire des Arbovirus, Institut Pasteur, Paris 15, France

Information Footnote
Reviewed by editor

Section II - Original Source

Isolated By (name)
C. Hannoun et al.

Isolated at Institute
Paris, France (1)

Host Genus
Argas reflexus (pool of 20)

Species

Host Age/Stage
Adult

Sex
Female

Isolated From

Isolation Details

Signs and Symptoms of Illness

Arthropod

Time Held Alive before Inoculation

Collection Method
Collected by hand

Collection Date
1/15/1966

Place Collected (Minimum of City, State, Country)
Grand Arbaud, farm near Gageron, France

Latitude
43° N

Longitude
4° E

Macrohabitat
Camargue, Rhone delta

Microhabitat
Pigeon house, wall crevices

Method of Storage until Inoculated
Held alive in the lab, without feeding, for 5 weeks

Footnotes

Section III - Method of Isolation

Inoculation Date
2/22/1966

Animal (Details will be in Section 6)
nb mice

Route Inoculated
Intracerebral

Reisolation
Yes

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) **1:1000**	After Treatment Titer **<3.0 dex**	Control Titer **>5.0 dex**

Other (formalin, radiation)

Virion Morphology

Shape	Dimensions **50 - 100 nm**	
Mean nm	Range nm	
Measurement Method **Millipore filtration**	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 or 3 flurocarbon extractions**	**Goose**

pH Range	pH Optimum
6.2-6.4	

Temperature Range	Temperature Optimum
RT	

Remarks
Low titer (= 20) and poor pattern of hemagglutination

Serologic Methods Recommended
CF

Footnotes
Low titer (= 20) and poor pattern of hemagglutination

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

HI test: Mouse hyperimmunesera for Grand Arbaud tested against 8 units of each of the following antigens: Sindbis, chikungunya, yellow fever, West Nile, Saint Louis encephalitis, Ntaya, MVE, dengues 1 and 2, CEE, Bunyamwera, Tahyna, Sicilian SF, Naples SF. The serum diluted 1:10 failed to inhibit HA.
CF test: The following hyperimmune sera or ascitic fluids were tested against Grand Arbaud antigen (strain 27) (homologous titer with mouse serum 64/32).* Group A, Group B, Group Bunyamwera, Group Phlebotomus fevers, West Nile, Tahyna, Nyamanini, Chenuda, Quaranfil, Hughes, Kemerovo, CTF, Silverwater, Kaisodi, Thogoto, Manawa, Ganjam, Bhanja, Wanowrie, Dugbe, Farallon, Soldado, Lanjan. All negative at 1:4 dilution.
A mouse hyperimmune serum prepared with Grand Arbaud was tested against the following antigens [2] : Farallon, Chenuda, CTF, Qalyub, Hughes, Dugbe, Ganjam, Bhanja, Wanowrie, Kaisodi, Kemerovo, Johnston Atoll, Nyamanini, Lanjan, Matucare, Manawa, Bakau, Quaranfil, Silverwater, Soldado, Thogoto, Tribec, Uukuniemi and Wad Medani, reovirus 3, mouse polioencephalitis.
The only positive reactions were as follows:

Antigen	Serum	
	Grand Arbaud	Uukuniemi (Potepli)
Grand Arbaud	256+/16+ *	16/16+
Uukuniemi	8/8	256+/16+

* Serum titer/antigen titer

Grand Arbaud is related, but not identical to Uukuniemi [3] and Potepli [4] , and is also related to Ponteves, a virus isolated in the same area.

Section VI - Biologic Characteristics

Virus Source (all VERTEBRATE isolates)

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)	

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
Argas reflexus	7/65 pools		Camargue, Southern France, 1966
	2/32 pools		Camargue, Southern France, 1968

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 5	ic 0.02	Paralysis, death	7	6.0
Mice (nb)		ip			
Mice (nb)		sc			
Mice (wn)		ic 0.03	None		
Mice (wn)		ip			

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
Argas r. reflexus experimentally infected with large doses of virus induced low level of viremia in receptor chickens (5).									

Section X - Histopathology

Character of lesions (specify host)
In the brain of experimentally infected suckling mice: Necrotic foci in the Ammon horn principally and in various parts of encephalon.

Inclusion Bodies — Intranuclear

Organs/Tissues Affected
Brain (LV)

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)
Southern France

Suspected (Antibody only detected)

Section XIII - References

1. Hannoun, C., et al. 1970. Acta Virol. 14:167-170.
2. Casals, J. Personal communication.
3. Oker-Blom, N., et al. 1964. Ann. Med. Exper. Biol. Fenniae 42:109-112.
4. Kolman, J.M., et al. 1966. Acta Virol. 10:171-172.
5. Hannoun, C. and Rau, U. 1970. Folia Parasitol. 17:365-366.

Remarks