

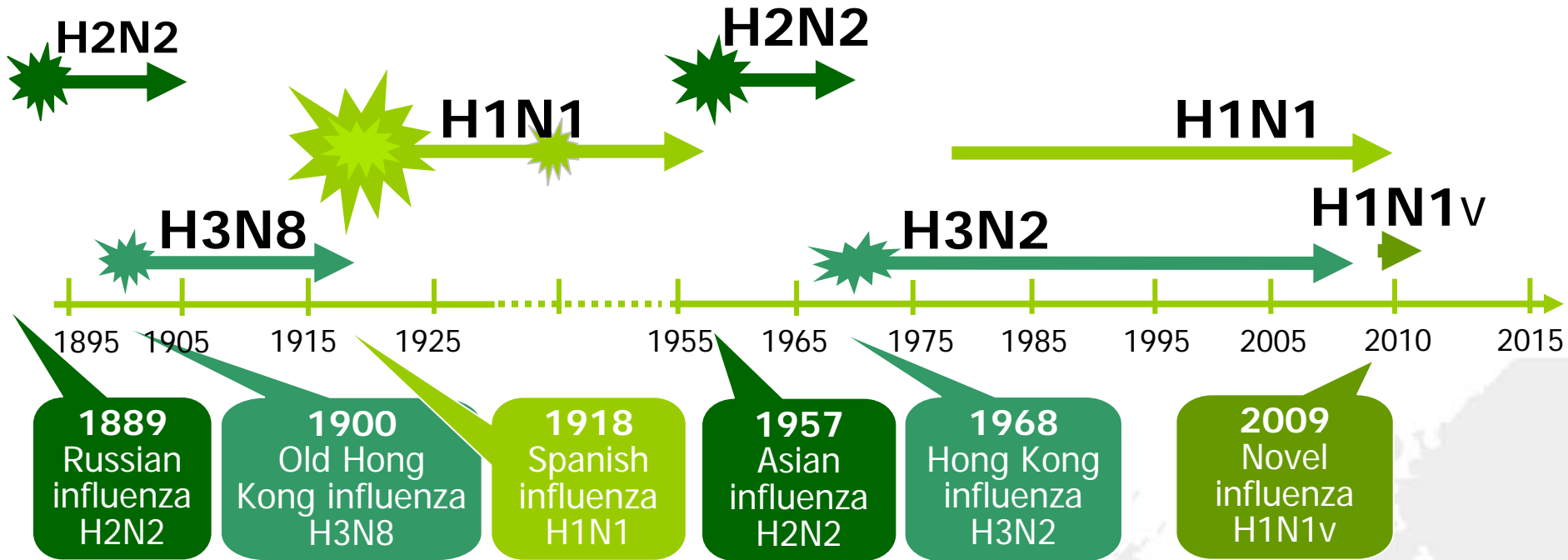
A(H1N1)v : virologie

Bruno LINA

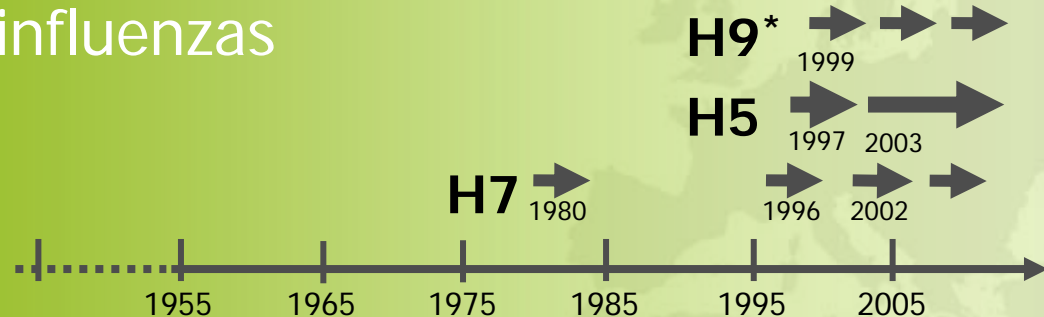
CNR des virus influenza, région sud
Laboratoire de virologie EST, GHE, HCL
FRE 3011 CNRS – UCBL, Lyon

Pandemics of influenza

Recorded human pandemic influenza
(early sub-types inferred)

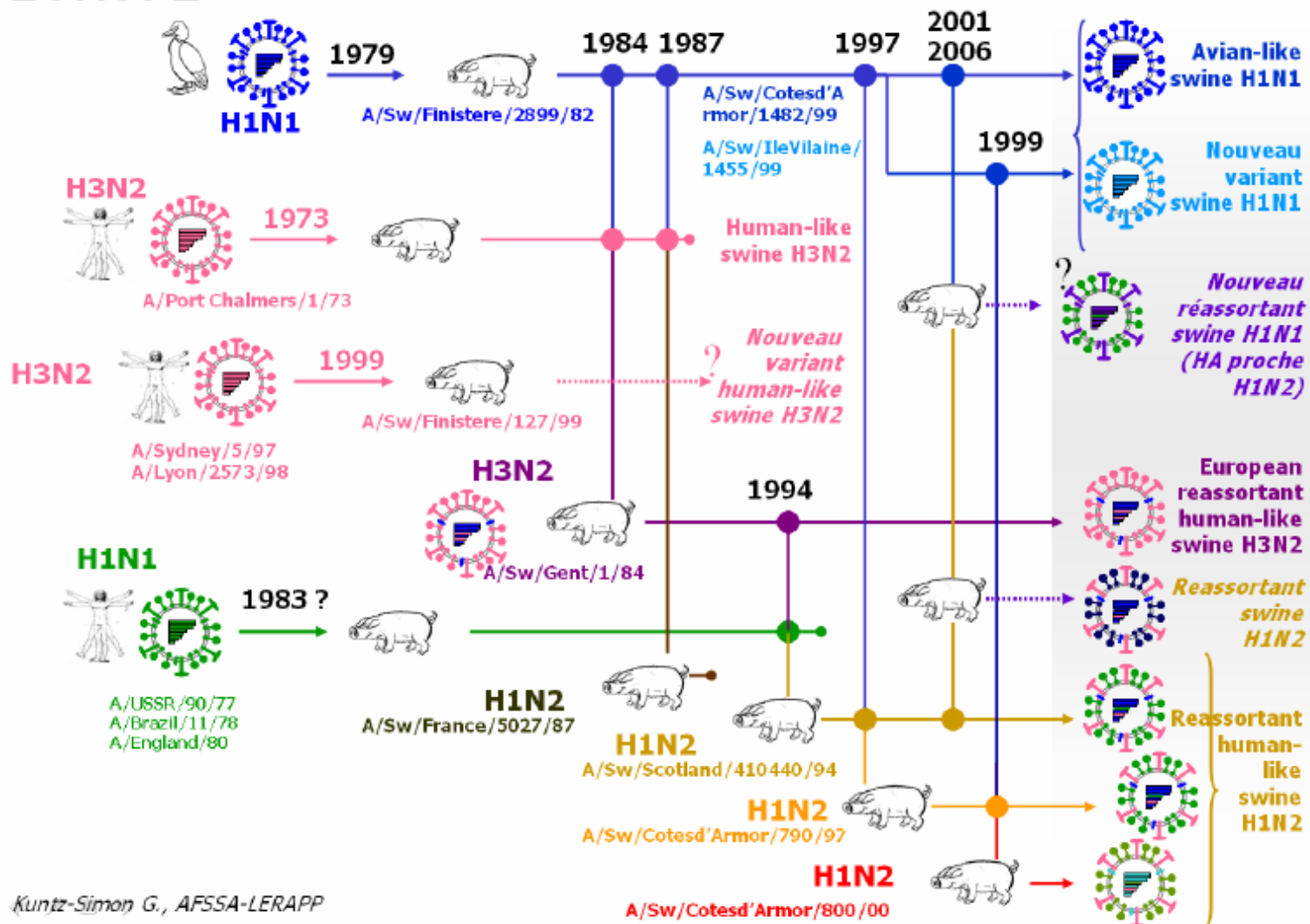


Recorded new avian influenzas



Genetic reassortment in pigs, an old story

EUROPE



NP

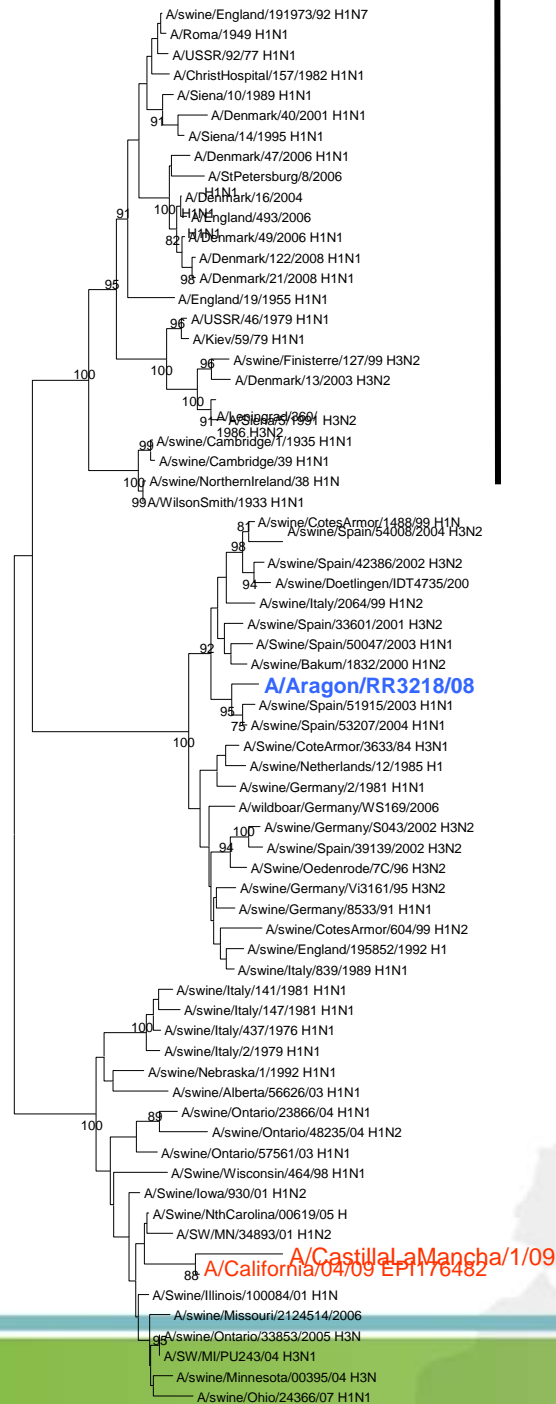
27-4-09

295nt Albacete

Aln 900nt

Kimura 2par

Neighbour-Joining



Cepas
Humanas

Cepas
Suinas
Linaje Eurasiático

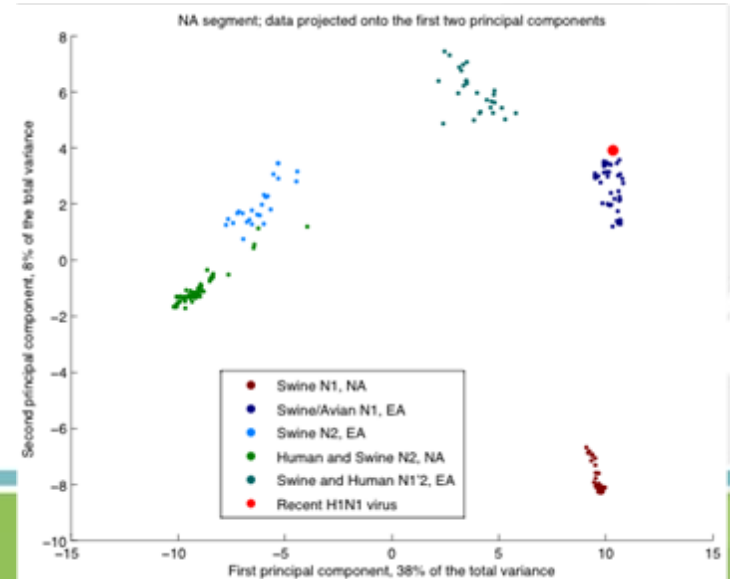
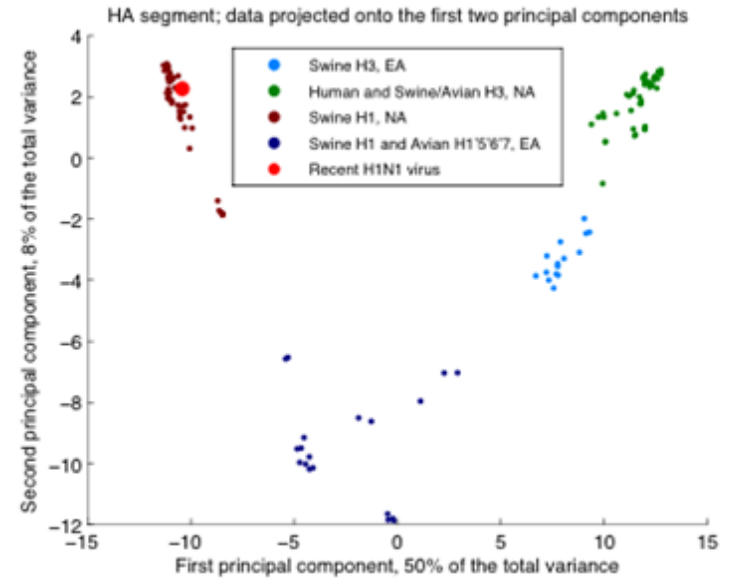
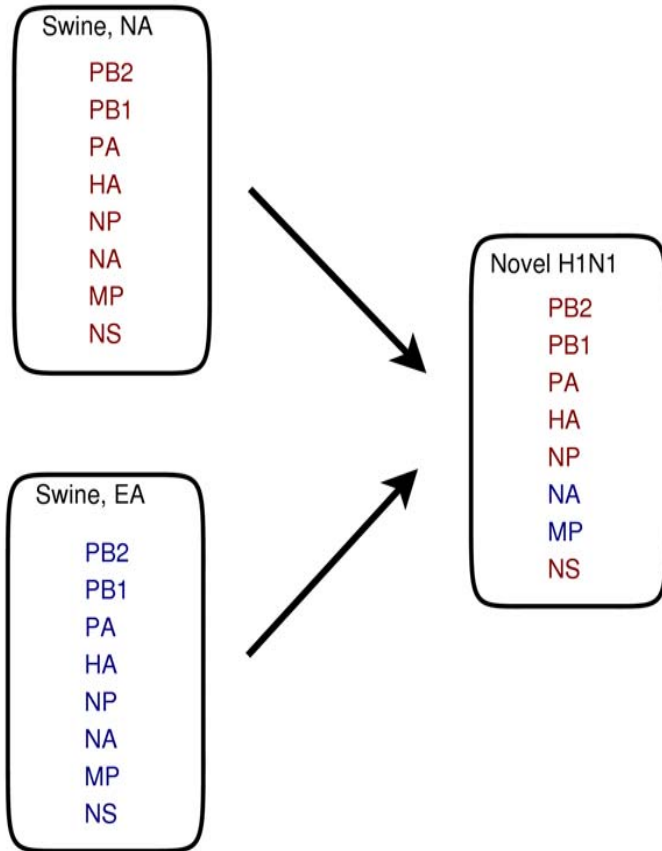
Cepas
Suinas
Linaje Americano

0.02

Le calendrier des événements

- Janvier 2009 à Avril 2009
 - Quelques cas de grippe A (H1N1)swl aux USA (Californie et Texas)
- 17 Avril 2009
 - Deux nouveaux cas en Californie
- 21 – 23 avril 2009
 - Description de nombreux cas groupés au Mexique; les virus sont similaires a ceux détectés au USA
- 24 Avril 2009
 - Alerte OMS grippe mexicaine

Mécanisme d'émergence du virus



Genetic Composition of Influenza A(H1N1)v viruses

Segment	Closest Match	Years*
PB2	Swine, North American lineage	1998-2007
PB1	Swine, North American lineage	1993-2007
PA	Swine, North American lineage	1998-2007
HA	Swine <u>H1N2</u> , North American lineage	1985-2007
NP	Swine, North American lineage	1985-2007
NA	Swine <u>H1N1</u> , Eurasian lineage	1973-2007
M	Swine, Eurasian lineage	1980-2005
NS	Swine, North American lineage	1998-2007

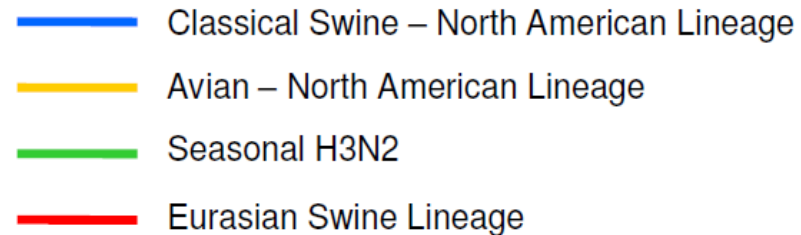
* Period of known circulation of viruses with similar genetic sequences.

Comparison between H1N1 swine genotypes in recent U.S. Cases

Human H1N1 from
Triple Reassortant
Swine

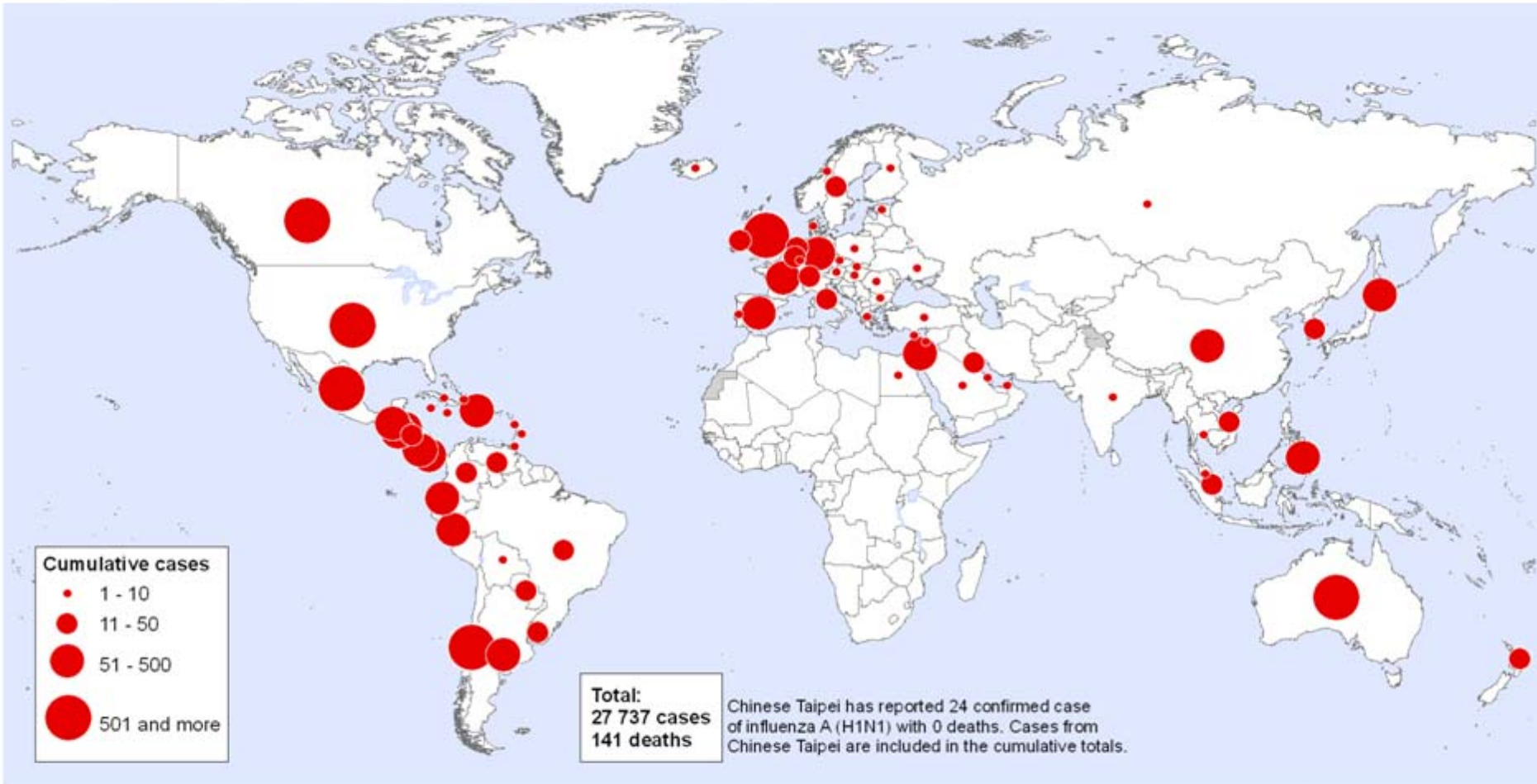


California Human
H1N1 Cases



New Influenza A (H1N1), Number of laboratory confirmed cases as reported to WHO

Status as of 10 June 2009
06:00 GMT



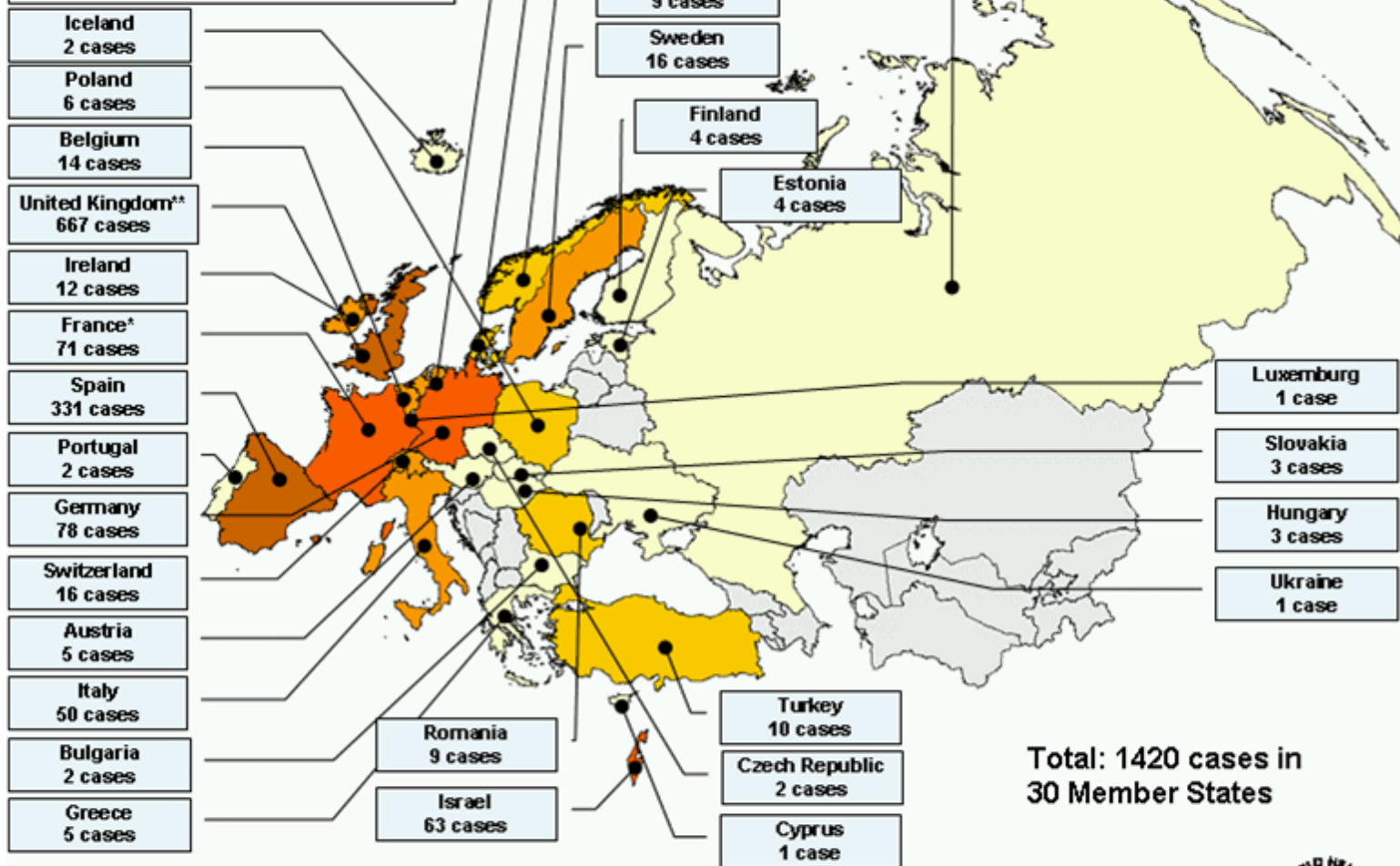
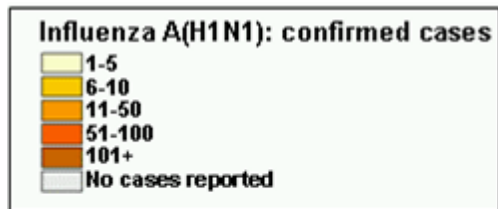
The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

Data Source: World Health Organization
Map Production: Public Health Information and Geographic Information Systems (GIS)
World Health Organization



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Map produced: 10 June 2009 10:22 GMT



Total: 1420 cases in 30 Member States

*including 1 case in French Polynesia
 **including 1 case in Cayman Islands, UK Overseas Territory
 The designations employed and the presentation of this material do not imply the expression of any opinion whatsoever on the part of the Secretariat of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.
 WHO Regional Office for Europe. 10 Jun 2009. 06.30 GMT

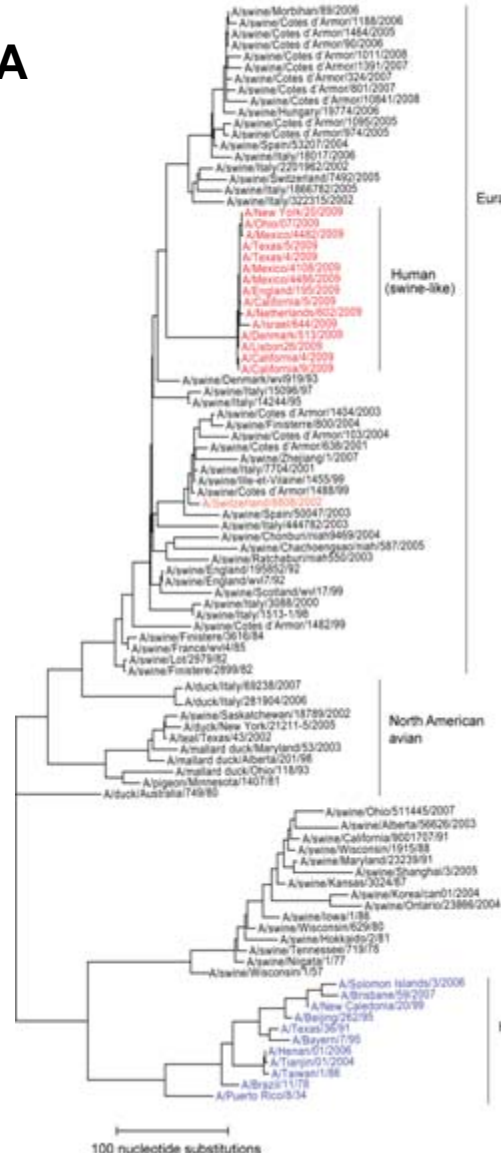
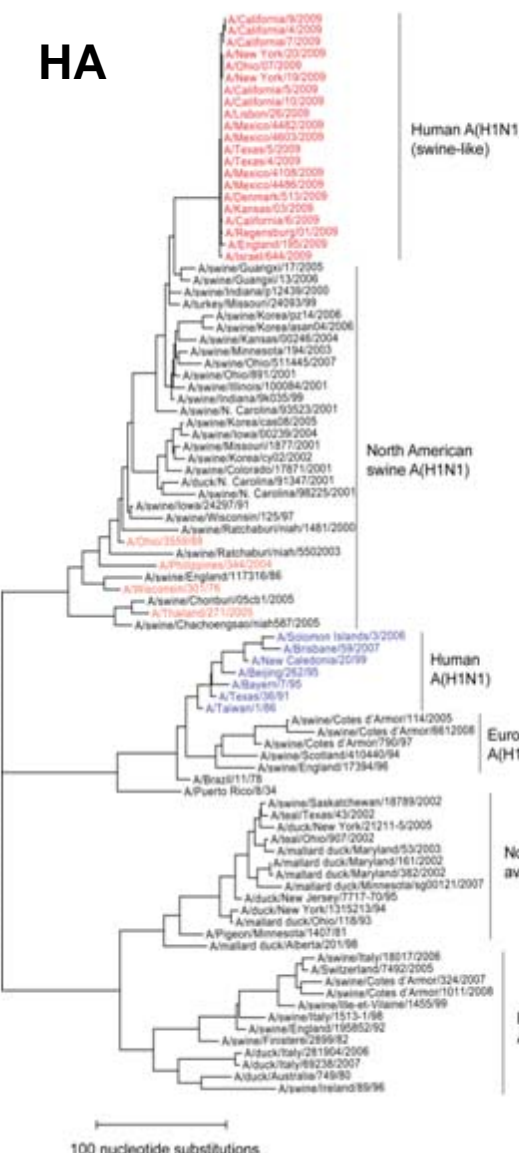


Genetic Similarity of Influenza A(H1N1)v viruses

HA

NA

M



Antigenic analyses of influenza A(H1N1)v viruses

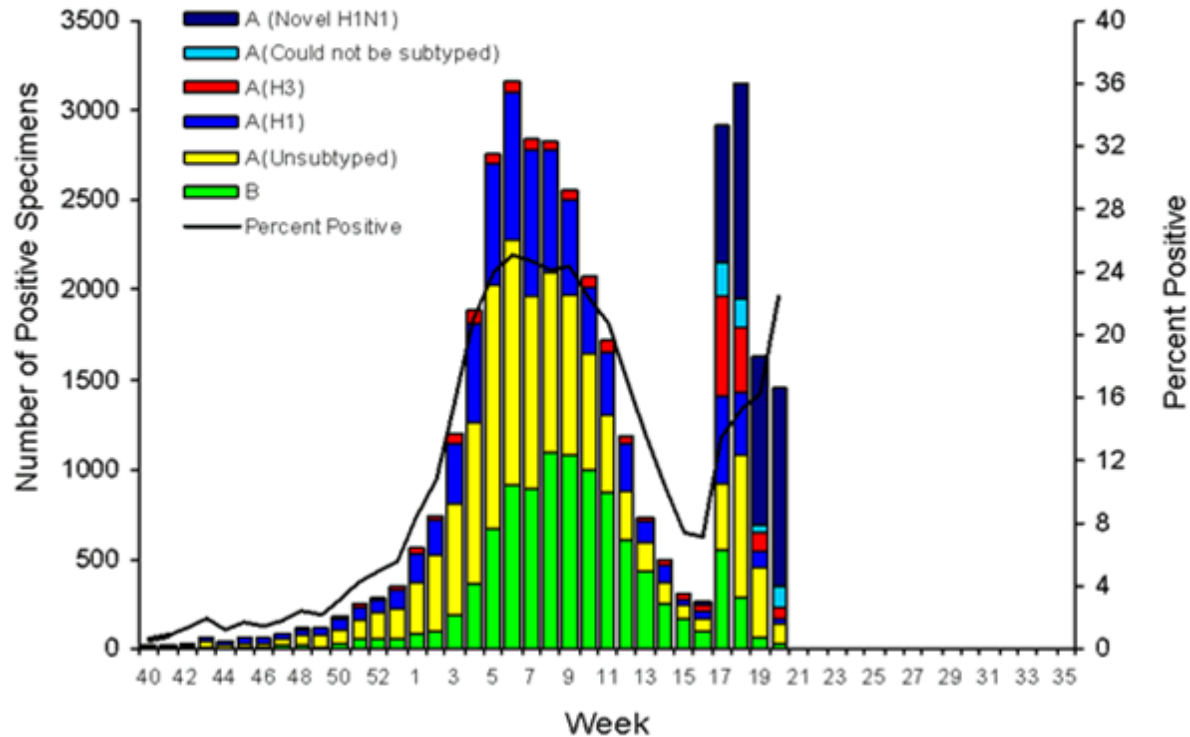
Viruses	Passage History	Haemagglutination inhibition titre ¹							
		A/NJ ²	Post infection ferret sera						
			A/sw/Iowa	A/NJ	A/Cal	A/Cal	A/Cal	A/Cal	A/Bris
8/76	15/30	8/76	4/09	4/09	7/09	7/09	59/07		
R15/79	F16/82	F34/82	CDC 81/09	C4/F14/09	CDC 89/09	NIBSC F11/09	F6/08		
REFERENCE VIRUSES									
A/Iowa/15/30	Ex	2560	640	<	<	<	<	<	
A/New Jersey/8/76	Ex	>5120	160	320	160	160	320	320	
A/California/4/2009	C1.M1.E1	5120	<	160	2560	2560	1280	2560	
A/California/7/2009	E1+1	2560	<	80	1280	1280	1280	2560	
A/Brisbane/59/2007	E9	<	<	<	<	<	<	320	
A/swine/Wisconsin/238/97	Ex	2560	80	160	320	640	320	ND	
A/swine/Ontario/11112/04	Ex	2560	40	40	160	160	320	ND	
A/Catalonia/122/2009 *	Mx+1	2560	<	80	1280	1280	1280	2560	
A/Catalonia/127/2009 *	Mx+1	2560	<	80	1280	1280	1280	2560	
A/Catalonia/148/2009 *	Mx+1	2560	<	80	1280	1280	1280	2560	
A/Catalonia/154/2009 *	Mx+1	2560	<	80	1280	1280	1280	2560	
A/England/195/2009 *	MDCK4	2560	<	160	1280	2560	1280	ND	
A/Netherlands/602/2009 *	MDCK1/1	2560	<	80	1280	1280	1280	ND	
A/Norway/1168/2009 *	MDCK2	2560	<	80	1280	1280	1280	2560	
A/Norway/1177/2009 *	MDCK3	2560	<	80	1280	1280	1280	2560	
A/Israel/276/2009 *	MDCK3	2560	<	80	1280	2560	1280	2560	
A/Israel/644/2009 *	MDCK4	2560	<	160	1280	1280	1280	ND	
A/Auckland/3/2009	Ex+1	2560	<	160	1280	1280	1280	ND	
A/Auckland/3/2009	MDCK1/1	2560	<	80	1280	1280	1280	ND	
A/Auckland/1/2009	MDCK1/1	2560	<	80	1280	1280	1280	ND	
NIBRG-121 (A/California/7/2009)	Ex	2560	<	160	2560	2560	2560	2560	

1. < = 40; 2. hyperimmune rabbit serum; ND=not done

CSL: NYMC:	HGR IVR-153 X-179A	CDC: NIBSC:	RG RG15 (A/Texas/05/09) NIBRG-121
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Situation in the USA (01 June 2009 report)

Influenza Positive Tests Reported to CDC by U.S. WHO/NREVSS Collaborating Laboratories, National Summary, 2008-09



**For week ending 23 May 2009:
51 States reported cases
10,053 Cases
17 Deaths**