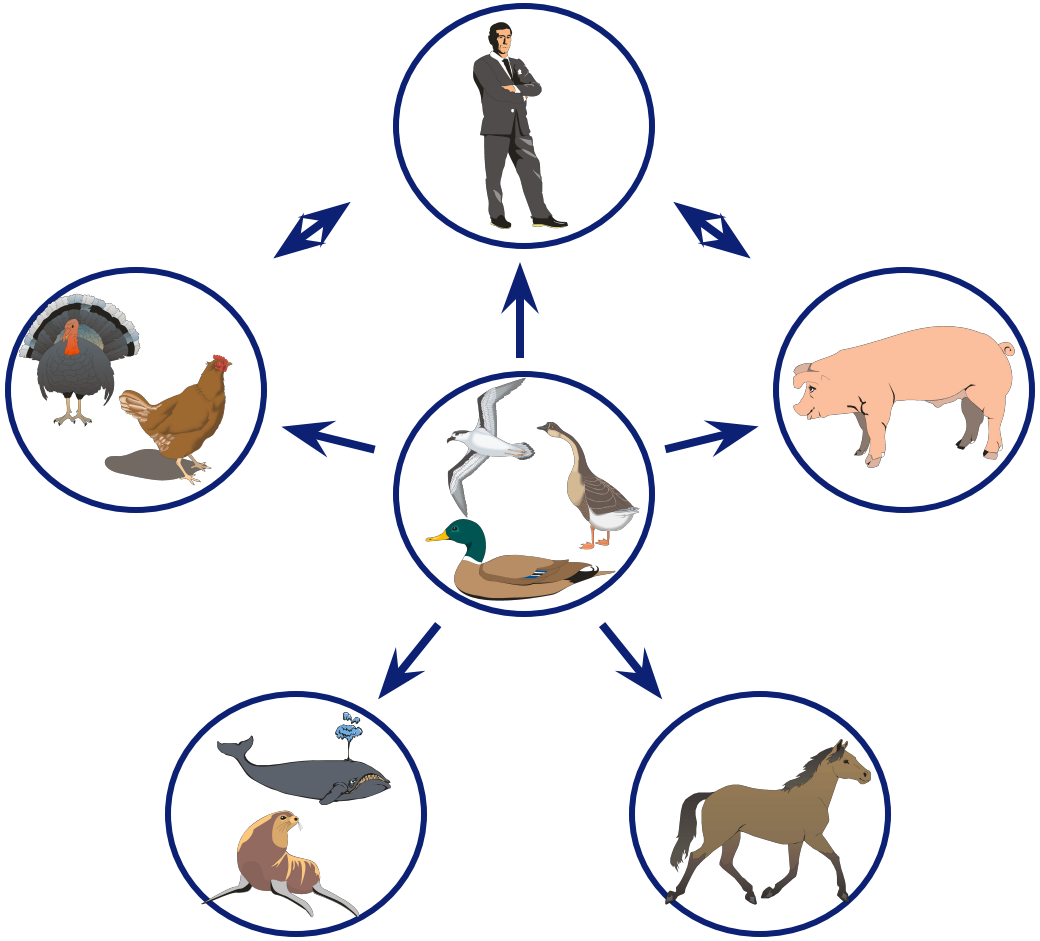
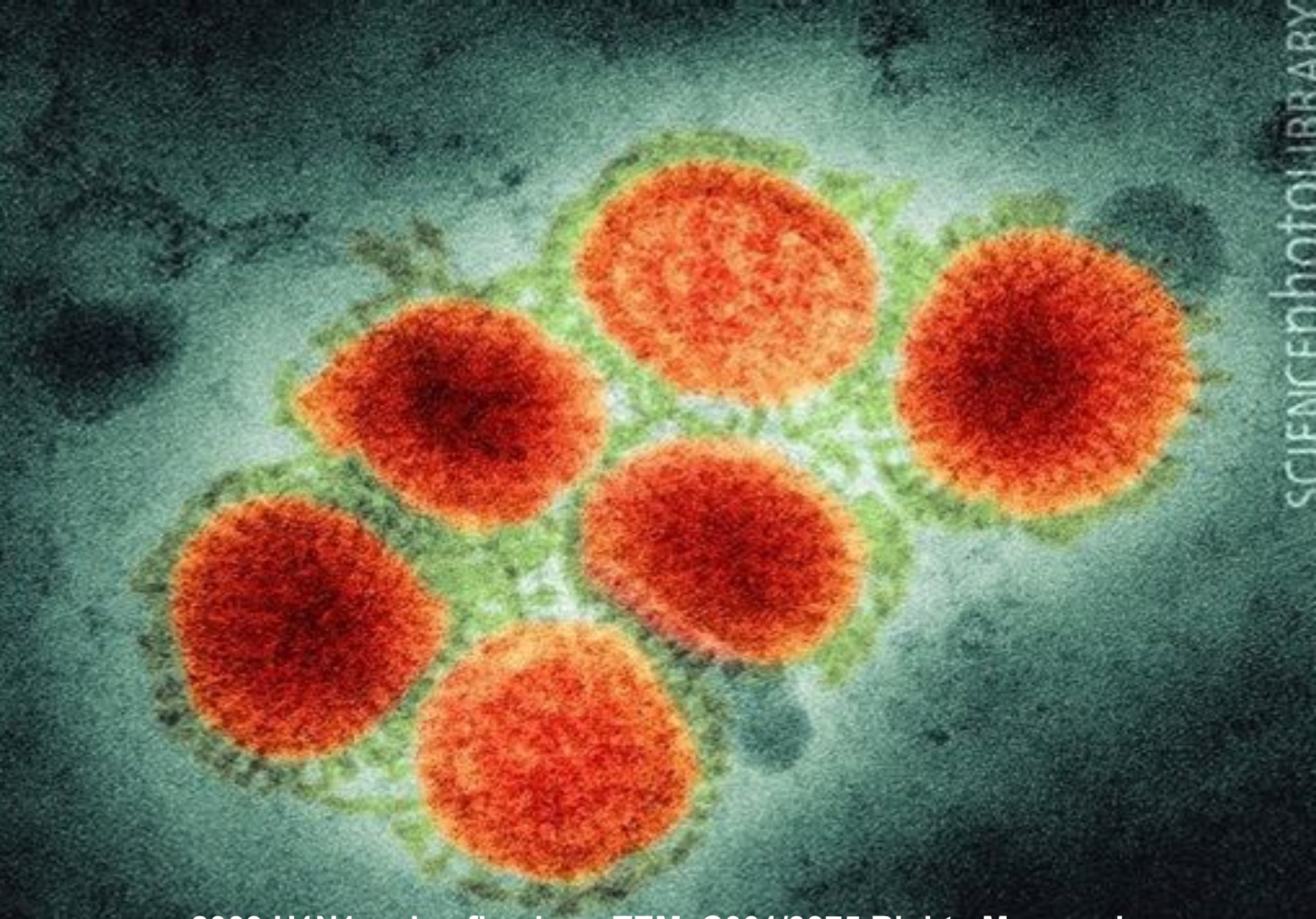
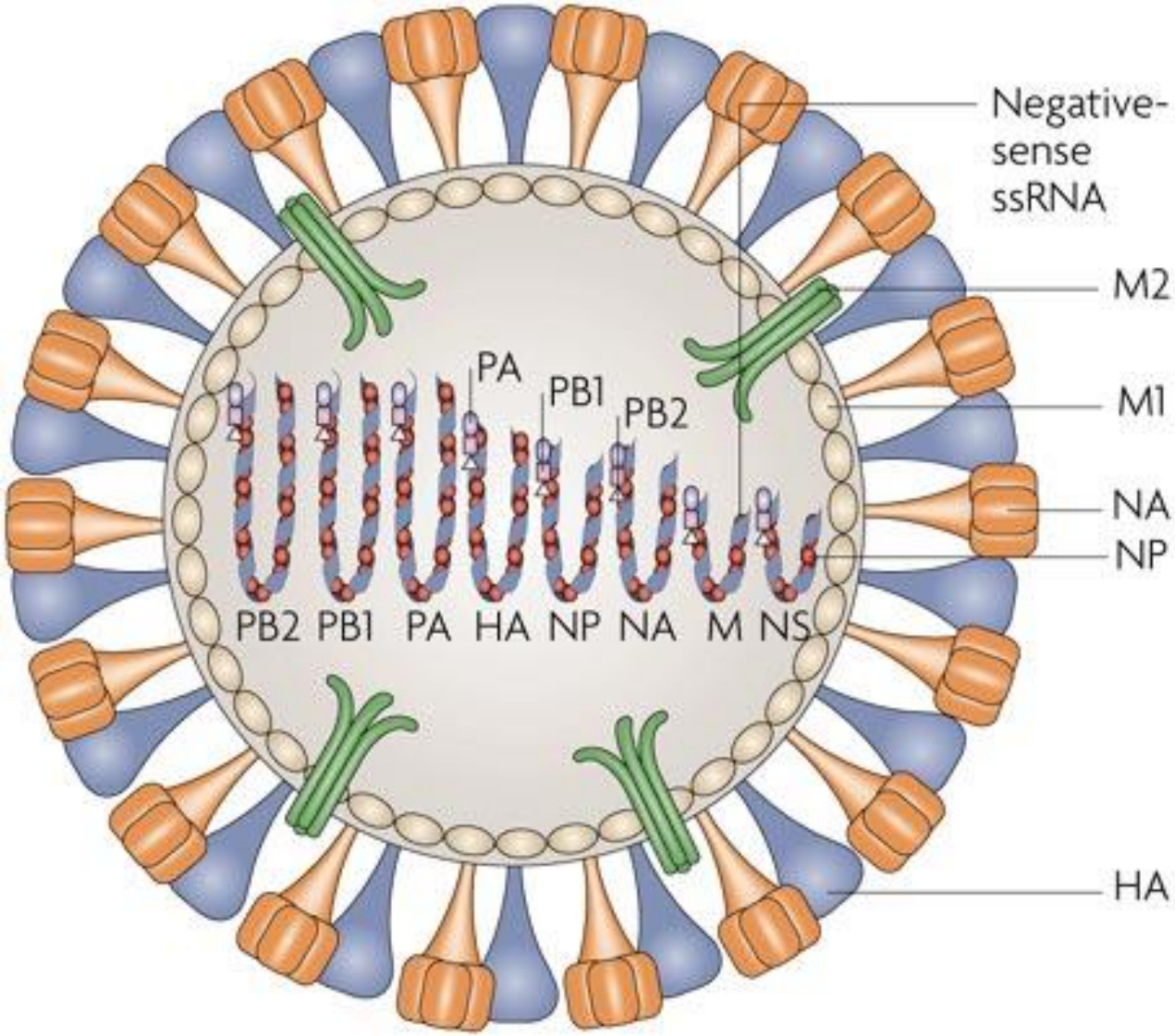


ПАНДЕМИИ ГРИППА В XVI-XXI ВЕКАХ		
Годы	**Подтип**	**Распространение**
1580	**Неизвестен**	**Европа, Ближний Восток, Африка, Сев. Америка**
1729	**Неизвестен**	**Россия, Европа**
1780	**Неизвестен**	**Европа, Россия, Сев. Америка, Китай, Индия**
1830	**Неизвестен**	**Азия, Россия, Европа, Сев. и Юж. Америка**
1847	**Неизвестен**	**Европа, Сев. Америка, Россия, Индия**
1889	**H2N?**	**Азия, Россия, Европа, Сев. Америка, Африка, Австралия**
1898	**H3N8**	**Европа, Россия, Сев. Америка**
1918	**H1N1**	**Европа, Азия, Америка, далее все континенты**
1957	**H2N2**	**Азия, Европа, далее все континенты**
1968	**H3N2**	**Азия, Европа, далее все континенты**
1977	**H1N1**	**Китай, СССР, далее все континенты**
2009	**H1N1**	**Сев. Америка, Европа, далее все континенты**

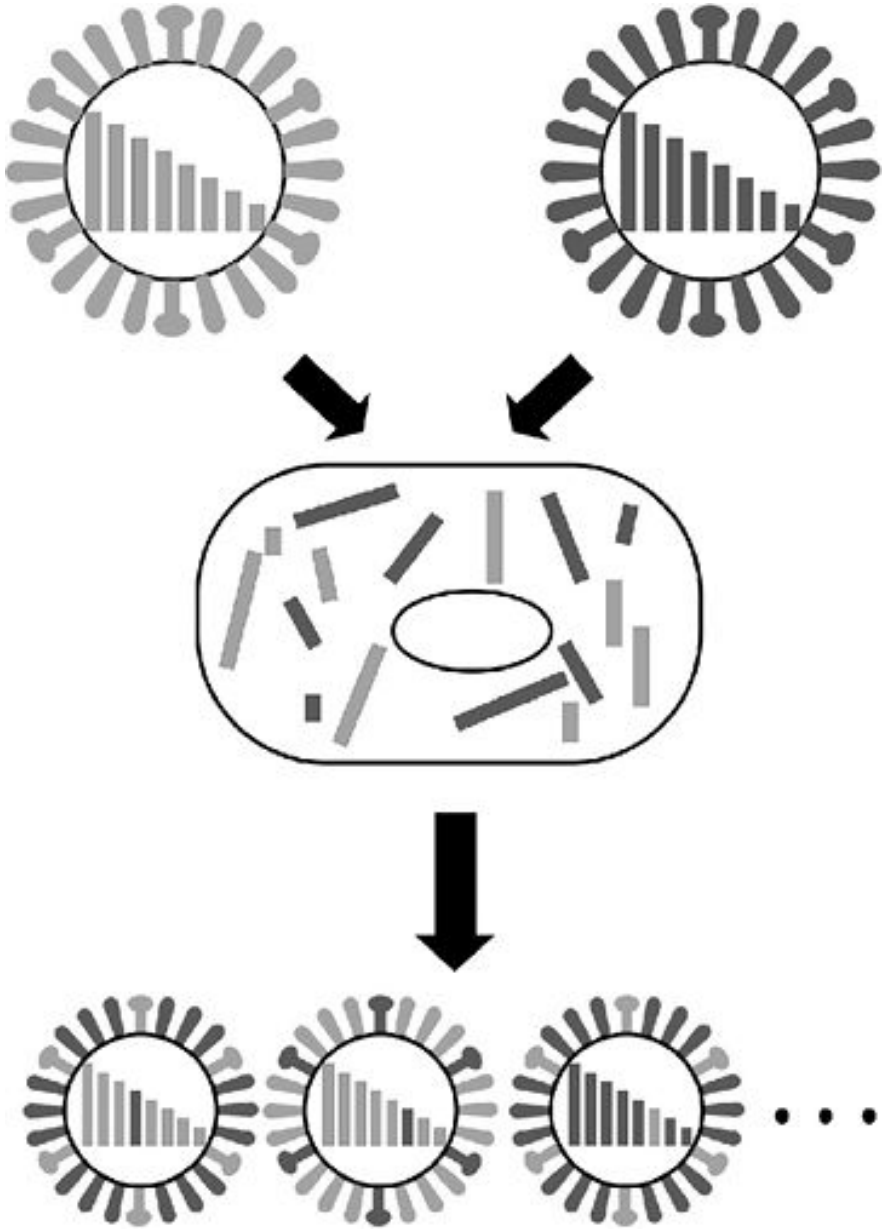


2009 H1N1 swine flu virus, TEM, C001/9375 Rights Managed
from: *http://www.sciencephoto.com*



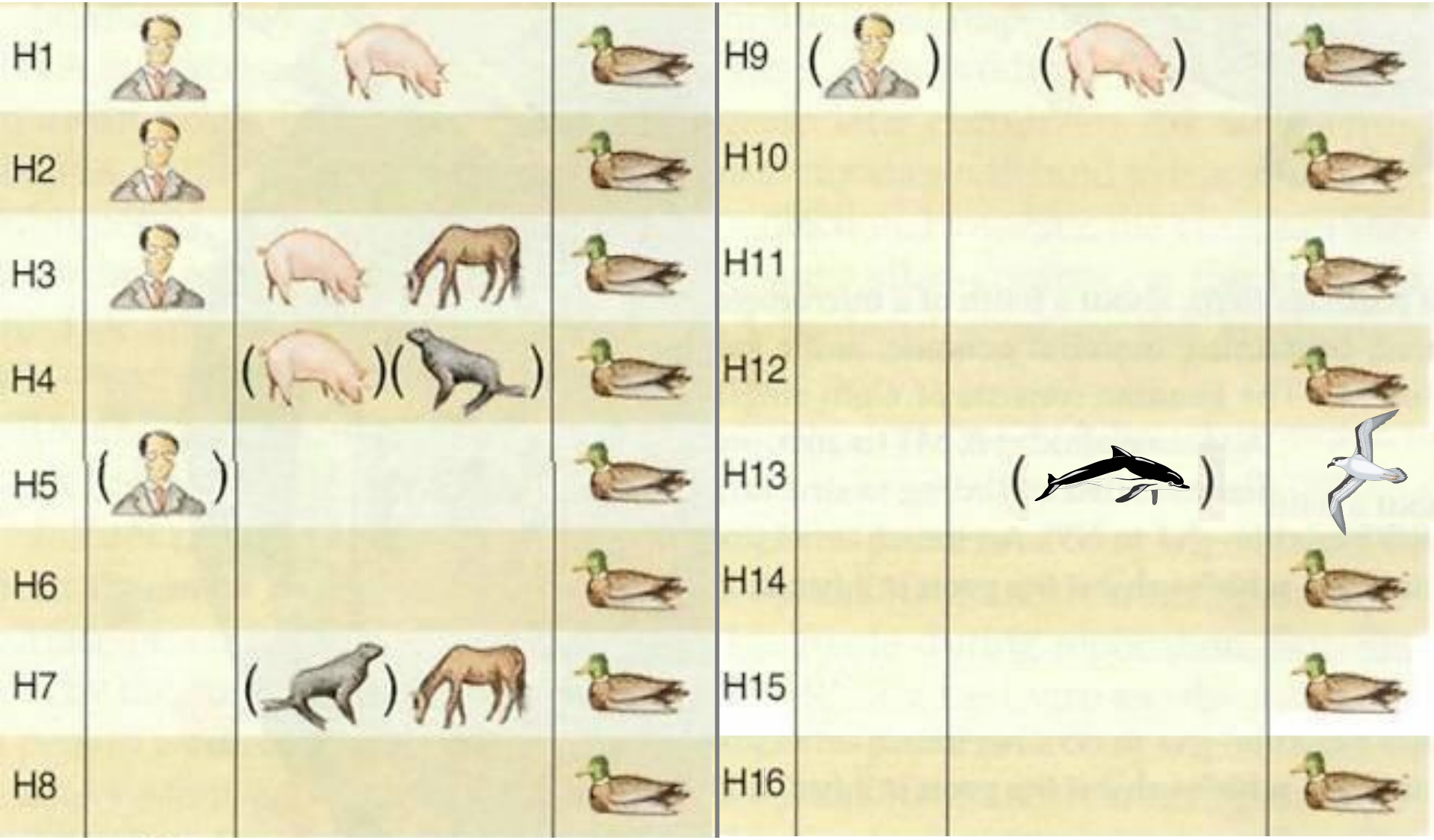
Nature Reviews | Genetics

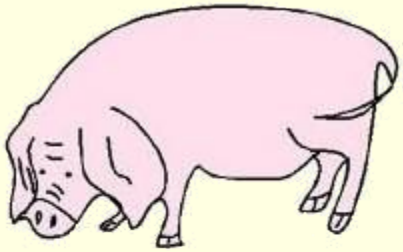
Martha I. Nelson and Edward C. Holmes. Nature Reviews Genetics 8, 196-205 (March 2007)



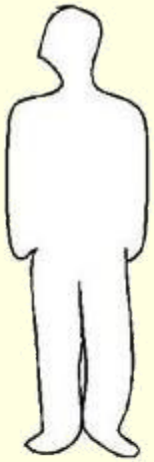
Editors: Knipe, David M.; Howley, Peter M.
Title: Fields Virology, 5th Edition
Copyright B©2007 Lippincott Williams & Wilkins

Распределение подтипов гемагглютинина у человека, животных и птиц

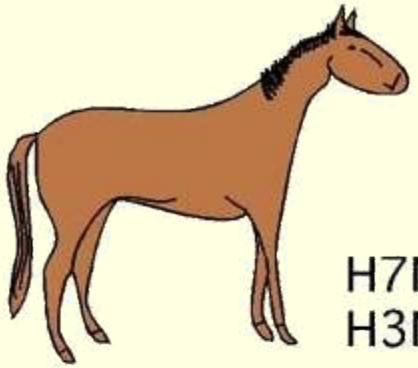




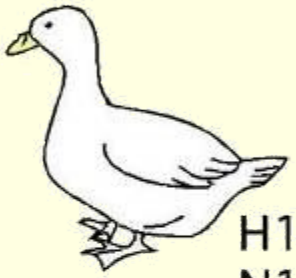
H1N1
H3N2
(H1N2)



H1N1
H2N2
H3N2
(H2N8)
(H3N8)

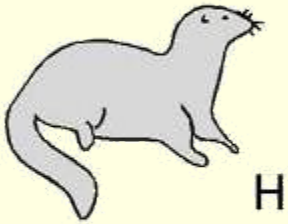


H7N7
H3N8

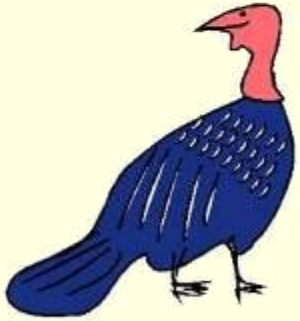


H1-12
N1-9

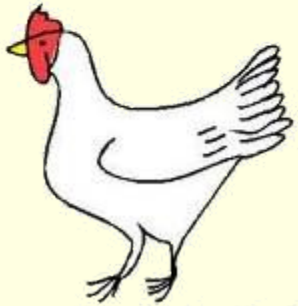
H1-16
N1-9



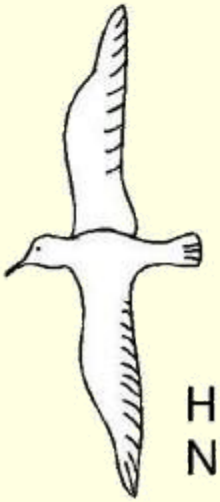
H10N4



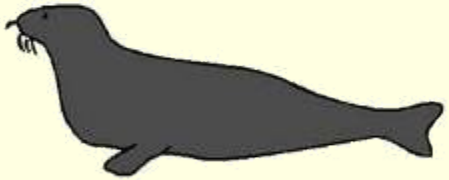
H1-10
N1-9



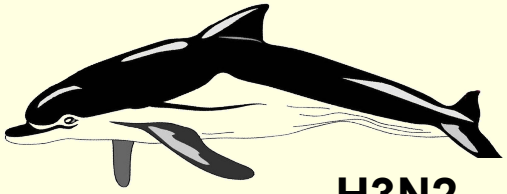
H4, 5, 7, 9, 10
N1, 2, 4, 7



H1-7, 9-16
N1-9



H7N7
H4N5
H3N3



H3N2
H13N9

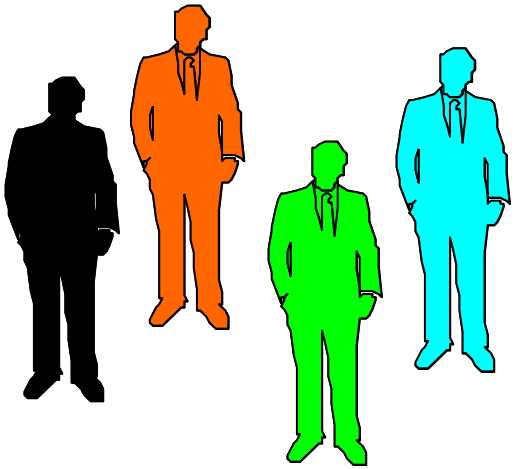
Эволюция вируса гриппа А человека в XX столетии

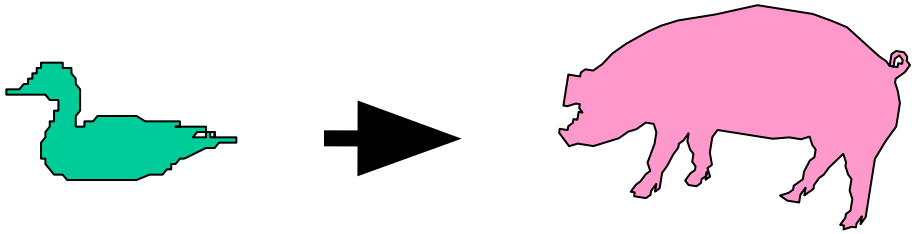
1918	1957	1968
H1N1	H2N2	H3N2
“Испанка”	“Азиатский”	“Гонконгский”
PB2	PB2	PB2
PB1	PB1	PB1
PA	PA	PA
HA	HA	HA
NA	NA	NA
NP	NP	NP
M	M	M
NS	NS	NS
↑	↑	↑
PB2	PB2	PB2
PB1	PB1	PB1
PA	PA	PA
HA	HA	HA
NA	NA	NA
NP	NP	NP
M	M	M
NS	NS	NS
H1N1	H2N2	H3N?

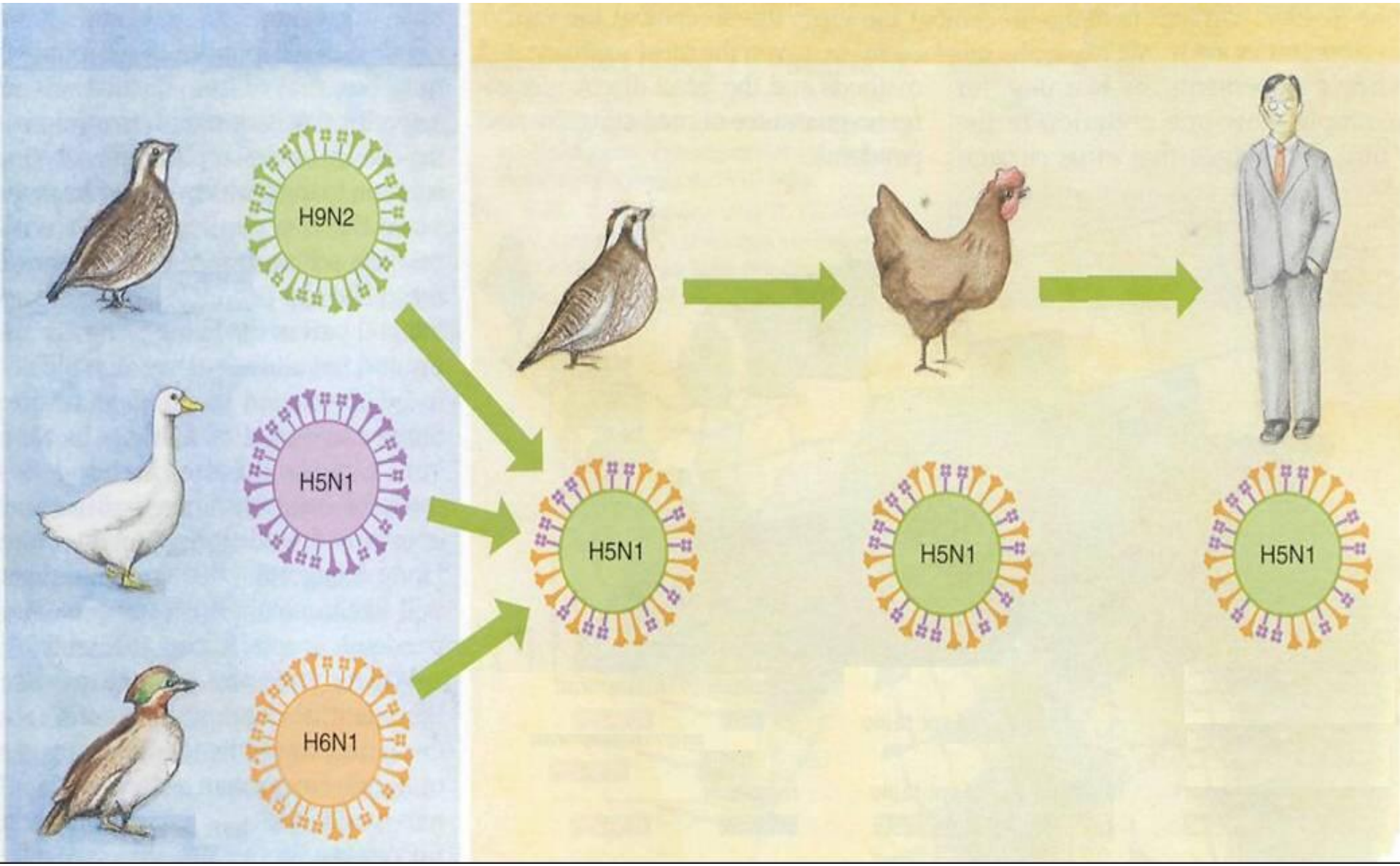
→ H1N1

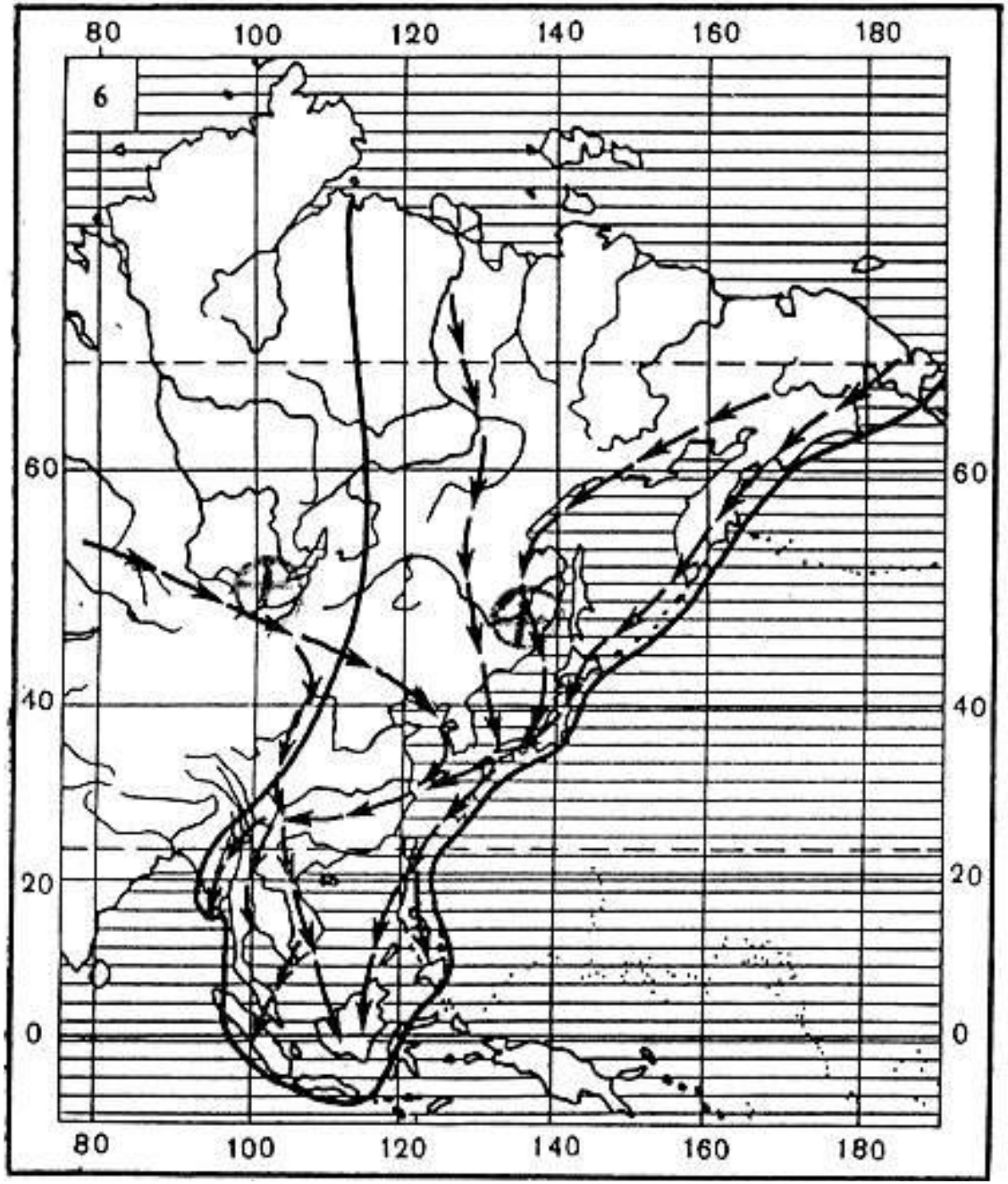
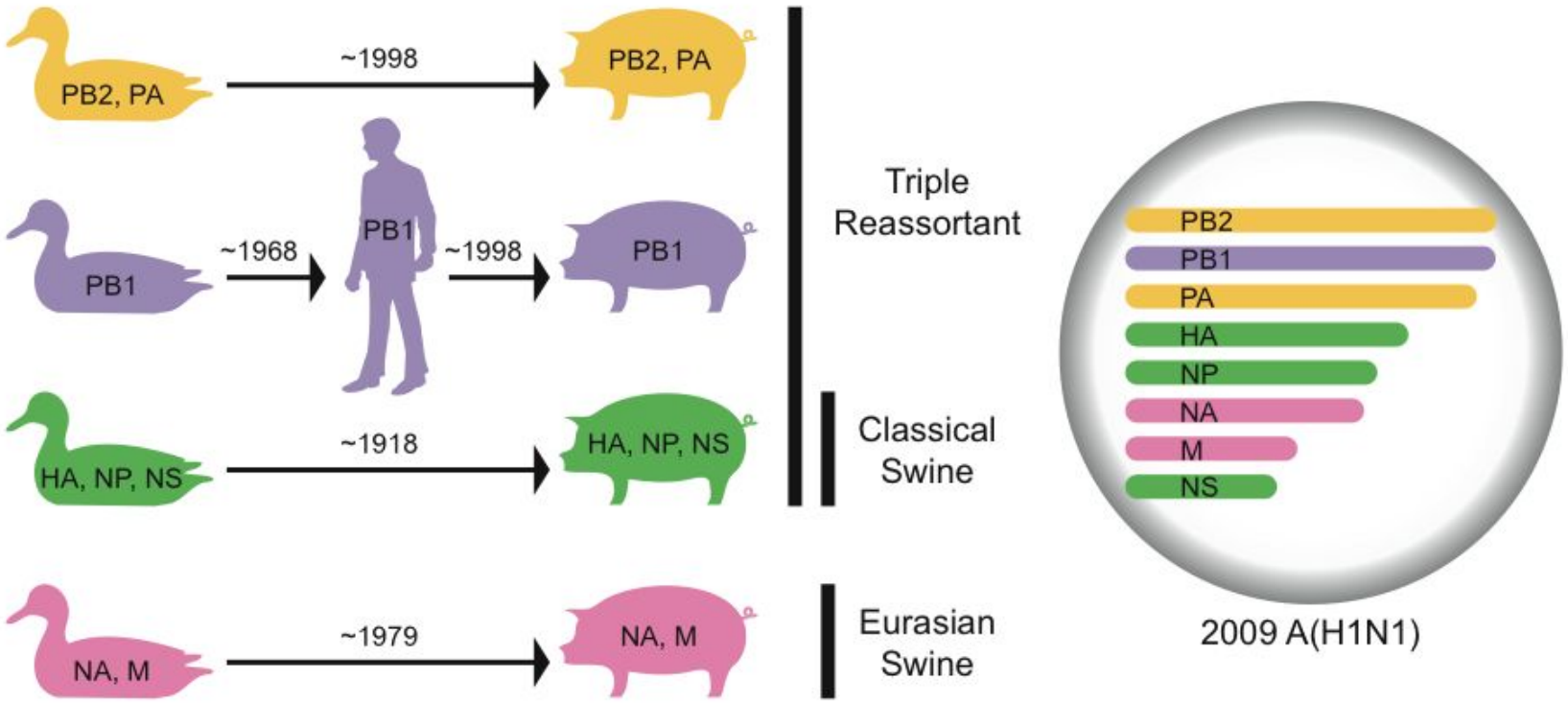
→ H3N2

Свиньи как «смешивающий сосуд» при реассортации






H9N2
H5N1
H6N1
H5N1
H5N1
H5N1


6
80
100
120
140
160
180
60
40
20
0

Происхождение пандемического штамма вируса гриппа A(H1N1)v, круг хозяев и год появления реассортантов в популяции вируса гриппа свиней