

Influenza A(H3N2) Viruses

HEMAGGLUTINATION INHIBITION REACTIONS OF INFLUENZA H3 VIRUSES (02/02/05)

STRAIN DESIGNATION	REFERENCE FERRET ANTISERA							Date collected	Passage
	REFERENCE ANTIGENS	KO/770	WY/3	WEL/01	ND/01	CA/7	WA/01		
1 A/KOREA/770/2002	640	320	80	80	160	40	40	12/02/02	X/C3
2 A/WYOMING/03/2003 X-147 *	320	640	80	160	160	20	40	02/13/03	X/E1
3 A/WELLINGTON/01/2004 *	320	160	320	320	320	160	320	01/26/04	E3/E2
4 A/NORTH DAKOTA/01/2004	80	80	160	640	320	160	160	10/20/04	SpfCK1E4
5 A/CALIFORNIA/07/2004 *	320	160	80	320	320	320	160	09/16/04	SpfCK1E3
6 A/WASHINGTON/01/2004	320	160	160	320	640	1280	640	10/14/04	SpfCK3E5
7 A/SINGAPORE/37/2004	160	160	160	640	640	640	640	6/7/2004	E4/E1
TEST ANTIGENS									
8 A/KENTUCKY/6e/2004	320	320	320	640	1280	2560	1280	11/27/04	SpfC1KE3
9 A/NEW YORK/57/2004	160	320	160	640	640	160	160	12/28/04	X2/C1
10 A/VIRGINIA/02/2005	320	320	320	1280	640	640	640	01/06/05	M1/C1
11 A/WISCONSIN/21e/2004	1280	160	160	320	320	160	160	11/29/04	SpfCK3E3
12 A/NEW YORK/39e/2004	160	160	160	640	640	320	320	11/09/04	SpfCK2E4
13 A/NEW YORK/02/2005	160	160	80	320	320	160	160	01/05/05	X1/C1
14 A/NEW YORK/03/2005	80	160	40	320	320	160	80	01/03/05	X1/C1
15 A/TEXAS/12/2004	160	160	80	320	320	160	160	12/29/04	M1/C1
16 A/MASSACHUSETTS/01/2005	160	160	80	320	640	160	160	01/05/05	M1/C1
17 A/ALASKA/16/2004	80	160	80	320	160	80	80	12/12/04	X/C1
18 A/NEW YORK/55e/2004	80	80	80	320	320	160	160	11/18/04	SpfCK2E2
19 A/N. HAMPSHIRE/04/2004	80	80	40	160	160	160	160	12/27/04	X/C1
20 A/WISCONSIN/16e/2004	160	40	80	320	160	40	80	11/22/04	SpfCK3E2
21 A/WEST VIRGINIA/01/2005	40	80	40	160	160	80	40	01/05/05	C1/C1
22 A/VIRGINIA/03/2005	80	80	80	320	160	80	80	01/07/05	M1/C1
23 A/ARIZONA/03/2005	80	80	40	160	160	80	80	01/05/05	M2/C1
24 A/GEORGIA/01/2005	40	80	40	160	160	80	80	01/06/05	M1/C1
25 A/CANADA/707/2004	160	160	80	320	320	80	80	11/16/04	X1/C1
26 A/VICTORIA/523/2004	80	80	160	320	320	640	640	11/03/04	E5/E1
27 A/MADRID/RR1734/2004	320	320	160	640	640	160	320	12/01/04	C1/C1
28 A/UNITED KINGDOM/305/2005	160	160	80	320	320	160	80	01/05/05	X/C1
29 A/NORWAY/1103/2004	40	80	20	80	160	40	40	11/22/04	C2/C1
30 A/IRAQ/01/2004	80	80	40	160	160	80	80	12/29/04	X/C1
31 A/SINGAPORE/68/2004	160	160	160	160	320	80	nd	11/09/04	C1/C2
32 A/HONG KONG/4465/2004	80	80	20	160	160	80	40	09/15/04	C2/C1

* Serology antigens

HEMAGGLUTINATION INHIBITION REACTIONS OF INFLUENZA H3 VIRUSES (GUINEA PIG RED BLOOD CELLS) (02/08/05)

STRAIN DESIGNATION	REFERENCE FERRET ANTISERA					Date collected	Passage
	A	B	C	D	E		
REFERENCE ANTIGENS	KO/770	WY/03-X-147	WEL/01	VIC/500	CA/07		
1 A/KOREA/770/2002	<u>1280</u>	640	160	320	320	12/02/02	X/C5
2 A/WYOMING/03/2003 X-147 *	320	<u>640</u>	40	160	80	02/13/03	X/E1
3 A/WELLINGTON/01/2004 *	320	320	<u>640</u>	1280	640	01/26/04	E3/E2
4 A/VICTORIA/500/2004	40	40	40	<u>160</u>	160	08/13/04	E6/E2
5 A/CALIFORNIA/07/2004 *	160	80	80	160	<u>320</u>	09/16/04	SPpfCK3E3
TEST ANTIGENS							
6 A/VERMONT/10/2004	160	320	160	640	640	12/13/04	X/C2
7 A/NEW YORK/63/2004	80	320	80	640	640	12/06/04	X1/C2
8 A/NEW HAMPSHIRE/09/2004	160	320	160	640	640	12/13/04	MX/C2
9 A/NEW HAMPSHIRE/10/2004	160	320	80	320	160	12/13/04	MX/C2
10 A/NEW HAMPSHIRE/11/2004	160	160	160	320	640	12/26/04	MX/C2
11 A/NEW HAMPSHIRE/07/2004	80	320	80	640	320	12/12/04	MX/C2
12 A/NEW YORK/62/2004	40	160	40	320	320	12/06/04	X2/C2
13 A/VERMONT/11/2004	80	160	80	320	320	12/08/04	X/C2
14 A/NEW HAMPSHIRE/05/2004	40	160	40	320	320	12/09/04	MX/C2
15 A/NEW HAMPSHIRE/08/2004	40	160	40	320	320	12/10/04	MX/C2
16 A/CALIFORNIA/08/2004	40	80	40	160	160	10/12/04	M2/C2
17 A/LOUISIANA/02/2004	80	80	40	160	160	12/15/04	X/C2
18 A/COLORADO/08/2004	160	160	80	320	320	12/20/04	MX/C2
19 A/LOUISIANA/03/2004	80	160	80	320	320	12/21/04	X/C2
20 A/WASHINGTON/13/2004	80	160	80	320	320	12/14/04	X/C2
21 A/NEW JERSEY/09/2004	40	160	80	320	640	12/03/04	X/C2
22 A/PERU/218/2004	20	80	20	160	160	12/20/04	X/C2
23 A/PERU/225/2004	40	80	40	160	160	12/28/04	X/C2
24 A/IRAQ/29/2004	80	160	40	160	320	12/21/04	X/C2
25 A/KOREA/298/2004	40	160	20	160	320	12/29/04	X/C2
26 A/HUNAN/L198-5/2004	80	160	40	320	320	09/06/04	C3/C2

* Serology antigens

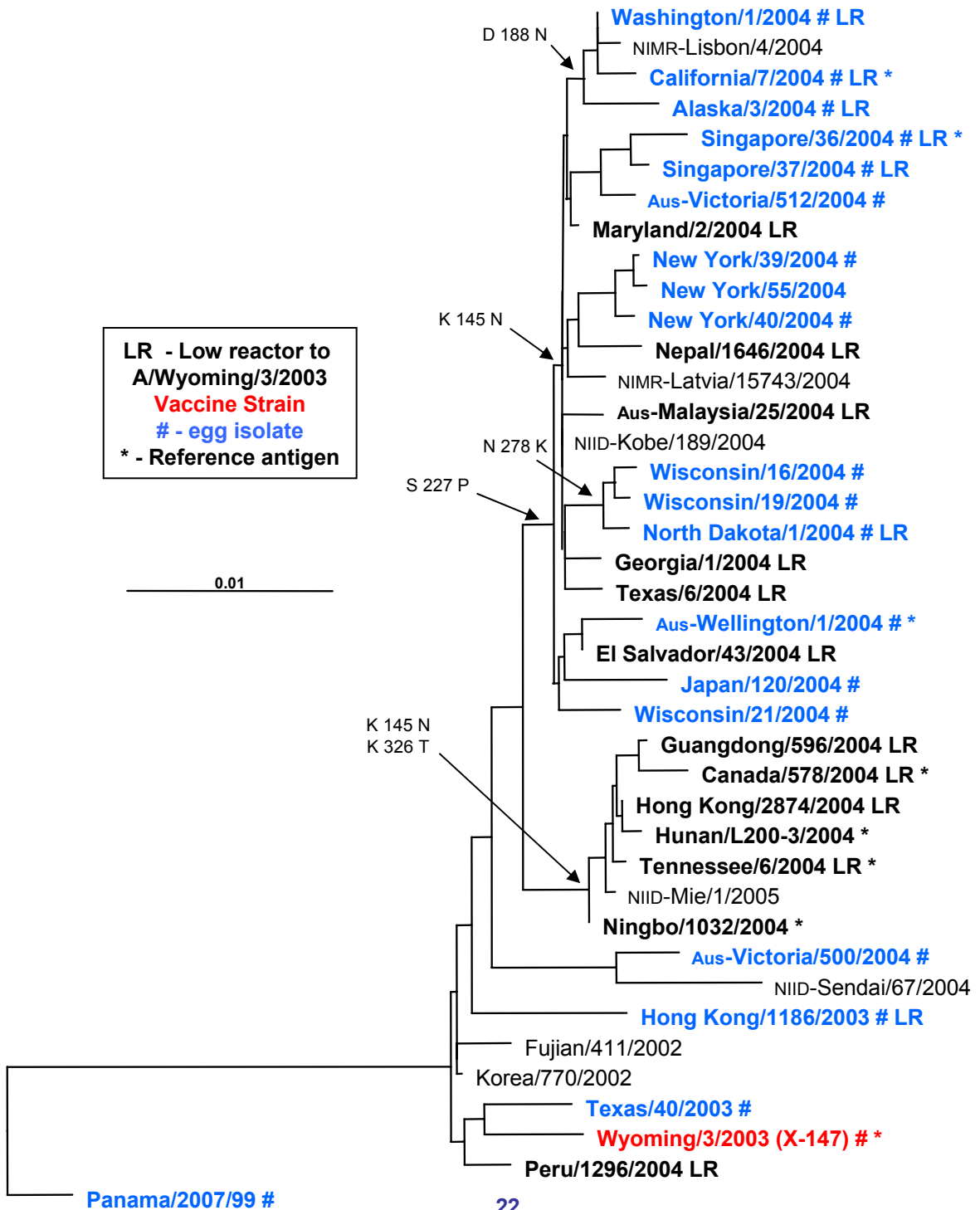
Influenza A(H3N2) Isolates Characterized by CDC

	U.S.A.	North America	Europe	Asia	Cent/So America	Africa, Australia, New Zealand	Total (%)
April 2003 – September 2003							
A/Panama/2007/99-like	41	13		29	187	1	271 (57%)
A/Panama/2007/99 (low)	1		1		3		5 (1%)
A/Fuian/411/2002-like	31	10		92	50	15	198 (42%)
						Total	474
October 2003 – March 2004							
A/Panama/2007/99-like	106	1	3	7	6		123 (8%)
A/Panama/2007/99 (low)	3		1	4			8 (0.5%)
A/Fuian/411/2002-like	869	30	104	248	94	18	1363 (87%)
A/Fuian/411/2002 (low)	43			19	8	1	71 (4.5%)
						Total	1565
April 2004 – September 2004							
A/Fuian/411/2002-like	29	17	4	143	151	4	348 (82.3%)
A/Fuian/411/2002 (low)	7			45	8	1	61 (14.4%)
A/California/7/2004-like *				11		2	13* (3.1%)
A/Wellington/1/2004-like				1			1 (0.2%)
						Total	423
October 2004 – January 2005							
A/Fuian/411/2002-like	119	12	2	14	1	1	149 (57%)
A/Fuian/411/2002 (low)	27	4		1		1	33 (12.5%)
A/California/7/2004-like *	59	3	3	9	2	2	78* (30%)
A/Wellington/1/2004-like						1	1 (0.5%)
						Total	261
Total	1335	90	118	623	510	47	2723

* A/California/7/2004 ferret antiserum was used starting from January 5, 2005

Preliminary data 02/09/2005

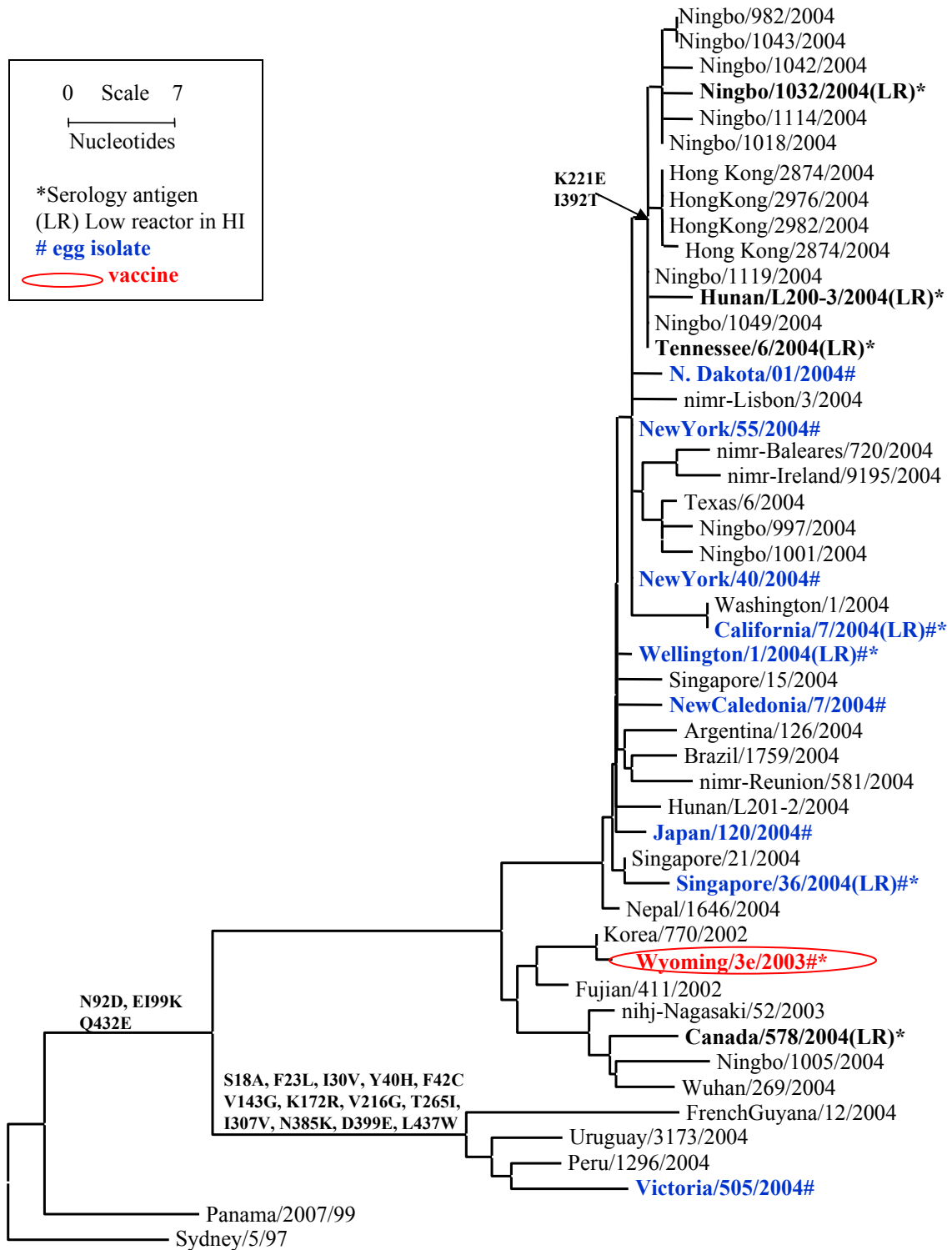
Evolutionary Relationships Among Influenza A (H3N2) Hemagglutinin (HA1) Genes, 2004/05



Evolutionary Relationships Among Influenza A N2 NA Genes

0 Scale 7
Nucleotides

*Serology antigen
(LR) Low reactor in HI
egg isolate
vaccine



HI Antibody Responses to the H3* Component of the 2004-2005 Influenza Vaccine
ADULT POPULATIONS

						% with HI titer \geq 40	
Sera	N	Antigen	% Rise	Pre GMT	Post GMT	Pre Vaccine	Post Vaccine
Australia ¹	24	A/Wyoming/03/2003 X-147*	87	13	275	21	100
	24	A/Wellington/01/2004	83	8	138	8	87
	24	A/California/07/2004	70	7	52	8	79
	24	A/Singapore/36/2004	57	6	21	4	43
	24	A/Tennessee/06/2004	70	8	44	8	70
UK ²	24	A/Wyoming/03/2003 X-147*	67	14	98	38	96
	24	A/Wellington/01/2004	75	11	58	29	83
	24	A/California/07/2004	75	7	32	0	63
	24	A/Singapore/36/2004	46	6	17	0	29
	24	A/Tennessee/06/2004	63	8	24	8	42
Japan ³	30	A/Wyoming/03/2003 X-147*	30	22	49	40	70
	30	A/Wellington/01/2004	17	14	23	23	53
	30	A/California/07/2004	10	9	12	10	20
	30	A/Singapore/36/2004	3	6	7	0	3
	30	A/Tennessee/06/2004	7	9	12	3	23
USA ⁴	25	A/Wyoming/03/2003 X-147*	60	22	74	40	88
	25	A/Wellington/01/2004	44	14	39	36	56
	25	A/California/07/2004	40	8	18	8	36
	25	A/Singapore/36/2004	12	6	9	8	12
	25	A/Tennessee/06/2004	20	9	18	8	28

1. Sera were kindly provided by Alan Hampson, WHO Collaborating Center, Melbourne, Australia. The populations were vaccinated with the 2004 trivalent influenza vaccine containing 15ug each of A/Fujian/411/2002(H3N2)-like, A/New Caledonia/20/99(H1N1)-like, and B/Hong Kong/330/2001-like hemagglutinin.

2. Sera were kindly provided by Dr. John Wood, NIBSC, Hertfordshire, UK. The populations were vaccinated with the 2004-2005 trivalent influenza vaccine containing 15ug each of A/Wyoming/03/2003(H3N2)-like, A/New Caledonia/20/99(H1N1)-like, and B/Jiangsu/10/2003-like hemagglutinin.

3. Sera were kindly provided by Dr. Takato Odagiri, WHO Collaborating Center, Tokyo, Japan. The populations were vaccinated with the 2004-2005 trivalent influenza vaccine containing 15 ug each of A/Fujian/411/2002(H3N2)-like, A/New Caledonia/20/99(H1N1)-like, and B/Shanghai/361/2002-like hemagglutinin.

4. Sera were kindly provided by Dr. Roland Levandowski, FDA, Bethesda, MD. The populations were vaccinated with the 2004-2005 trivalent influenza vaccine containing 15 ug each of A/Fujian/411/2002(H3N2)-like, A/New Caledonia/20/99(H1N1)-like, and B/Shanghai/361/2002-like hemagglutinin

* A/Wyoming/03/2003 is the H3N2 component of the vaccine.

HI Antibody Responses to the H3* Component of the 2004-2005 Influenza Vaccine
ELDERLY POPULATIONS

Sera	N	Antigen	% Rise	Pre GMT	Post GMT	% with HI titer \geq 40	
						Pre Vaccine	Post Vaccine
Australia ¹	24	A/Wyoming/03/2003 X-147*	100	8	121	8	86
	24	A/Wellington/01/2004	91	7	78	8	77
	24	A/California/07/2004	82	5	32	0	45
	24	A/Singapore/36/2004	41	5	13	0	23
	24	A/Tennessee/06/2004	77	6	27	0	36
UK ²	24	A/Wyoming/03/2003 X-147*	67	15	90	29	83
	24	A/Wellington/01/2004	75	10	76	8	79
	24	A/California/07/2004	79	7	46	4	67
	24	A/Singapore/36/2004	54	5	19	0	25
	24	A/Tennessee/06/2004	54	7	22	0	25
Japan ³	30	A/Wyoming/03/2003 X-147*	50	21	75	37	90
	30	A/Wellington/01/2004	53	10	35	20	57
	30	A/California/07/2004	43	6	15	0	27
	30	A/Singapore/36/2004	17	5	8	0	13
	30	A/Tennessee/06/2004	17	6	12	0	10
USA ⁴	25	A/Wyoming/03/2003 X-147*	32	21	50	36	76
	25	A/Wellington/01/2004	36	12	28	16	40
	25	A/California/07/2004	20	7	13	0	24
	25	A/Singapore/36/2004	12	5	7	0	0
	25	A/Tennessee/06/2004	8	8	12	0	4

1. Sera were kindly provided by Alan Hampson, WHO Collaborating Center, Melbourne, Australia. The populations were vaccinated with the 2004 trivalent influenza vaccine containing 15ug each of A/Fujian/411/2002(H3N2)-like, A/New Caledonia/20/99(H1N1)-like, and B/Hong Kong/330/2001-like hemagglutinin.

2. Sera were kindly provided by Dr. John Wood, NIBSC, Hertfordshire, UK. The populations were vaccinated with the 2004-2005 trivalent influenza vaccine containing 15ug each of A/Wyoming/03/2003(H3N2)-like, A/New Caledonia/20/99(H1N1)-like, and B/Jiangsu/10/2003-like hemagglutinin.

3. Sera were kindly provided by Dr. Takato Odagiri, WHO Collaborating Center, Tokyo, Japan. The populations were vaccinated with the 2004-2005 trivalent influenza vaccine containing 15 ug each of A/Fujian/411/2002(H3N2)-like, A/New Caledonia/20/99(H1N1)-like, and B/Shanghai/361/2002-like hemagglutinin.

4. Sera were kindly provided by Dr. Roland Levandowski, FDA, Bethesda, MD. The populations were vaccinated with the 2004-2005 trivalent influenza vaccine containing 15 ug each of A/Fujian/411/2002(H3N2)-like, A/New Caledonia/20/99(H1N1)-like, and B/Shanghai/361/2002-like hemagglutinin

* A/Wyoming/03/2003 is the H3N2 component of the vaccine.

HI Antibody Responses to the H3* Component of the 2004-2005 Influenza Vaccine

PEDIATRIC POPULATIONS (6-23 months old)

						% with HI titer \geq 40	
Sera	N	Antigen	% Rise	Pre GMT	Post GMT	Pre Vaccine	Post Vaccine
USA¹	25	A/Wyoming/03/2003 X-147*	77	11	57	26	60
	25	A/Wellington/01/2004	50	10	31	26	33
	25	A/California/07/2004	23	9	17	19	23
	25	A/Singapore/36/2004	27	6	13	0	23
	25	A/Tennessee/06/2004	37	10	21	26	23

1. Sera were kindly provided by Dr. William Koch and Tammy Anders, Virginia Commonwealth University. The population was vaccinated with two doses of the 2004-2005 trivalent influenza vaccine containing 15 ug each of A/Fujian/411/2002(H3N2)-like, A/New Caledonia/20/99(H1N1)-like, and B/Shanghai/361/2002-like hemagglutinin

* A/Wyoming/3/2003 is the H3N2 component of the vaccine.

**Hemagglutination Inhibition Antibody Responses to the
H3* Component of the 2004 -2005 Influenza Vaccine**

PEDIATRIC POPULATION (5-8 years old)

N	Antigen	% Raise	GMT		% with HI titer \geq 40	
			Pre	Post	Pre	Post
264	A/Wyoming/03/2003 X-147	92	52	422	81	97

Preliminary Data 12/15/2004

* Sera were kindly provided by Dr. Kathleen Neuzil, Group Health Cooperative, University of Washington. The population was vaccinated with two doses of the 2004-2005 trivalent influenza vaccine containing 15 ug each of A/Fujian/411/2002(H3N2)-like, A/New Caledonia/20/99(H1N1)-like, and B/Shanghai/361/2002-like hemagglutinin

Influenza B Viruses

HEMAGGLUTINATION INHIBITION REACTIONS OF INFLUENZA TYPE B VIRUSES (02/03/05)

STRAIN DESIGNATION	REFERENCE FERRET ANTISERA									Date collected	Passage
	REFERENCE ANTIGENS	SIC/379	SHA/361	JIL/20	JIA/10	FL/7	HK/1434	BRIS/32	HI/13		
1 B/SICHUAN/379/99	640	320	80	160	640	20	10	5	12/02/99	E2/E1	
2 B/SHANGHAI/361/2002	640	320	160	160	640	40	5	5	06/12/02	E2/E2	
3 B/JILIN/20/2003 *	320	160	160	160	640	20	5	5	02/21/03	E2/E4	
4 B/JIANGSU/10/2003	80	80	80	1280	320	5	5	5	09/11/03	E3/E2	
5 B/EGYPT/2040/2004	640	320	160	320	1280	20	5	5	04/27/04	C2/C2	
6 B/FLORIDA/07e/2004 *	320	160	80	160	640	20	10	5	10/01/04	E3	
7 B/SHANDONG/07/1997	10	5	5	5	5	640	320	640	11/03/97	E4/E3	
8 B/HONG KONG/1434/2002	10	5	5	5	5	1280	640	640	01/15/02	E5	
9 B/BRISBANE/32/2002	10	5	5	5	10	640	640	640	07/02/02	E2/E4	
10 B/HAWAII/13/2004 *	5	5	5	5	5	320	160	320	06/21/04	E2	

TEST ANTIGENS

11 B/COLORADO/04e/2004 *	320	320	80	160	640	20	5	5	11/09/04	E2
12 B/OREGON/01/2005	160	160	80	320	640	20	5	5	01/03/05	R1/C1
13 B/WEST VIRGINIA/01/2004	160	160	80	320	640	10	5	5	12/28/04	C1/C1
14 B/WASHINGTON/03/2004	320	320	160	640	640	10	5	5	12/30/04	M1/C1
15 B/VIRGINIA/01/2005	160	160	80	320	640	20	5	5	01/03/05	M1/C1
16 B/ARIZONA/01/2005	80	160	80	320	640	10	5	5	01/05/05	M1/C1
17 B/NEW YORK/27/2004	160	160	80	320	640	20	5	5	12/29/04	M1/C1
18 B/MISSISSIPPI/02/2005	80	160	80	320	640	10	5	5	01/10/05	X/C1
19 B/NEVADA/02/2005	160	160	80	640	640	10	5	5	01/16/05	M1/C1
20 B/TEXAS/06/2004	160	160	80	320	320	20	5	5	12/30/04	M1/C1
21 B/NORTH DAKOTA/02/2004	160	160	80	640	640	20	5	5	12/29/04	M2/C1
22 B/NORWAY/1102/204	80	160	80	320	640	10	5	5	11/22/04	C2/C1
23 B/TURKEY/187/2004	320	160	40	40	320	20	10	5	12/27/04	X/C1
24 B/FUJIAN/430/2004 *	160	160	80	80	320	10	5	5	09/04/04	E1C2/C1E2
25 B/NEVADA/01/2005	5	5	5	5	5	160	80	40	01/04/05	X/C1
26 B/TEXAS/01/2005	5	5	5	5	5	80	40	20	01/10/05	M1/C1
27 B/HONG KONG/310e/2004	20	20	5	5	20	640	320	640	11/24/04	E2
28 B/HONG KONG/312/2004	5	5	5	5	5	80	40	40	11/29/04	C2/C1
29 B/HONG KONG/318/2004	5	5	5	5	5	160	80	40	12/15/04	C2/C1
30 B/SINGAPORE/15/2004	5	5	5	5	5	320	640	640	11/08/04	C2/C1
31 B/SINGAPORE/14/2004	5	5	5	5	5	320	320	320	11/02/04	C2/C1
32 B/SINGAPORE/18/2004	5	5	5	5	5	160	80	40	11/22/04	C2/C1
33 B/SINGAPORE/08/2004	5	5	5	5	5	80	40	40	08/16/04	C2/C1
34 B/SINGAPORE/11/2004	5	5	5	5	5	160	40	40	10/08/04	C2/C1
35 B/SINGAPORE/16/2004	5	5	5	5	5	80	40	40	11/10/04	C2/C1
36 B/SINGAPORE/17/2004	5	5	5	5	5	80	40	40	11/19/04	C2/C1

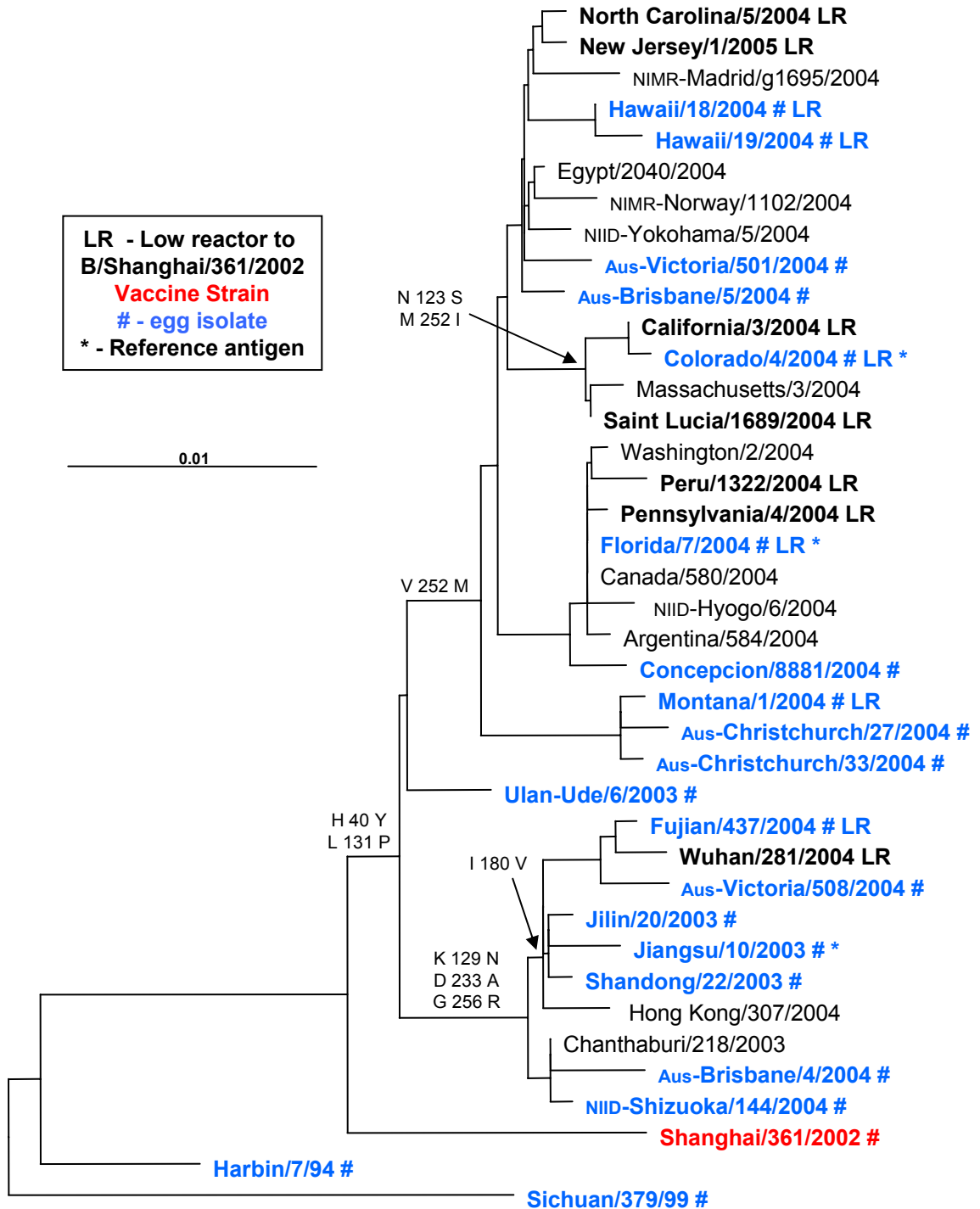
* Serology antigens

Influenza B Isolates Characterized by CDC

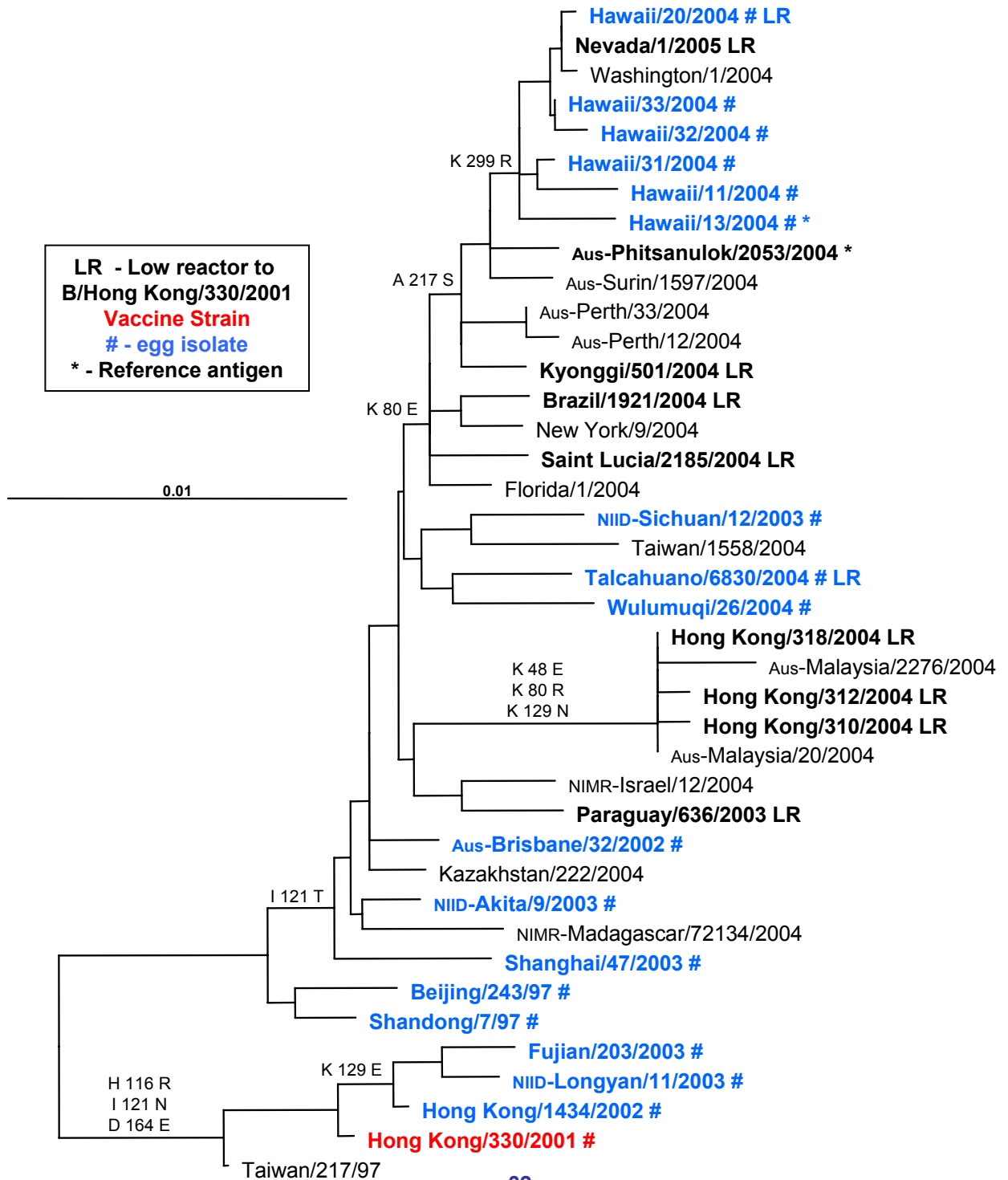
	U.S.A.	North America	Europe	Asia	Cent/So America	Africa, Australia, New Zealand	Total (%)
April 2003 – September 2003							
B/Hong Kong/330/2001-like	5	3		5	4	1	18 (33%)
B/HK/330/2001 (low)	11				6	5	22 (41%)
B/Sichuan/379/99-like				3			3 (6%)
B/Sichuan/379/99 (low)	1			9		1	11 (20%)
						Total	54
October 2003 – March 2004							
B/Hong Kong/330/2001-like	3	1		5			9 (5%)
B/HK/330/2001 (low)	1			4	16		21 (10%)
B/Sichuan/379/99-like	33	1		59	37	3	133 (66%)
B/Sichuan/379/99 (low)	15	5		16	3		39 (19%)
						Total	202
April 2004 – September 2004							
B/Hong Kong/330/2001-like	4			1		2	7 (5%)
B/HK/330/2001 (low)	10			1	8		19 (13%)
B/Shangahi/361/2002-like	36	6	1	30	24	12	109 (76%)
B/Shanghai/361/2002 (low)	4			2	3		9 (6%)
						Total	144
October 2004 – January 2005							
B/Hong Kong/330/2001-like	2			2			4 (3.5%)
B/HK/330/2001 (low)	15			9	3		27 (25%)
B/Shangahi/361/2002-like	59		1	11	1		72 (67%)
B/Shanghai/361/2002 (low)	5						5 (4.5%)
						Total	108
Total	204	16	2	157	105	24	508

Preliminary Data 02/03/2005

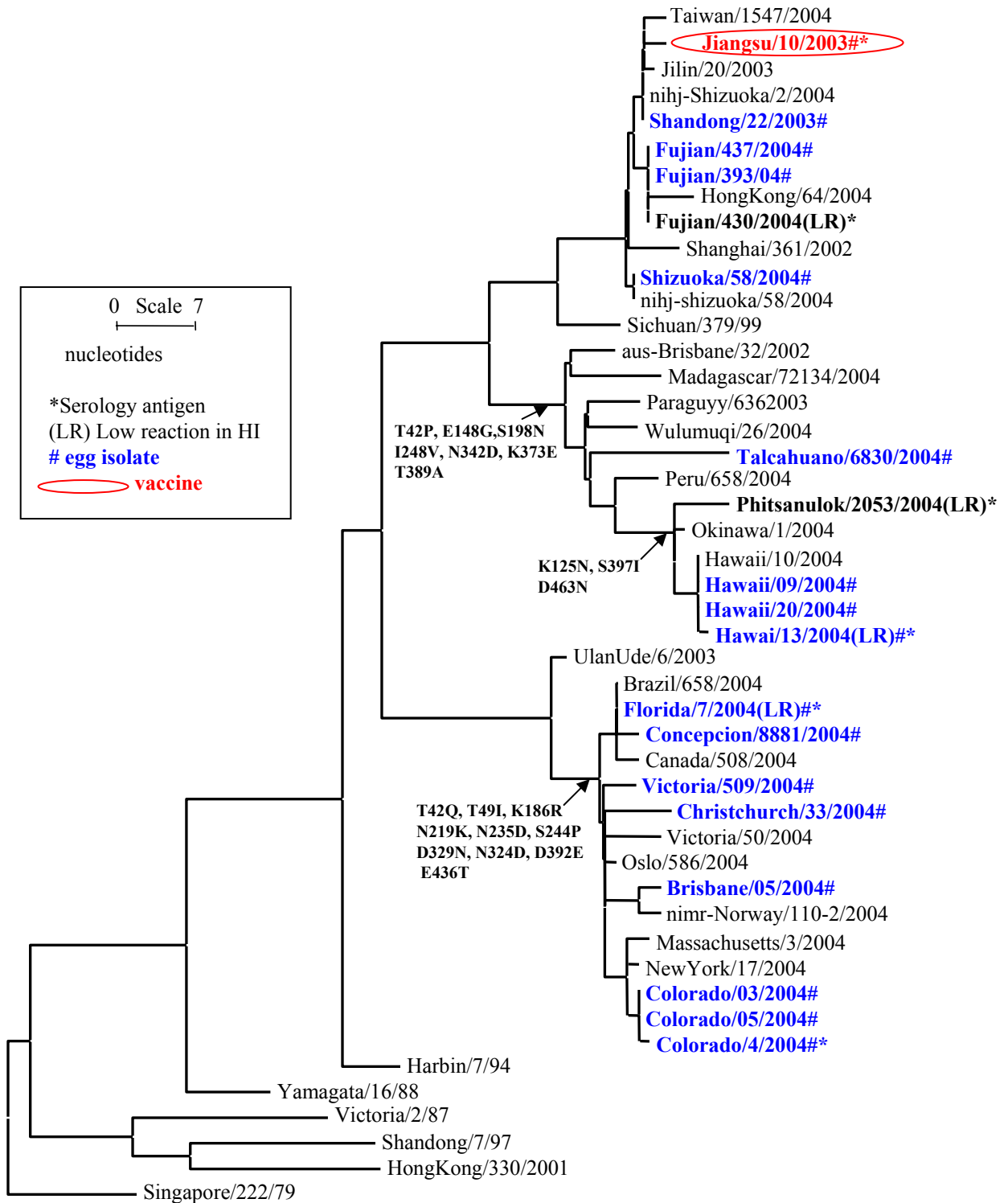
Evolutionary Relationships Among Influenza B (Yamagata lineage) Hemagglutinin (HA1) Genes, 2004/05



Evolutionary Relationships Among Influenza B (Victoria lineage) Hemagglutinin (HA1) Genes, 2004/05



Evolutionary Relationships Among Influenza B NA Genes



HI Antibody Responses to the B* Component of the 2004-2005 Influenza Vaccine ADULT POPULATIONS

Sera	N	Antigen	% Rise	Pre GMT	Post GMT	% with HI titer \geq 40	
						Pre Vaccine	Post Vaccine
Australia ¹	24	B/Jilin/20/2003* ET	74	15	73	29	87
	24	B/Colorado/04/2004 ET	77	18	108	38	93
	24	B/Florida/07/2004 ET	77	21	93	46	86
	24	B/Fujian/430/2004 ET	75	13	65	32	80
	24	B/Hawaii/13/2004** ET	86	12	153	21	100
	24	B/Phitsanulok/2053/2004 ET	86	12	146	22	95
UK ²	24	B/Jilin/20/2003* ET	96	9	90	8	83
	24	B/Colorado/04/2004 ET	91	13	126	21	91
	24	B/Florida/07/2004 ET	92	13	151	25	92
	24	B/Fujian/430/2004 ET	96	11	113	17	96
	24	B/Hawaii/13/2004** ET	57	14	58	30	79
	24	B/Phitsanulok/2053/2004 ET	67	11	52	25	67
Japan ³	30	B/Jilin/20/2003* ET	27	27	61	53	77
	30	B/Colorado/04/2004 ET	28	35	90	59	90
	30	B/Florida/07/2004 ET	28	41	92	69	93
	30	B/Fujian/430/2004 ET	27	29	71	57	87
	30	B/Hawaii/13/2004** ET	10	28	35	55	60
	30	B/Phitsanulok/2053/2004 ET	3	30	32	53	60
USA ⁴	25	B/Jilin/20/2003* ET	60	20	74	24	92
	25	B/Colorado/04/2004 ET	56	21	89	36	92
	25	B/Florida/07/2004 ET	48	22	94	44	96
	25	B/Fujian/430/2004 ET	52	18	82	32	96
	25	B/Hawaii/13/2004** ET	20	15	26	32	48
	25	B/Phitsanulok/2053/2004 ET	20	14	25	28	44

1. Sera were kindly provided by Alan Hampson, WHO Collaborating Center, Melbourne, Australia. The populations were vaccinated with the 2004 trivalent influenza vaccine containing 15ug each of A/Fujian/411/2002(H3N2)-like, A/New Caledonia/20/99(H1N1)-like, and B/Hong Kong/330/2001-like hemagglutinin.

2. Sera were kindly provided by Dr. John Wood, NIBSC, Hertfordshire, UK. The populations were vaccinated with the 2004-2005 trivalent influenza vaccine containing 15ug each of A/Wyoming/03/2003(H3N2)-like, A/New Caledonia/20/99(H1N1)-like, and B/Jiangsu/10/2003-like hemagglutinin.

3. Sera were kindly provided by Dr. Takato Odagiri, WHO Collaborating Center, Tokyo, Japan. The populations were vaccinated with the 2004-2005 trivalent influenza vaccine containing 15 ug each of A/Fujian/411/2002(H3N2)-like, A/New Caledonia/20/99(H1N1)-like, and B/Shanghai/361/2002-like hemagglutinin.

4. Sera were kindly provided by Dr. Roland Levandowski, FDA, Bethesda, MD. The populations were vaccinated with the 2004-2005 trivalent influenza vaccine containing 15 ug each of A/Fujian/411/2002(H3N2)-like, A/New Caledonia/20/99(H1N1)-like, and B/Shanghai/361/2002-like hemagglutinin

* B/Jilin/20/2003 is a B/Shanghai/361/2002-like virus, the recommended B component of the 2004-2005 vaccine.

** B/Hawaii/13/2004 is a B/Hong Kong/330/2001-like virus, the recommended B component of the 2004 Southern Hemisphere vaccine.

HI Antibody Responses to the B* Component of the 2004-2005 Influenza Vaccine

ELDERLY POPULATIONS

						% with HI titer \geq 40	
Sera	N	Antigen	% Rise	Pre GMT	Post GMT	Pre Vaccine	Post Vaccine
Australia ¹	24	B/Jilin/20/2003* ET	50	9	32	13	50
	24	B/Colorado/04/2004 ET	75	10	49	10	67
	24	B/Florida/07/2004 ET	68	10	62	16	74
	24	B/Fujian/430/2004 ET	60	8	33	5	52
	24	B/Hawaii/13/2004** ET	80	9	155	5	100
	24	B/Phitsanulok/2053/2004 ET	75	10	145	10	95
UK ²	24	B/Jilin/20/2003* ET	92	8	69	4	75
	24	B/Colorado/04/2004 ET	96	13	134	21	96
	24	B/Florida/07/2004 ET	92	16	170	29	96
	24	B/Fujian/430/2004 ET	87	9	96	13	91
	24	B/Hawaii/13/2004** ET	52	16	69	38	78
	24	B/Phitsanulok/2053/2004 ET	52	16	55	30	75
Japan ³	30	B/Jilin/20/2003* ET	37	10	24	17	40
	30	B/Colorado/04/2004 ET	43	12	36	13	60
	30	B/Florida/07/2004 ET	50	12	37	17	60
	30	B/Fujian/430/2004 ET	30	10	25	17	47
	30	B/Hawaii/13/2004** ET	23	11	21	17	47
	30	B/Phitsanulok/2053/2004 ET	20	12	20	23	43
USA ⁴	25	B/Jilin/20/2003* ET	16	22	36	40	56
	25	B/Colorado/04/2004 ET	20	25	41	44	60
	25	B/Florida/07/2004 ET	16	27	45	48	60
	25	B/Fujian/430/2004 ET	20	23	41	44	60
	25	B/Hawaii/13/2004** ET	0	25	28	40	36
	25	B/Phitsanulok/2053/2004 ET	0	25	29	40	44

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* B/Jilin/20/2003 is a B/Shanghai/361/2002-like virus, the recommended B component of the 2004-2005 vaccine.

** B/Hawaii/13/2004 is a B/Hong Kong/330/2001-like virus, the recommended B component of the 2004 Southern Hemisphere vaccine.

HI Antibody Responses to the B* Component of the 2004-2005 Influenza Vaccine

PEDIATRIC POPULATIONS (6-23 months old)

Sera	N	Antigen	% Rise	Pre GMT	Post GMT	% with HI titer \geq 40	
						Pre Vaccine	Post Vaccine
USA ¹	25	B/Jilin/20/2003* ET	40	5	10	0	10
	25	B/Colorado/04/2004 ET	40	5	10	0	10
	25	B/Florida/07/2004 ET	37	5	10	0	7
	25	B/Fujian/430/2004 ET	40	5	10	0	7
	25	B/Hawaii/13/2004** ET	0	5	5	0	0
	25	B/Phitsanulok/2053/2004 ET	0	5	5	0	0

Preliminary Data 01/26/2005

1. Sera were kindly provided by Dr. William Koch and Tammy Anders, Virginia Commonwealth University. The population was vaccinated with two doses of the 2004-2005 trivalent influenza vaccine containing 15 ug each of A/Fujian/411/2002(H3N2)-like, A/New Caledonia/20/99(H1N1)-like, and B/Shanghai/361/2002-like hemagglutinin

* B/Jilin/20/2003 is a B/Shanghai/361/2002-like virus, the recommended B component of the vaccine.

**Hemagglutination Inhibition Antibody Responses to the
B* Component of the 2004 -2005 Influenza Vaccine**

PEDIATRIC POPULATION (5-8 years old)

N	Antigen	% Raise	GMT		% with HI titer \geq 40	
			Pre	Post	Pre	Post
264	B/Jilin/20/2003 ET*	79	8	48	11	64
	B/Hong Kong/1434/2001 ET	10	5	7	1	8

Preliminary Data 12/15/2004

* Sera were kindly provided by Dr. Kathleen Neuzil, Group Health Cooperative, University of Washington. The population was vaccinated with two doses of the 2004-2005 trivalent influenza vaccine containing 15 ug each of A/Fujian/411/2002(H3N2)-like, A/New Caledonia/20/99(H1N1)-like, and B/Shanghai/361/2002-like hemagglutinin