

**Appendix.** Amino acid positions compared in this study<sup>a,b</sup>

aa	Antigenic sites	MAb-20	PS-18	D-32	aa	Antigenic sites	MAb-20	PS-18	D-32
2				X	172	D			X
3				X	173	D			
5				X	174	D			
31				X	175	D			
44	C				176	D			
45	C				177	D			
46	C				179	D			
47	C				182	D			
48	C				186	B		X	
50	C				187	B			
51	C				188	B	X		
53	C	X			189	B	X		X
54	C				190	B		X	X
57	E				192	B			
59	E				193	B	X	X	X
62	E	X		X	194	B		X	
63	E	X			196	B			X
67	E				197	B		X	X
75	E				198	B	X		
78	E				201	D		X	
80	E				203	D			
81	E				205		X		
82	E				207	D			
83	E			X	208	D			
86	E				209	D			
87	E				212	D			
88	E				213	D			
91	E				214	D			
92	E				215	D			
94	E				216	D			
96	D				217	D			
102	D				218	D	X		
103	D				219	D			
109	E				220				X
112				X	226	D		X	X
117	D				227	D			
121	D		X	X	228	D			
122	A				229	D			

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124	A		X	X	230	D		
126	A				238	D		
128	B				240	D		
129	B				242	D		
130	A				244	D		
131	A			X	246	D		
132	A				247	D		
133	A	X	X	X	248	D		
135	A	X	X	X	260	E		
137	A				261	E		
138	A		X		262	E	X	X
140	A				265	E		
142	A	X	X	X	271			X
143	A	X			273	C		
144	A	X		X	275	C	X	X
145	A	X	X	X	276	C		X
146	A	X			278	C		X
150	A				279	C		
152	A				280	C		
155	B				294	C		
156	B	X	X	X	297	C		
157	B	X		X	299	C		X
158	B	X	X	X	300	C		
159	B				304	C		
160	B				305	C		
163	B				307	C		
164	B				308	C		
165	B	X			309	C		
167	D				310	C		
168	A				311	C		
170	D				312	C		
171	D							

<sup>a</sup>aa, amino acid; MAb, monoclonal antibody.

<sup>b</sup>Among the 329 amino acid residues in the HA1 polypeptide, 131, 20, 18, and 32 amino acid positions have been identified as in the five antigenic sites (A, B, C, D, E), the mouse monoclonal antibody-binding sites (MAb-20), the positively selected codons (PS-18), and the codons with substantial diversity (D-32), respectively.