

Table S5. Haemagglutinin (HA) antigenic site differences in circulating A(H1N1)pdm09 viruses relative to the 2012-13 egg-adapted A/California/07/2009 X-179A high growth reassortant vaccine strain

Antigenic Site HA1 Position	N	Cb	Ca2	Sa	Ca1	Sb	Ca1	Clade	# of AA differences ^a	% AA identity ^a			
		74	138	141	163	170	185				186	203	205
A/California/07/2009		S	H	A	K	G	S	A	S	R	-	0	100%
A/California/07/2009 X-179A^b		S	H	A	K	G	S	A	S	R	-	-	-
British Columbia	N												
A/British Columbia/30/2013	2					T	T	K	6C	3	94.0%		
A/British Columbia/31/2013	3					T	T		6C	2	96.0%		
A/British Columbia/32/2013	4			T		T	T		6C	3	94.0%		
A/British Columbia/33/2013	1					P	T	K	6C	3	94.0%		
A/British Columbia/34/2013	1			R		T	T		6A	3	94.0%		
A/British Columbia/36/2013	1					T	T	T	6C	3	94.0%		
Alberta	N												
A/Alberta/74/2012	11					T	T	K	6C	3	94.0%		
A/Alberta/14/2013	3					P	T	K	6C	3	94.0%		
Manitoba	N												
A/Manitoba/13/2013	1			T		T	T		6C	3	94.0%		
Quebec	N												
A/Quebec/040/2012	11			T		T	T		6C	3	94.0%		
A/Quebec/05/2013	1					T	T	T	6C	3	94.0%		
A/Quebec/25/2013	1					Q	T	T	6B	3	94.0%		
Ontario	N												
A/Ontario/033/2012	4					T	T		6C	2	96.0%		
A/Ontario/012/2013	6					T	T	T	6C	3	94.0%		
A/Ontario/024/2013	3					T	T	K	6C	3	94.0%		
A/Ontario/029/2013	1	I		T		T	T		6C	4	92.0%		
A/Ontario/043/2013	1					Q	T	T	6B	3	94.0%		
A/Ontario/011/2013	1					I	R	T	7	4	92.0%		
A/Ontario/026/2013	1					I	T	T	7	3	94.0%		

N=number of sentinel viruses with that sequence. Bold font signifies amino acid (AA) substitution compared with A/California/07/2009 X-179A. Clade designation, number of antigenic site differences and percent antigenic site pairwise identity are also displayed. Antigenic regions comprise 50 AA residues but only the 9/50 positions showing differences between circulating A(H1N1)pdm09 and X-179A are displayed.

- In September 2013, the European Centre for Disease Prevention and Control (ECDC) further divided clade 6 viruses into three genetic subgroups such that 1/55 (2%), 2/55 (4%) and 52/55 (95%) of sentinel clade 6 A(H1N1)pdm09 viruses during 2012-13 belong to clade 6A, 6B and 6C, respectively [29].
- A/California/07/2009 X-179A (hereafter "X-179A") is one of the egg-adapted high growth reassortant vaccine strains substituted by manufacturers for the A/California/07/2009 strain recommended by the World Health Organization as 2012-13 vaccine component. X-181 is an alternate available vaccine strain. Both X-179A and X-181 are identical in their antigenic sites to each other and to A/California/07/2009, with a single non-antigenic site substitution in X-181 (N129D). The number of antigenic site AA differences and percent antigenic site identity are presented here relative to X-179A. Percent identity was derived as per **Text S1**.