

Influenza A(H3N2) Viruses

HEMAGGLUTINATION INHIBITION REACTIONS OF INFLUENZA H3 VIRUSES (12/21/05)

REFERENCE ANTIGENS	WY/03	HK/4593	REFERENCE FERRET ANTISERA					MS/5	Date	Passage
			CA/7	WI/19	NY/55	HK/2831	collected			
1 A/WYOMING/03/2003 X-147	2560	80	1280	40	80	80	320	REASS	X/E2	
2 A/HONG KONG/4593/2004	1280	1280	640	640	640	160	640	10/18/04	SpfCK2E5	
3 A/CALIFORNIA/07/2004	640	640	640	640	640	320	640	09/16/04	SpfCK3E4	
4 A/WISCONSIN/19/2004	160	640	1280	640	320	80	320	11/06/04	SpfCK2E4	
5 A/NEW YORK/55/2004	640	640	1280	640	640	160	1280	11/18/04	SPFCK2E3	
6 A/HONG KONG/2831/2005	40	160	320	40	160	320	160	05/25/05	C2/C5	
7 A/MISSISSIPPI/05/2004	80	80	320	40	80	80	160	12/14/04	SpfCK3E4	
TEST ANTIGENS										
8 A/NEW YORK/33/2005	1280	640	1280	160	320	640	1280	11/10/05	M1/C1	
9 A/NEW YORK/34/2005	640	320	640	160	320	640	320	08/30/05	M2/C1	
10 A/TEXAS/54/2005	160	320	640	160	320	640	640	11/15/05	M1/C2	
11 A/TEXAS/55/2005	160	320	640	80	320	320	320	11/09/05	M1/C1	
12 A/KENTUCKY/14/2005	160	160	640	80	320	640	160	11/24/05	M1/C1	
13 A/HAWAII/24/2005	320	320	640	160	320	80	640	11/01/05	C2/C1	
14 A/PENNSYLVANIA/06/2005	80	160	640	80	320	320	320	10/31/05	C2/C2	
15 A/WISCONSIN/69/2005	320	320	640	160	320	640	640	11/19/05	C1/C1	
16 A/HAWAII/25/2005	160	160	320	80	160	40	320	11/02/05	C2/C1	
17 A/PENNSYLVANIA/04/2005	40	80	320	40	160	320	160	11/02/05	C1/C1	
18 A/PENNSYLVANIA/05/2005	80	160	320	80	160	320	320	11/13/05	C1/C1	
19 A/OREGON/09/2005	80	80	320	80	160	320	160	11/29/05	C1/C1	
20 A/MASSACHUSETTS/10/2005	80	160	320	80	160	640	320	11/30/05	C1/C1	
21 A/MASSACHUSETTS/11/2005	160	160	320	80	160	640	160	11/29/05	C1/C1	
22 A/WISCONSIN/70/2005	80	160	320	80	160	320	160	11/28/05	C1/C1	
23 A/WISCONSIN/71/2005	80	80	160	40	80	160	80	11/30/05	C1/C1	
24 A/TEXAS/56/2005	80	80	160	40	80	160	80	11/28/05	M1/C1	
25 A/WASHINGTON/10/2005	160	80	160	40	80	320	160	11/30/05	M1/C1	
26 A/WISCONSIN/72/2005	40	80	80	20	80	160	40	12/01/05	C1/C1	
27 A/CANADA/1299/2005	640	320	1280	320	640	320	640	09/27/05	M1/C1	
28 A/CANADA/1342/2005	640	320	1280	160	320	1280	640	11/14/05	M1/C1	
29 A/CANADA/1297/2005	160	320	640	80	320	160	320	09/22/05	M1/C1	
30 A/BRAZIL/1742/2005	5120	2560	2560	1280	1280	320	1280	07/07/05	SPFCK2E3	
31 A/VENEZUELA/152/2005	320	320	640	320	320	160	320	08/19/05	CX/C2	
32 A/VENEZUELA/899/2005	160	320	640	160	320	160	320	08/17/05	CX/C2	
33 A/VENEZUELA/155/2005	160	320	320	160	320	160	160	08/19/05	CX/C2	
34 A/COSTA RICA/3288/2005	160	640	640	320	320	80	320	06/02/05	C1/C1	
35 A/COSTA RICA/8031/2005	160	160	320	80	160	80	320	07/06/05	C2/C2	
36 A/COSTA RICA/8032/2005	80	80	160	40	80	40	160	07/18/05	C2/C1	
37 A/ANHUI/1238/2005	640	1280	5120	160	640	160	320	UNKN	E2/E1	
38 A/ANHUI/1239/2005	160	160	320	40	160	160	320	UNKN	E2/E1	
39 A/ANHUI/504/2005	40	160	320	160	160	80	160	03/21/05	C2/C2	

HEMAGGLUTINATION INHIBITION REACTIONS OF INFLUENZA H3 VIRUSES (01/11/2006)

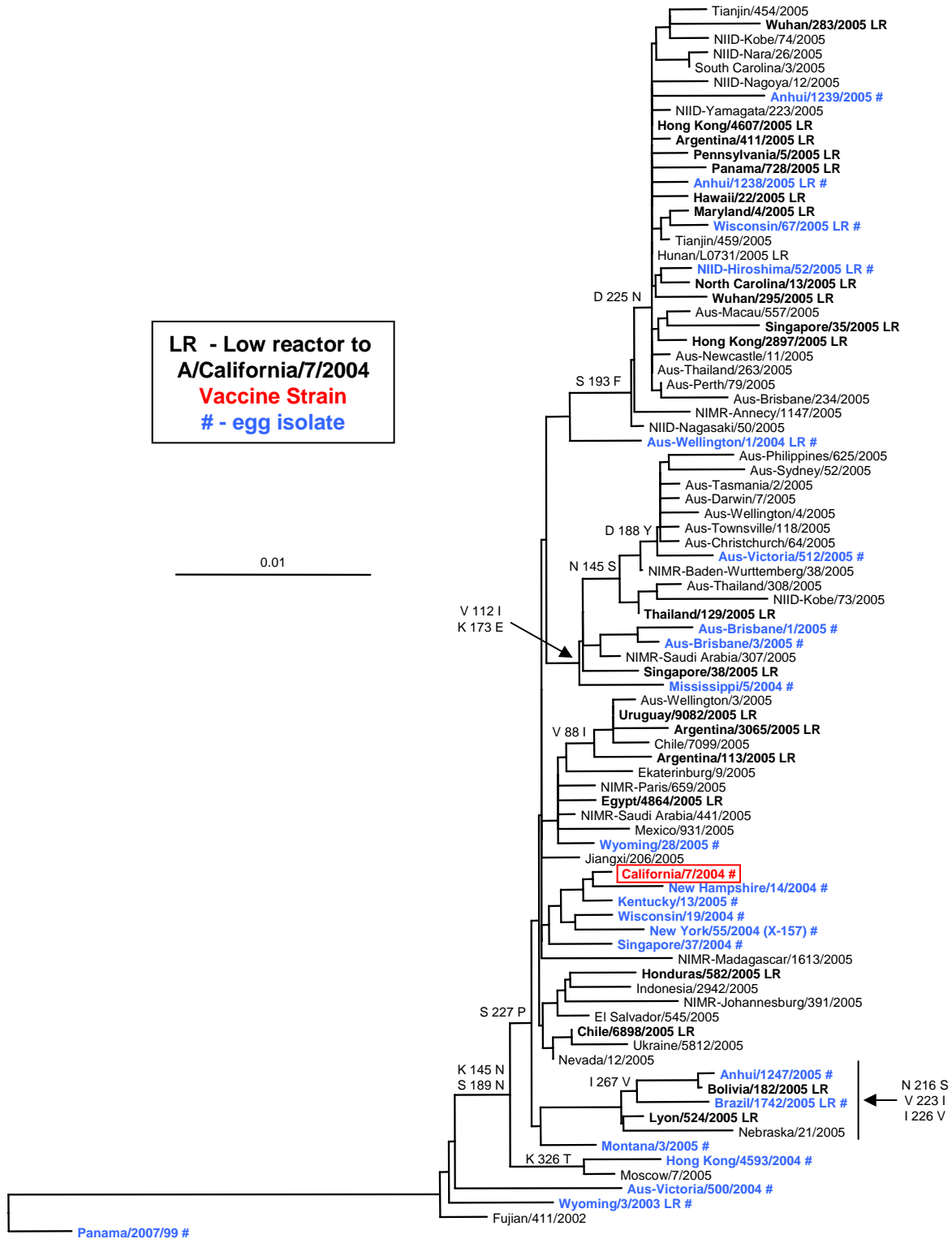
REFERENCE ANTIGENS	REFERENCE FERRET ANTISERA							Date	Passage
	WY/03	HK/4593	CA/7	NY/55	MS/5	AN/1239	WI/67	collected	
1 A/WYOMING/03/2003 X-147	2560	160	320	80	320	160	640	REASS	X/E2
2 A/HONG KONG/459320/04	1280	640	320	160	160	80	640	10/18/2004	SpfCK2E5
3 A/CALIFORNIA/07/2004	1280	640	640	320	640	320	1280	9/16/2004	SpfCK3E4
4 A/NY/55/04 A/PR/8/34	640	160	640	640	1280	160	1280	REASS	EX/E1
5 A/MISSISSIPPI/05/2004	320	80	320	320	640	80	640	12/14/2004	SpfCK3E4
6 A/ANHUI/1239/2005	320	160	320	160	320	640	2560	8/23/2005	E2/E1
7 A/WISCONSIN/67/2005	320	160	320	160	320	320	2560	8/31/2005	SpfCK3E3
TEST ANTIGENS									
8 A/IDAHO/07/2005	1280	640	1280	320	1280	640	5120	11/28/2005	M1/C2
9 A/NEVADA/20/2005	1280	640	1280	640	1280	640	5120	12/6/2005	MX/C1
10 A/WISCONSIN/75/2005	640	320	1280	320	320	640	2560	12/10/2005	C1/C1
11 A/IDAHO/08/2005	640	320	640	320	320	320	1280	11/26/2005	M1/C2
12 A/HAWAII/26/2005	160	320	640	320	320	320	1280	11/3/2005	C2/C1
13 A/WASHINGTON/11/2005	320	320	640	320	1280	640	2560	11/30/2005	M1/C2
14 A/COLORADO/17/2005	320	320	640	320	160	320	640	12/3/2005	M1/C1
15 A/MASSACH./11/2005	320	160	640	320	320	640	2560	11/29/2005	X1/C1
16 A/TEXAS/57/2005	640	320	640	320	640	640	2560	11/27/2005	M1/C2
17 A/TEXAS/58/2005	320	320	640	160	160	160	1280	12/5/2005	M1/C2
18 A/ARIZONA/37/2005	320	320	640	320	640	320	1280	12/8/2005	CX/C1
19 A/ARIZONA/47/2005	320	160	640	160	160	160	1280	12/9/2005	RX/C2
20 A/WISCONSIN/78/2005	320	320	640	320	160	640	640	12/13/2005	C1/C1
21 A/FLORIDA/08/2005	320	160	640	160	640	320	2560	12/1/2005	M2/C2
22 A/UTAH/05/2005	320	160	640	160	160	320	640	12/1/2005	C1/C2
23 A/UTAH/06/2005	320	160	320	160	320	160	1280	12/3/2005	C1/C1
24 A/FLORIDA/09/2005	160	80	320	160	160	160	1280	12/5/2005	M3/C1
25 A/WISCONSIN/68/2005	320	160	320	160	320	80	1280	10/19/2005	SPFCK2E2
26 A/CALIFORNIA/20e/2005	320	160	320	320	640	320	2560	10/11/2005	SPFCK3E1
27 A/OREGON/09/2005	160	160	320	160	160	160	640	11/29/2005	R1/C1
28 A/WISCONSIN/71/2005	320	80	320	160	320	160	1280	11/30/2005	C1/C1
29 A/COLORADO/16/2005	160	160	320	160	320	160	1280	12/3/2005	M1/C1
30 A/ARIZONA/36/2005	160	80	320	160	160	160	640	12/7/2005	CX/C1
31 A/ARIZONA/42/2005	160	80	320	160	320	320	640	12/5/2005	CX/C1
32 A/ARIZONA/43/2005	320	160	320	160	320	80	1280	12/3/2005	CX/C1
33 A/WISCONSIN/79/2005	320	160	320	160	320	320	2560	12/13/2005	C1/C1
34 A/IOWA/13/2005	80	80	320	160	80	160	320	12/3/2005	C1/C1
35 A/IOWA/14/2005	320	160	320	160	320	160	1280	12/4/2005	C1/C1
36 A/MARYLAND/05/2005	320	160	320	160	160	320	1280	11/29/2005	M1/C1
37 A/ILLINOIS/07/2005	160	80	320	320	160	320	1280	12/27/2005	C1
38 A/TEXAS/53/2005	80	80	160	80	80	80	160	11/14/2005	M1/C1
39 A/ILLINOIS/06/2005	80	40	160	80	40	80	320	12/22/2005	C1
40 A/MISSISSIPPI/19/2005	40	40	160	40	80	80	320	11/30/2005	C1
41 A/CANADA/1298/2005	80	80	160	80	40	40	160	9/27/2005	M1/C1
42 A/CANADA/1319/2005	160	80	160	80	80	160	320	9/14/2005	M1/C1
43 A/CANADA/1326/2005	320	160	160	80	160	160	640	11/1/2005	M1/C1
44 A/CANADA/1341/2005	160	160	160	160	160	160	640	11/17/2005	M1/C1
45 A/BRAZIL/2357/2005	640	640	1280	320	640	80	1280	UNKN	SPFCK3E2
46 A/BRAZIL/2353/2005	320	640	640	160	320	80	320	UNKN	SPFCK3E3
47 A/GUANGDONG/552/2005	80	80	320	80	80	160	320	5/1/2005	C3/C1
48 A/CHONGQING/1144/2005	160	80	160	160	160	160	1280	3/30/2005	C1/C1
49 A/HIROSHIMA/52/2005	320	160	160	160	320	640	2560		E31/E1

Influenza A(H3N2) Isolates Characterized by CDC

	U.S.A.	North America	Europe	Asia	Cent/So America	Africa, Australia, New Zealand	Total (%)
April 2004 – September 2004							
A/Fujian/411/2002-like	29	17	6	144	165	4	365 (80%)
A/Fujian/411/2002 (low)	5			42	8	2	57 (12%)
A/California/07/2004-like*				19	7	7	33 (7%)
A/California/07/2004-like* (low)				3	2		5 (1%)
						Total	460
October 2004 – March 2005							
A/Fujian/411/2002-like	126	8	8	24	4	1	171 (15%)
A/Fujian/411/2002 (low)	12	2		1			15 (1%)
A/California/07/2004-like	578	9	54	198	24	2	865 (78%)
A/California/07/2004-like (low)	32		2	17		1	52 (5%)
						Total	1103
April 2005 – September 2005							
A/California/07/2004-like	43	4	1	90	151	5	294 (88%)
A/California/07/2004-like (low)	2	2		22	13	3	42 (12%)
						Total	336
October 2005 – January 2006							
A/California/07/2004-like	54	1					55 (79%)
A/California/07/2004-like (low)	11	4					15 (21%)
						Total	70
Total	892	47	71	560	374	25	1969

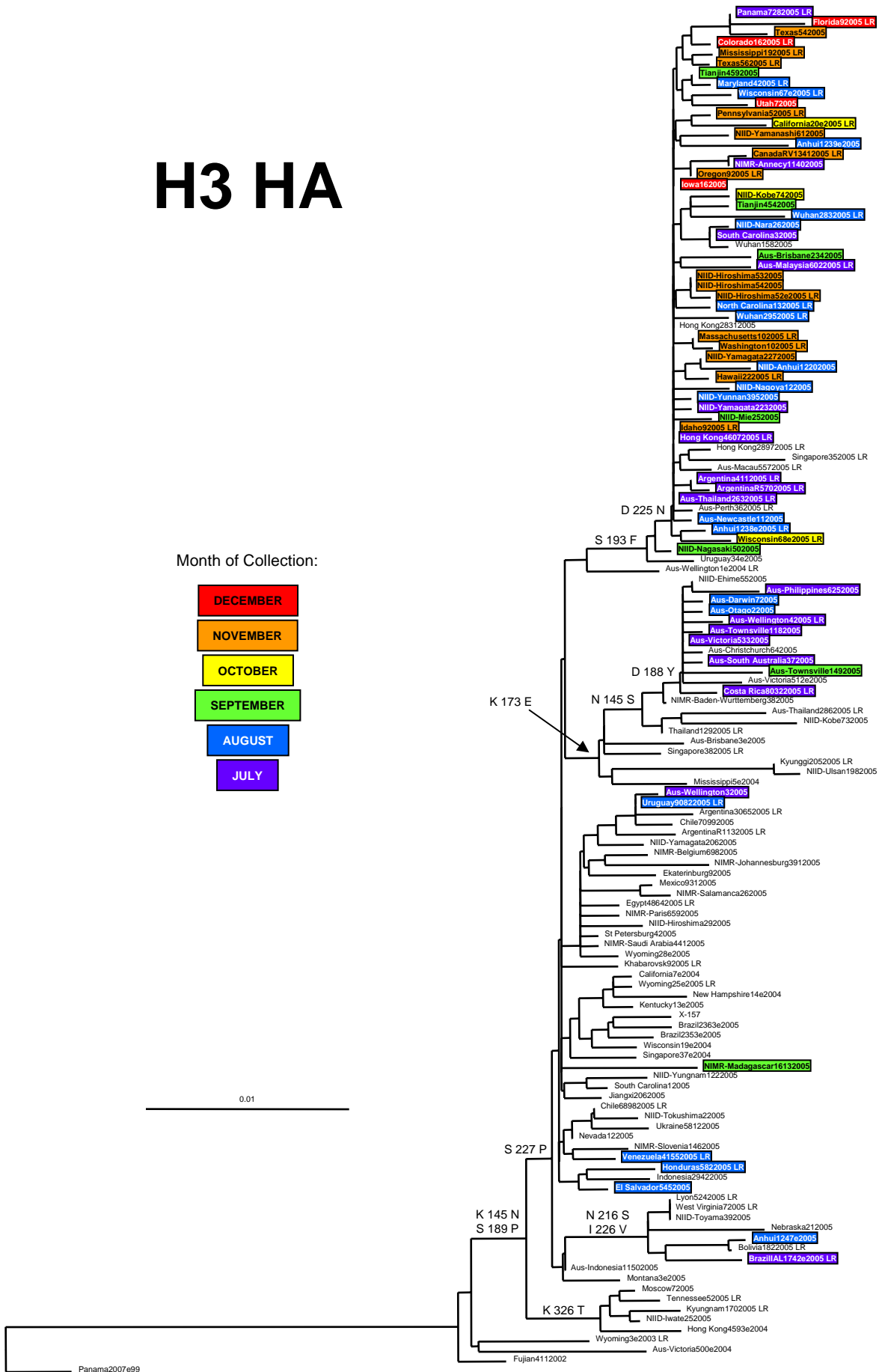
Preliminary data 01/20/2006

Evolutionary Relationships Among Influenza A (H3) HA1 Genes



H3 HA

Month of Collection:



Influenza B Viruses

HEMAGGLUTINATION INHIBITION REACTIONS OF INFLUENZA TYPE B VIRUSES (01/04/06)

REFERENCE ANTIGENS	REFERENCE FERRET ANTISERA							Date collected	Passage
	SHAN/361	FL/7	SH/7	HK/310	MY/2506	OH/1	IL/47		
1 B/SHANGHAI/361/2002	640	1280	5	40	80	10	20	6/12/2002	E2/E2
2 B/FLORIDA/07/2004	160	640	5	20	40	5	10	10/1/2004	E4
3 B/SHANDONG/07/1997	5	5	2560	320	640	320	320	11/3/1997	E4/E3
4 B/HONG KONG/310/04	5	5	1280	1280	1280	640	1280	11/24/2004	C2/C2
5 B/MALAYSIA/2506/2004	5	10	640	640	1280	320	640	UNKN	E3/E1
6 B/OHIO/01/2005	5	5	320	160	320	160	160	2/23/2005	E3
7 B/ILLINOIS/47/2005	5	5	640	160	320	160	320	3/7/2005	E2
TEST ANTIGENS									
8 B/FLORIDA/03/2005	40	640	5	5	20	5	5	11/29/2005	M1/C1
9 B/MISSOURI/07/2005	40	320	5	5	10	5	5	12/10/2005	M1/C1
10 B/INDONESIA/6644/2005	80	640	5	5	20	5	5	12/4/2005	M1/C1
11 B/INDONESIA/6040/2005	80	640	5	5	20	5	5	5/3/2005	C2/C1
12 B/ARIZONA/34/2005	5	5	160	80	80	160	80	11/22/2005	CX/C1
13 B/INDONESIA/5249/2005	5	10	320	320	640	320	320	4/14/2005	C2/C1
14 B/INDONESIA/5235/2005	5	5	320	160	320	320	160	4/16/2005	C2/C1
15 B/INDONESIA/5245/2005	5	5	320	80	320	320	80	4/12/2005	C2/C1
16 B/INDONESIA/4479/2005	5	5	160	80	160	160	40	4/7/2005	C2/C1
17 B/INDONESIA/5919/2005	5	5	320	80	160	160	80	4/25/2005	C2/C1
18 B/INDONESIA/4387/2005	5	5	160	40	80	160	40	4/4/2005	C2/C1
19 B/INDONESIA/4475/2005	5	5	160	80	80	160	80	4/6/2005	C2/C1
20 B/INDONESIA/5702/2005	5	5	160	80	80	160	40	4/23/2005	C2/C1
21 B/INDONESIA/5741/2005	5	5	160	40	80	160	40	4/25/2005	C2/C1
22 B/INDONESIA/5777/2005	5	5	160	40	80	160	40	4/28/2005	C2/C1
23 B/INDONESIA/5910/2005	5	5	160	40	80	160	40	4/28/2005	C2/C1
24 B/INDONESIA/5920/2005	5	5	160	80	80	160	40	4/25/2005	C2/C1
25 B/INDONESIA/5948/2005	5	5	160	40	80	160	40	4/14/2005	C2/C1
26 B/INDONESIA/6056/2005	5	5	160	40	80	160	40	5/3/2005	C2/C1
27 B/INDONESIA/6069/2005	5	5	160	40	80	160	40	4/30/2005	C2/C1
28 B/INDONESIA/6639/2005	5	5	160	40	80	160	40	5/10/2005	C2/C1
29 B/INDONESIA/6640/2005	5	5	160	40	80	160	40	5/10/2005	C2/C1

HEMAGGLUTINATION INHIBITION REACTIONS OF INFLUENZA TYPE B VIRUSES (01/18/06)

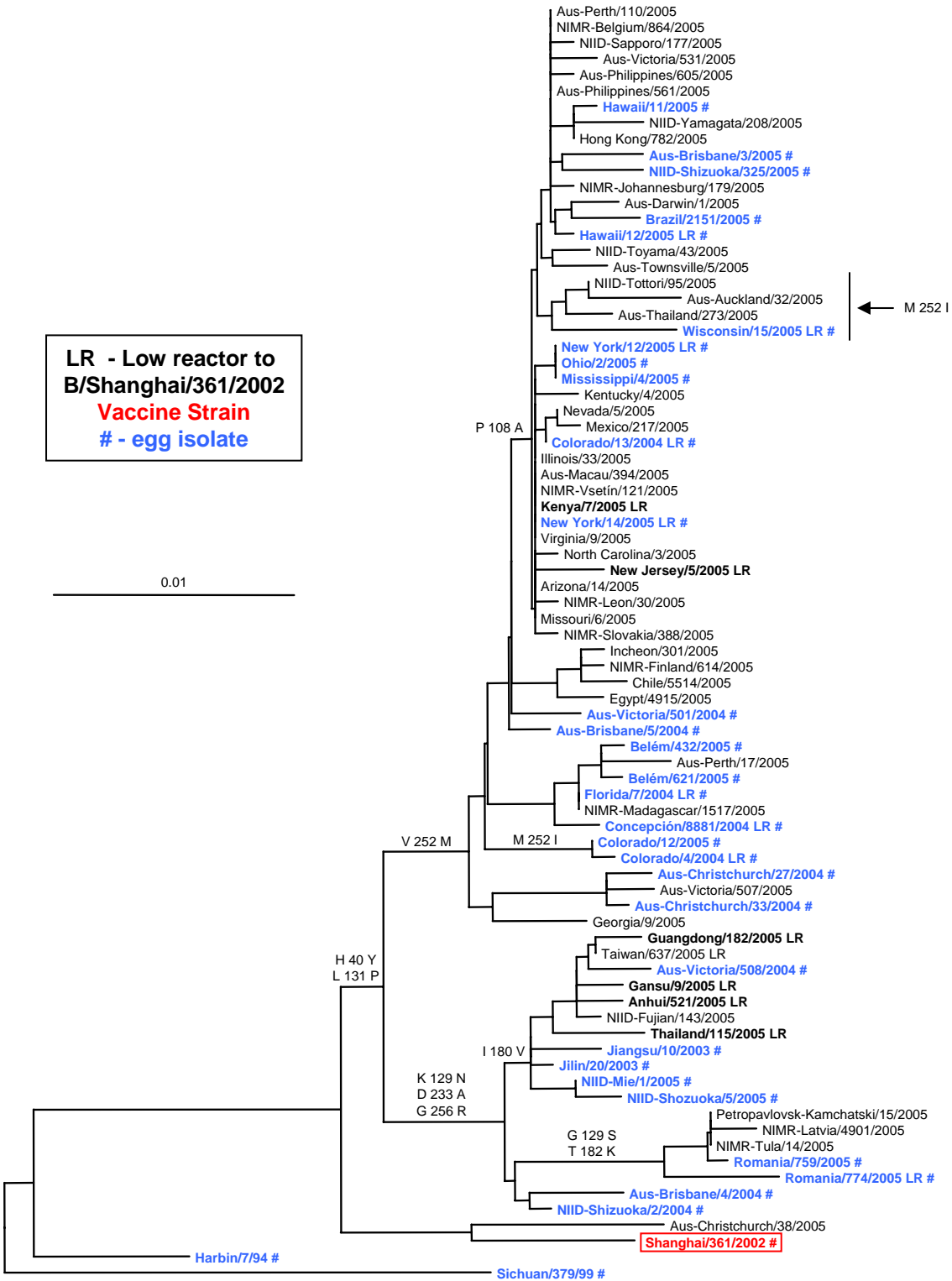
REFERENCE ANTIGENS		REFERENCE FERRET ANTISERA						Date collected	Passage	
		SH/361	FL/7	SH/7	HK/310	MY/2506	OH/1			IL/47
1	B/SHANGHAI/361/2002	<u>640</u>	1280	20	40	40	80	20	06/12/02	E2/E2
2	B/FLORIDA/07/2004	160	<u>640</u>	10	40	40	40	20	10/01/04	E4
3	B/SHANDONG/07/1997	5	5	<u>2560</u>	320	640	1280	640	11/03/97	E4/E3
4	B/HONG KONG/310/2004	5	5	1280	<u>1280</u>	1280	2560	1280	11/24/04	C2/C2
5	B/MALAYSIA/2506/2004	5	10	1280	640	<u>640</u>	1280	640	UNKN	E3/E1
6	B/OHIO/01/2005	5	5	640	160	160	<u>640</u>	320	02/23/05	E3
7	B/ILLINOIS/47/2005	5	5	1280	320	320	640	<u>320</u>	03/07/05	E2
TEST ANTIGENS										
8	B/CALIFORNIA/14/2005	160	1280	10	10	40	80	nd	11/14/05	M1/C1
9	A/CALIFORNIA/17/2005	160	1280	20	10	40	80	5	11/24/05	M1/C1
10	B/CALIFORNIA/16/2005	160	320	10	5	40	80	nd	10/21/05	M2/C1
11	B/CALIFORNIA/16e/2005	80	320	5	10	40	10	nd	10/21/05	E2
12	B/INDONESIA/6652/2005	160	640	10	5	20	40	5	05/14/05	C2/C1
13	B/KUWAIT/01/2005	160	640	10	5	20	20	5	11/20/05	X/C1
14	B/HONDURAS/1465/2005	160	640	10	10	40	40	5	12/20/05	X/C1
15	B/CALIFORNIA/15/2005	5	5	1280	640	1280	2560	nd	12/13/05	M1/C1
16	B/MEXICO/1388/2005	5	5	320	40	160	320	nd	06/21/05	C1/C1
17	B/UK/1339/2005	5	5	320	160	640	640	160	12/07/05	X/C1
18	B/INDONESIA/6648/2005	5	5	640	320	1280	640	640	05/14/05	C2/C1
19	B/INDONESIA/6695/2005	5	5	640	320	640	1280	320	05/20/05	C2/C1
20	B/INDONESIA/6654/2005	5	5	640	320	640	640	640	05/14/05	C2/C1
21	B/INDONESIA/4561/2005	5	5	640	320	320	640	320	04/09/05	C2/C1
22	B/INDONESIA/6644/2005	5	5	160	40	160	320	80	05/12/05	C2/C1
23	B/INDONESIA/6647/2005	5	5	320	40	160	320	80	05/12/05	C2/C1
24	B/INDONESIA/6673/2005	5	5	160	40	160	160	40	05/11/05	C2/C1
25	B/INDONESIA/5243/2005	5	5	320	40	80	160	20	04/12/05	C2/C1
26	B/INDONESIA/6528/2005	5	5	160	40	80	160	40	05/11/05	C2/C2
27	B/INDONESIA/6634/2005	5	5	160	40	80	160	40	05/03/05	C2/C2
28	B/INDONESIA/6911/2005	5	5	320	80	160	320	nd	05/20/05	C2/C1
29	B/INDONESIA/6920/2005	5	5	320	40	80	160	nd	05/25/05	C2/C1

Influenza B Isolates Characterized by CDC

	U.S.A.	North America	Europe	Asia	Cent/So America	Africa, Australia, New Zealand	Total (%)
April 2004 – September 2004							
B/Hong Kong/330/2001-like	4			1	2	2	9 (5%)
B/HK/330/2001-like (low)	10			2	23		35 (19%)
B/Sichuan/379/99-like	36	6	1	37	29	16	125 (67%)
B/Sichuan/379/99-like (low)	4			5	4	5	18 (9%)
						Total	187
October 2004 – March 2005							
B/Hong Kong/330/2001-like	18			38	1		57 (8%)
B/HK/330/2001-like (low)	72		8	173	5		258 (36%)
B/Shanghai/361/2002-like	219	25	17	32	13	1	307 (43%)
B/Shanghai/361/2002-like (low)	26		2	2		3	33 (5%)
B/Florida/07/2004-like	19	6	6	21	5		57 (8%)
						Total	712
April 2005 – September 2005							
B/Hong Kong/330/2001-like	3			4	3		10 (5%)
B/HK/330/2001-like (low)	18	1		115	24	4	162 (60%)
B/Shanghai/361/2002-like	12	1		3	3	7	26 (13%)
B/Florida/07/2004-like	15		1	12	4	11	43 (21%)
						Total	241
October 2005 – January 2005							
B/Hong Kong/330/2001-like							
B/HK/330/2001-like (low)	3	1	1				5 (31%)
B/Shanghai/361/2002-like	1						1 (6%)
B/Florida/07/2004-like	7	1		1	1		10 (63%)
						Total	16
Total	467	41	36	446	117	49	1156

Preliminary Data 01/20/2006

Evolutionary Relationships Among Influenza B HA1 Genes (Yamagata lineage)



Evolutionary Relationships Among Influenza B HA1 Genes (Victoria lineage)

