

Supporting Information

Fast, low-cost and highly specific colorimetric RT-LAMP assays for inference of SARS-CoV-2 Omicron BA.1 and BA.2 lineages

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Table S1. RNA samples with the GISAID number to access the deposited genome, its respective lineages, the cycle threshold (Ct) and the results of the BA.1 and BA.2 inference RT-LAMP assays.

Number	GISAID	Lineage	Ct	RT-LAMP results	
				BA.1	BA.2
01		NTC	NCq	-	-
02	EPI_ISL_6173026	P.1	12,89	-	-
03	EPI_ISL_6970841	AY.101	15,95	-	-
04	EPI_ISL_6173058	AY.99.2	19,61	-	-
05	EPI_ISL_6173059	AY.99.2	25,06	-	-
06	EPI_ISL_6943955	AY.99.2	20,71	-	-
07	EPI_ISL_5689787	AY.99.2	23,15	-	-
08	EPI_ISL_5689790	P.1.7	17,51	-	-
09	EPI_ISL_6173471	P.1	13,89	-	-
10	EPI_ISL_7105314	AY.46.3	19,06	-	-
11	EPI_ISL_6173506	AY.43.2	17,73	-	-
12	EPI_ISL_6173394	AY.101	17,59	-	-
13	EPI_ISL_7104590	AY.101	24,02	-	-
14	EPI_ISL_6173424	AY.116	17,35	-	-
15	EPI_ISL_6173427	AY.46.3	20,61	-	-
16	EPI_ISL_6173436	AY.116	19,52	-	-
17	EPI_ISL_6173439	AY.100	18,93	-	-
18	EPI_ISL_6173192	AY.34.1.1	14,91	-	-
19	EPI_ISL_7103181	AY.46.3	25,32	-	-
20	EPI_ISL_6173213	AY.99.11	16,85	-	-
21	EPI_ISL_6173215	AY.99.1	20,66	-	-
22	EPI_ISL_6173217	AY.122	21,07	-	-
23	EPI_ISL_6173218	AY.99.1	21,97	-	+
24	EPI_ISL_6173219	AY.99.1	19,37	-	-
25	EPI_ISL_7103321	AY.36	25,65	-	-
26	EPI_ISL_6173260	AY.99.1	12,99	-	-
27	EPI_ISL_6173279	AY.34.1.1	18,80	-	-
28	EPI_ISL_6173288	AY.100	18,01	-	-
29	EPI_ISL_6173346	P.1.7	19,44	-	-
30	EPI_ISL_6173370	P.1.7	17,20	-	-
31	EPI_ISL_6173371	P.1.7	17,28	-	-
32	EPI_ISL_6173385	P.1	16,30	-	-
33	EPI_ISL_7104697	AY.46.3	18,71	-	-
34	EPI_ISL_6172761	AY.122	23,03	-	-
35	EPI_ISL_6898999	P.1.7	21,98	-	-
36	EPI_ISL_6899000	P.1.7	26,25	-	-
37	EPI_ISL_6899001	P.1.7	20,48	-	-
38	EPI_ISL_7110676	AY.43.2	16,11	-	-
39	EPI_ISL_7110161	AY.34.1.1	15,18	-	-
40	EPI_ISL_6898401	AY.43.8	16,13	-	-
41	EPI_ISL_6898406	AY.43	15,63	-	-
42	EPI_ISL_6898411	AY.43	16,87	-	-
43	EPI_ISL_6898415	AY.43.8	18,07	-	-
44	EPI_ISL_6898419	AY.43	21,26	-	-

45	EPI_ISL_6898426	AY.43.8	17,29	-	-
46	EPI_ISL_6898435	AY.43	21,69	-	-
47	EPI_ISL_6898365	AY.43	15,91	-	-
48	EPI_ISL_6898370	AY.43.8	19,99	-	-
49	EPI_ISL_6898436	AY.43	17,30	-	-
50	EPI_ISL_6898445	AY.43	20,48	-	-
51	EPI_ISL_6898452	AY.43	23,92	-	-
52	EPI_ISL_6898453	AY.43	17,72	-	-
53	EPI_ISL_6898461	AY.43	20,45	-	-
54	EPI_ISL_6898465	AY.43.8	19,83	-	-
55	EPI_ISL_6898474	AY.43	20,65	-	-
56	EPI_ISL_6898516	AY.43	20,33	-	-
57	EPI_ISL_6898382	AY.43	20,28	-	-
58	EPI_ISL_6898490	AY.43	16,46	-	-
59	EPI_ISL_6898387	AY.43	20,74	-	-
60	EPI_ISL_6898497	AY.43	15,83	-	-
61	EPI_ISL_6898509	AY.43	19,29	-	-
62	EPI_ISL_6898988	P.1	16,41	-	-
63	EPI_ISL_6772671	AY.122	21,17	-	-
64	EPI_ISL_6771823	AY.43.2	17,38	-	-
65	EPI_ISL_6771824	AY.43.2	18,11	-	-
66	EPI_ISL_6772595	AY.34.1	17,90	-	-
67	EPI_ISL_6772487	AY.34.1	20,10	-	-
68	EPI_ISL_6771458	B.1.617.2	16,06	-	-
69	EPI_ISL_6771523	B.1.617.2	17,71	-	-
70	EPI_ISL_6771536	B.1.617.2	20,78	-	-
71	EPI_ISL_6771566	B.1.617.2	20,03	-	-
72	EPI_ISL_6771550	B.1.617.2	18,18	-	-
73	EPI_ISL_7113067	AY.34.1.1	21,31	-	-
74	EPI_ISL_7112146	AY.42	21,64	-	-
75	EPI_ISL_7112759	AY.42	21,08	-	-
76	EPI_ISL_7111529	AY.124.1	18,90	-	-
77		NTC	NCq	-	-
78	EPI_ISL_7456033	P.1.7	21,26	-	-
79	EPI_ISL_7112752	P.1.7	19,27	-	-
80	EPI_ISL_7112165	AY.42	20,80	-	-
81	EPI_ISL_7111567	AY.26	20,25	-	-
82	EPI_ISL_7111580	AY.124.1	22,39	-	-
83	EPI_ISL_7112239	AY.42	28,15	-	-
84	EPI_ISL_7111653	AY.42	18,92	-	-
85	EPI_ISL_7111720	AY.124.1	15,72	-	-
86	EPI_ISL_7111737	AY.124.1	20,38	-	-
87	EPI_ISL_7112080	P.1.7	19,84	-	-
88	EPI_ISL_7112776	AY.43	28,99	-	-
89	EPI_ISL_6980334	AY.47	22,25	-	-
90	EPI_ISL_6980430	AY.100	18,95	-	-
91	EPI_ISL_6980613	P.1	21,61	-	-
92	EPI_ISL_7455352	P.1.7	20,94	-	-

93	EPI_ISL_7455353	P.1.7	24,13	-	-
94	EPI_ISL_7455354	P.1.7	16,46	-	-
95	EPI_ISL_7455358	P.1.7	24,29	-	-
96	EPI_ISL_7455359	P.1.7	28,02	-	-
97	EPI_ISL_7455362	P.1.4	27,37	-	-
98	EPI_ISL_7455363	P.1.7	25,50	-	-
99	EPI_ISL_7455365	P.1.7	21,77	-	-
100	EPI_ISL_7455366	P.1.7	21,96	-	-
101	EPI_ISL_7455368	AY.43	26,21	-	-
102	EPI_ISL_7455646	AY.6	26,68	-	-
103	EPI_ISL_7455655	AY.6	17,77	-	-
104	EPI_ISL_7455669	AY.6	32,84	-	-
105	EPI_ISL_7455670	AY.6	17,00	-	-
106	EPI_ISL_7455671	AY.6	24,57	-	-
107	EPI_ISL_7455673	AY.34.1.1	24,14	-	-
108	EPI_ISL_7455674	AY.34.1.1	21,87	-	-
109	EPI_ISL_7455681	P.1	27,71	-	-
110	EPI_ISL_7455705	AY.34.1.1	22,55	-	-
111	EPI_ISL_7455769	AY.34.1.1	26,38	-	-
112	EPI_ISL_7455734	AY.34.1.1	25,60	-	-
113	EPI_ISL_8004512	AY.43.1	24,75	-	-
114	EPI_ISL_8004423	AY.4	17,74	-	-
115	EPI_ISL_8005716	AY.125	16,01	-	-
116	EPI_ISL_8005691	B.1.617.2	17,68	-	-
117	EPI_ISL_8005696	AY.34.1	14,68	-	-
118	EPI_ISL_8005697	AY.34.1.1	20,50	-	-
119	EPI_ISL_7379459	AY.4	23,45	-	-
120	EPI_ISL_8325073	AY.124	23,17	-	-
121	EPI_ISL_8325094	P.1.7	20,90	-	-
122	EPI_ISL_8325103	P.1	15,92	-	-
123	EPI_ISL_8325112	P.1.7	20,46	-	-
124	EPI_ISL_8013071	AY.124	20,27	-	-
125	EPI_ISL_8013092	P.1.7	24,20	-	-
126	EPI_ISL_8013093	P.1.7	25,10	-	-
127	EPI_ISL_8013140	AY.3	18,66	-	-
128	EPI_ISL_8013175	AY.34.1.1	22,29	-	-
129	EPI_ISL_8013122	P.1.7	17,98	-	-
130	EPI_ISL_8013038	AY.3	18,91	-	-
131	EPI_ISL_8013053	AY.3.3	23,42	-	-
132	EPI_ISL_8013040	AY.3.3	19,93	-	-
133	EPI_ISL_8013103	AY.46.3	18,80	-	-
134	EPI_ISL_8430628	AY.43.1	16,98	-	-
135	EPI_ISL_8152421	AY.116	17,39	-	-
136	EPI_ISL_8152423	AY.121	15,09	-	-
137	EPI_ISL_8332314	AY.34.1	19,75	-	-
138	EPI_ISL_8266314	P.1.7	19,24	-	-
139	EPI_ISL_8266351	AY.43.7	21,16	-	-
140	EPI_ISL_8266367	B.1.617.2	15,96	-	-

141	EPI_ISL_8151572	AY.68	17,78	-	-
142	EPI_ISL_8266423	BA.1	24,94	+	-
143	EPI_ISL_8266400	BA.1	18,89	+	-
144	EPI_ISL_8266417	BA.1	20,11	+	-
145	EPI_ISL_8266420	BA.1	21,55	+	-
146	EPI_ISL_8266399	BA.1.1	19,21	+	-
147	EPI_ISL_8266409	BA.1	19,27	+	-
148	EPI_ISL_8266407	BA.1	19,79	+	-
149	EPI_ISL_8266395	BA.1	16,44	+	-
150	EPI_ISL_8266408	BA.1	20,17	+	-
151	EPI_ISL_8266415	BA.1	19,13	+	-
152	EPI_ISL_8266422	BA.1	23,66	+	-
153	EPI_ISL_8266412	BA.1	21,73	+	-
154	EPI_ISL_8266396	BA.1	17,96	+	-
155	EPI_ISL_8266397	BA.1	17,00	+	-
156	EPI_ISL_8266384	BA.1	17,97	+	-
157	EPI_ISL_8266411	BA.1	17,32	+	-
158	EPI_ISL_8266402	BA.1	18,25	+	-
159	EPI_ISL_8266413	BA.1	19,45	+	-
160	EPI_ISL_8266418	BA.1	22,55	+	-
161	EPI_ISL_8266410	BA.1.1	21,27	+	-
162	EPI_ISL_8266401	BA.1.1	15,92	+	-
163	EPI_ISL_8266390	BA.1	17,97	+	-
164	EPI_ISL_8266403	BA.1	20,20	+	-
165	EPI_ISL_8266398	BA.1	16,21	+	-
166	EPI_ISL_8266419	BA.1	31,06	-	-
167		NTC	NCq	-	-
168	EPI_ISL_8266391	BA.1.1	19,96	+	-
169	EPI_ISL_8266416	BA.1	20,49	+	-
170	EPI_ISL_8266393	BA.1.1	15,58	+	-
171	EPI_ISL_8266406	BA.1	19,41	+	-
172	EPI_ISL_8266421	BA.1	20,98	+	-
173	EPI_ISL_8266404	BA.1	20,97	+	-
174	EPI_ISL_8266414	BA.1	20,63	+	-
175	EPI_ISL_8266392	BA.1.1	19,59	+	-
176	EPI_ISL_8266394	BA.1	16,55	+	-
177	EPI_ISL_8266405	BA.1	17,41	+	-
178	EPI_ISL_8266270	AY.26	23,12	-	-
179	EPI_ISL_8266277	P.1.7	21,93	-	-
180	EPI_ISL_8266281	AY.34.1.1	25,13	-	-
181	EPI_ISL_8325152	AY.34.1.1	20,81	-	-
182	EPI_ISL_8325172	AY.26	17,57	-	-
183	EPI_ISL_8325065	AY.102	27,29	-	-
184	EPI_ISL_8325213	AY.99	25,62	-	-
185	EPI_ISL_8331980	AY.43.7	23,69	-	-
186	EPI_ISL_8332052	AY.99	15,49	-	+
187	EPI_ISL_8325315	AY.122	24,97	-	-
188	EPI_ISL_8325241	AY.34.1.1	26,17	-	-

189	EPI_ISL_8325329	AY.36	23,11	-	-
190	EPI_ISL_8325221	AY.34.1.1	19,49	-	-
191	EPI_ISL_8325237	AY.34	16,73	-	-
192	EPI_ISL_8325251	AY.36	19,04	-	-
193	EPI_ISL_8325228	AY.99	24,39	-	-
194	EPI_ISL_8325323	AY.118	17,87	-	-
195	EPI_ISL_8325365	BA.1	16,12	+	-
196	EPI_ISL_8325366	BA.1	20,94	+	+
197	EPI_ISL_8325367	BA.1	29,10	-	-
198	EPI_ISL_8325368	BA.1	20,14	+	-
199	EPI_ISL_8325369	BA.1	18,71	+	-
200	EPI_ISL_8325371	BA.1	17,18	+	-
201	EPI_ISL_8325373	BA.1	19,75	+	-
202	EPI_ISL_8430487	BA.1	17,96	+	-
203	EPI_ISL_8430499	BA.1.1	16,39	+	-
204	EPI_ISL_8430551	AY.102	22,28	-	-
205	EPI_ISL_8430584	AY.43.2	20,08	-	-
206	EPI_ISL_8430600	P.1.7	18,66	-	-
207	EPI_ISL_8430606	AY.34	18,45	-	-
208	EPI_ISL_8430501	AY.59	18,36	-	-
209	EPI_ISL_8430502	BA.1.1	22,93	+	-
210	EPI_ISL_8430523	BA.1.1	18,60	+	-
211	EPI_ISL_8430537	BA.1.1	23,63	+	-
212	EPI_ISL_8633939	AY.120	19,33	-	-
213	EPI_ISL_8633976	AY.4	18,57	-	-
214	EPI_ISL_8633985	BA.1.1	15,63	+	-
215	EPI_ISL_8633918	BA.1	17,91	+	-
216	EPI_ISL_8633919	BA.1	17,75	+	-
217	EPI_ISL_8633930	BA.1.1	20,43	+	-
218	EPI_ISL_8797131	BA.1.1	17,16	+	-
219	EPI_ISL_8797057	BA.1.1	20,32	+	-
220	EPI_ISL_8797061	BA.1.1	20,14	+	-
221	EPI_ISL_9225946	BA.1	23,75	+	-
222	EPI_ISL_9708696	BA.1.1	19,63	+	-
223	EPI_ISL_9225657	BA.1.1	23,12	+	-
224	EPI_ISL_9225672	BA.1.1	17,29	+	-
225	EPI_ISL_9225664	BA.1.1	21,72	+	-
226	EPI_ISL_9225704	BA.1	17,53	+	-
227	EPI_ISL_9225702	BA.1.1	17,76	+	-
228	EPI_ISL_9225701	BA.1	18,57	+	-
229	EPI_ISL_9225703	BA.1	19,86	+	-
230	EPI_ISL_9571832	BA.1.1	23,42	+	-
231	EPI_ISL_9571833	BA.1.1	23,42	+	-
232	EPI_ISL_9571814	BA.1.1	20,50	+	-
233	EPI_ISL_9671629	B.1.617.2	22,72	-	-
234	EPI_ISL_9671587	AY.3	21,82	-	-
235	EPI_ISL_9919666	BA.1.1	24,82	+	-
236	EPI_ISL_9919676	BA.1.1	17,32	+	-

237	EPI_ISL_9919759	BA.1.1	21,26	+	-
238	EPI_ISL_9919677	BA.1.1	25,31	+	-
239	EPI_ISL_9919755	BA.1.1	24,60	+	-
240	EPI_ISL_10521724	BA.1.1	18,47	+	-
241	EPI_ISL_11016298	AY.34.1.1	21,40	-	-
242	EPI_ISL_11016499	AY.23	20,65	-	-
243	EPI_ISL_11016307	AY.4	21,71	-	-
244		NTC	NCq	-	-
245	EPI_ISL_9225599	BA.1.1	21,27	+	-
246	EPI_ISL_9225590	BA.1.1	29,61	-	-
247	EPI_ISL_9225680	BA.1.1	20,51	+	-
248	EPI_ISL_9225689	BA.1.1	21,18	+	-
249	EPI_ISL_9225610	BA.1.1	20,41	+	-
250	EPI_ISL_9225667	BA.1.1	16,68	+	-
251	EPI_ISL_9225628	BA.1.1	17,10	+	-
252	EPI_ISL_9225625	BA.1.1	16,84	+	-
253	EPI_ISL_9225658	BA.1.1	20,39	+	-
254	EPI_ISL_9225605	BA.1.1	20,70	+	-
255	EPI_ISL_9225678	BA.1.1	18,90	+	-
256	EPI_ISL_9225692	BA.1.1	17,44	+	-
257	EPI_ISL_9225617	BA.1.1	15,93	+	-
258	EPI_ISL_9571756	BA.2	17,01	-	+
259	EPI_ISL_9571745	BA.2	20,76	-	+
260	EPI_ISL_9571594	BA.2	24,91	-	+
261	EPI_ISL_9919680	BA.1.1	19,89	+	-
262	EPI_ISL_10322498	BA.2	17,68	-	+
263	EPI_ISL_10521863	BA.2	26,60	-	-
264	EPI_ISL_10521714	BA.2	21,96	-	+
265	EPI_ISL_10521710	BA.2	17,93	-	+
266	EPI_ISL_10521716	BA.2	18,51	-	+
267	EPI_ISL_10322284	BA.2	15,44	-	+

The symbols - and + refer to negative and positive results, respectively. **NTC**: no template control.

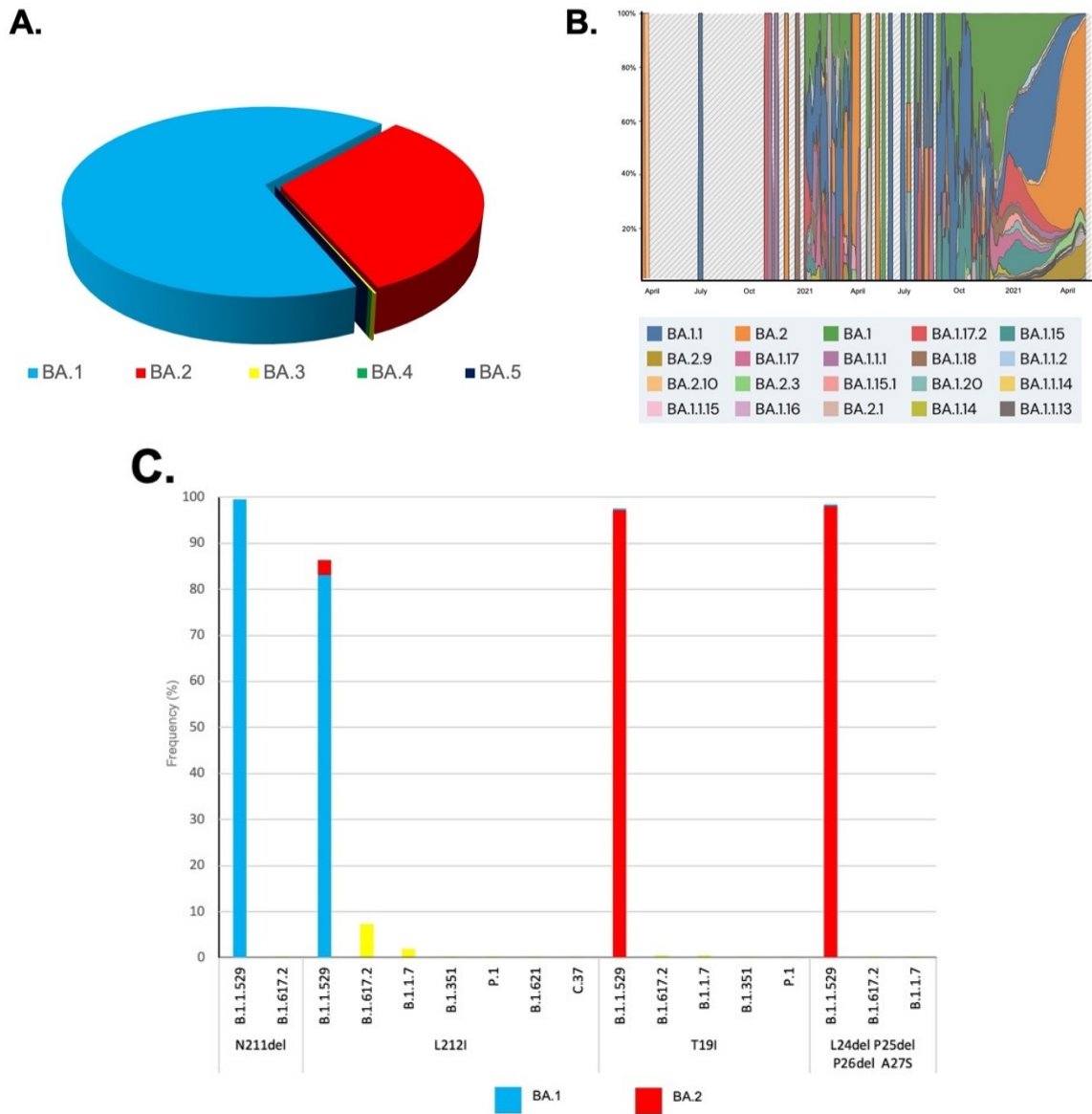


Figure S1. Overview of Omicron strains (B.1.1.529), based on genomes deposited on the GISAID platform until 05/01/2022. In **A**, the relationship between the amounts of genomes belonging to the BA.1, BA.2, BA.3, BA.4 and BA.5 lineages deposited on the GISAID platform. In **B**, the worldwide occurrence of Omicron strains according to time, made available by the outbreak.info website, based on data from the GISAID platform. In **C**, the incidence of mutations used for primer design in the target lineage.

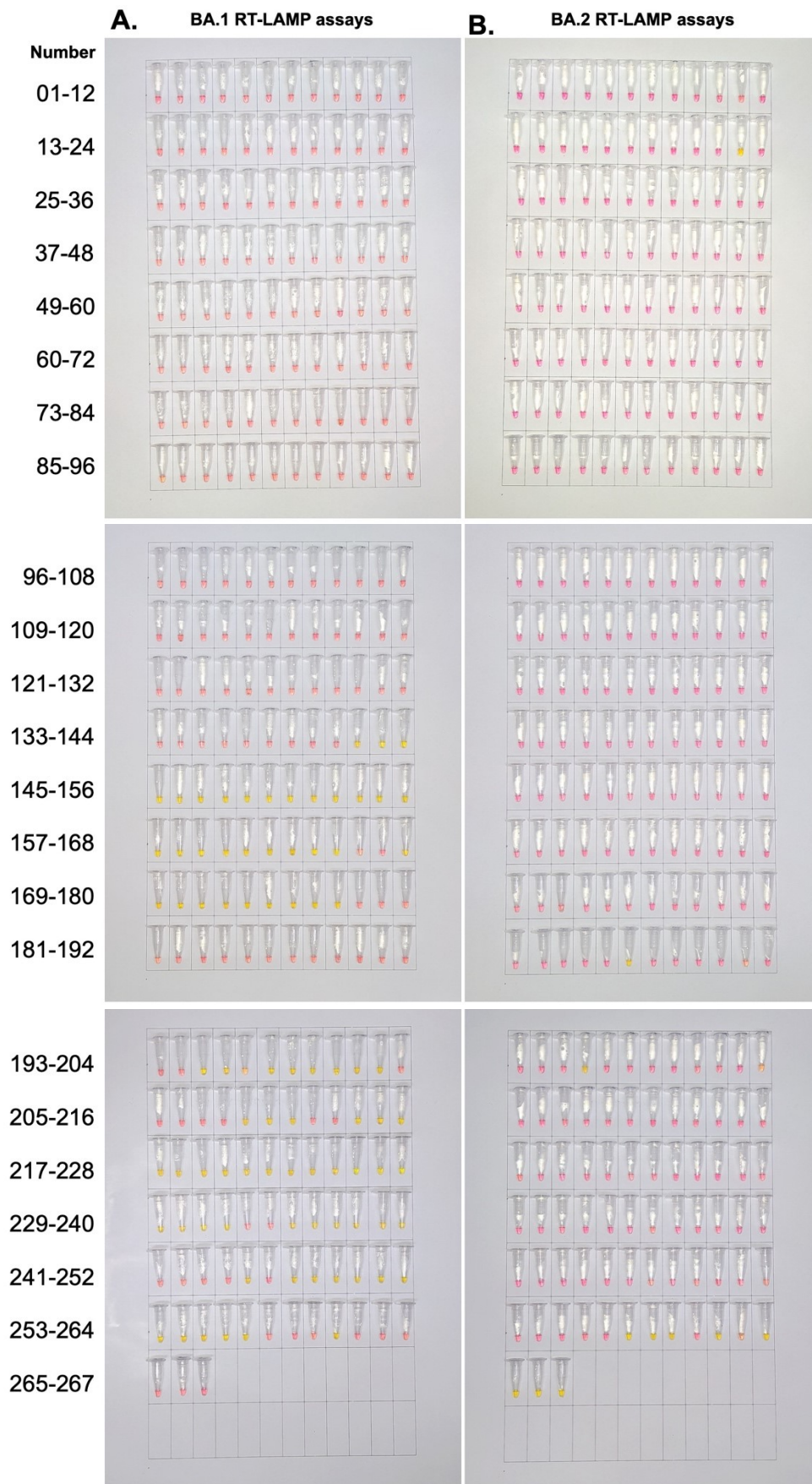


Figure S2. Photographic result of colorimetric RT-LAMP assays for BA.1 (A) and BA.2 (B) in the panel of 267 clinical RNA samples.