

Plasma_Cleaning_Exp3

DESIGN

Three RNA plates were prepared following the below process:

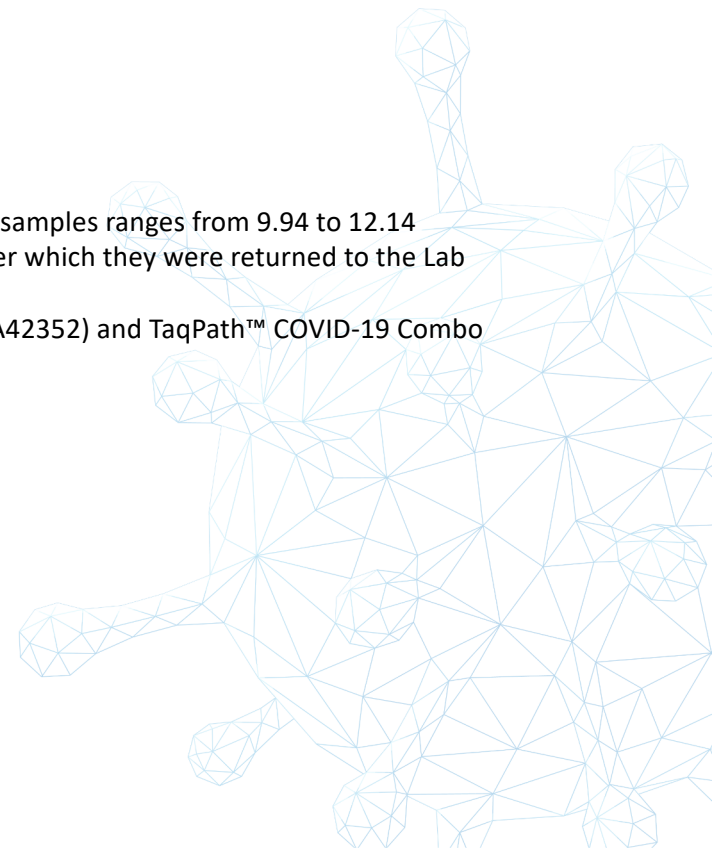
1. All wells filled with 20 μ L elution solution (ES)
2. 30-35 μ L of highly positive samples pipetted into A1
3. 20 μ L of sample from A1 use to make serial dilutions across the top 2 rows (dil-1 to dil-24)
4. Coloured wells with numbers 1 to 8 to receive 30-35 μ L of other highly positive samples
5. NC and PC added from random RNA plates to the respective wells on the plasma plates
6. Wells labelled 'ES' contained elution solution only

Highly positive samples were obtained from previously tested RNA plates. Cq values of the original samples ranges from 9.94 to 12.14

7. All RNA plates were frozen at -80°C , sent on dry ice to IonFields System for cold plasma cleaning, after which they were returned to the Lab for qPCR testing per SOPs.

Reagents used: MagMAX™ Viral/Pathogen Nucleic Acid Isolation Kit for RNA extraction (Thermo, #A42352) and TaqPath™ COVID-19 Combo Kit for qPCR testing (Thermo, #A47813).

	1	2	3	4	5	6	7	8	9	10	11	12
A	dil-1	dil-2	dil-3	dil-4	dil-5	dil-6	dil-7	dil-8	dil-9	dil-10	dil-11	dil-12
B	dil-13	dil-14	dil-15	dil-16	dil-17	dil-18	dil-19	dil-20	dil-21	dil-22	dil-23	dil-24
C	ES	ES	ES	ES	ES	ES	ES	ES	ES	ES	ES	ES
D	ES	1	ES	2	ES	ES	ES	ES	ES	ES	ES	ES
E	ES	ES	3	ES	4	ES	ES	ES	ES	ES	ES	ES
F	ES	5	ES	6	ES	ES	ES	ES	ES	ES	ES	ES
G	ES	ES	7	ES	8	ES	ES	ES	ES	ES	ES	NC
H	ES	ES	ES	ES	ES	ES	ES	ES	ES	ES	ES	PC



Plasma_Cleaning_Exp3

RESULTS: BEFORE Plasma cleaning

Diagnostic call – UgenTec FastFinder

Plate #1 (Quadrant A1) AD20210405KJ_Plasma_PRE_CLEAN												
	01	02	03	04	05	06	07	08	09	10	11	12
A	Pos	Pos	Pos	Pos	Pos	Pos	Pos	Pos	Pos	Pos	Pos	Pos
B	Pos	Pos	Pos	Pos	Pos	Pos	Pos	Pos	Pos	Pos	Pos	Pos
C	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv
D	Inv	Pos	Inv	Pos	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv
E	Inv	Inv	Pos	Inv	Pos	Inv	Inv	Inv	Inv	Inv	Inv	Inv
F	Inv	Pos	Inv	Pos	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv
G	Inv	Inv	Pos	Inv	Pos	Inv	Inv	Inv	Inv	Inv	Inv	Neg
H	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Pos

Plate #2 (Quadrant A2) AD20210405KJ_Plasma_PRE_CLEAN												
	01	02	03	04	05	06	07	08	09	10	11	12
A	Pos	Pos	Pos	Pos	Pos	Pos	Pos	Pos	Pos	Pos	Pos	Pos
B	Pos	Pos	Pos	Pos	Pos	Pos	Pos	Pos	Pos	Pos	Pos	Pos
C	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv
D	Inv	Pos	Inv	Pos	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv
E	Inv	Inv	Pos	Inv	Pos	Inv	Inv	Inv	Inv	Inv	Inv	Inv
F	Inv	Pos	Inv	Pos	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv
G	Inv	Inv	Pos	Inv	Pos	Inv	Inv	Inv	Inv	Inv	Inv	Neg
H	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Pos

Plate #3 (Quadrant B1) AD20210405KJ_Plasma_PRE_CLEAN												
	01	02	03	04	05	06	07	08	09	10	11	12
A	Pos	Pos	Pos	Pos	Pos	Pos	Pos	Pos	Pos	Pos	Pos	Pos
B	Pos	Pos	Pos	Pos	Pos	Pos	Pos	Pos	Pos	Pos	Pos	Pos
C	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv
D	Inv	Pos	Inv	Pos	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv
E	Inv	Inv	Pos	Inv	Pos	Inv	Inv	Inv	Inv	Inv	Inv	Inv
F	Inv	Pos	Inv	Pos	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv
G	Inv	Inv	Pos	Inv	Pos	Inv	Inv	Inv	Inv	Inv	Inv	Neg
H	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Pos

Pos	Positive
Neg	Negative
Inv	Inconclusive

Note:

All three plates were populated with strong positive SARS-CoV-2 samples with Cq values starting from ~10.

The inconclusive results are due to the failure of MS2 (these wells only contained elution solution). There was no viral gene detected in the wells marked as inconclusive.



Plasma_Cleaning_Exp3

RESULTS: **AFTER** Plasma cleaning

Diagnostic call – UgenTec FastFinder

Plate #1 (Quadrant A1) AD20210428KJ_Plasma_POST_CLEAN												
	01	02	03	04	05	06	07	08	09	10	11	12
A	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv
B	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv
C	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv
D	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv
E	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv
F	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv
G	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Neg	Inv
H	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Pos	Inv

Plate #3 (Quadrant B1) AD20210428KJ_Plasma_POST_CLEAN												
	01	02	03	04	05	06	07	08	09	10	11	12
A	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv
B	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv
C	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv
D	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv
E	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv
F	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv
G	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Neg	Inv
H	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Pos	Inv

Plate #2 (Quadrant A2) AD20210428KJ_Plasma_POST_CLEAN												
	01	02	03	04	05	06	07	08	09	10	11	12
A	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv
B	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv
C	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv
D	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv
E	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv
F	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv
G	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Neg	Inv
H	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Inv	Pos	Inv

Pos	Positive
Neg	Negative
Inv	Inconclusive

Note:

There was no viral gene contamination on any of the plates after plates were subjected to Plasma cleaning procedure.

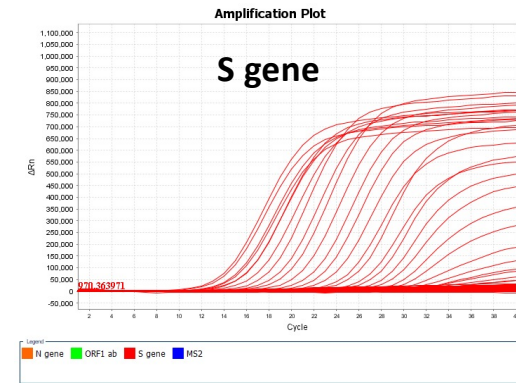
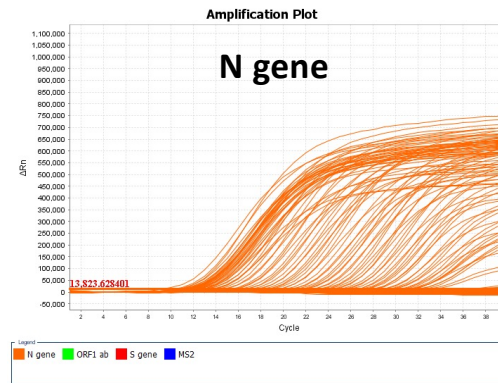
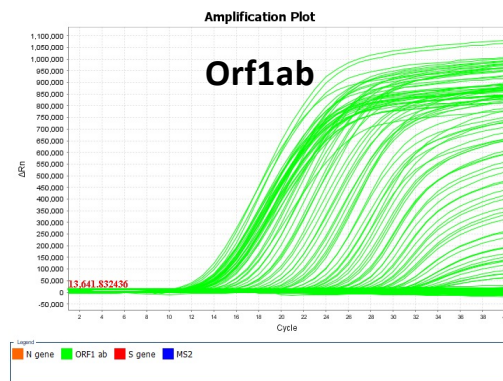
The inconclusive results are due to the failure of MS2 (these wells only contained elution solution). There was no viral gene detected in the wells marked as inconclusive.



Plasma_Cleaning_Exp3

RESULTS: **BEFORE** Plasma cleaning

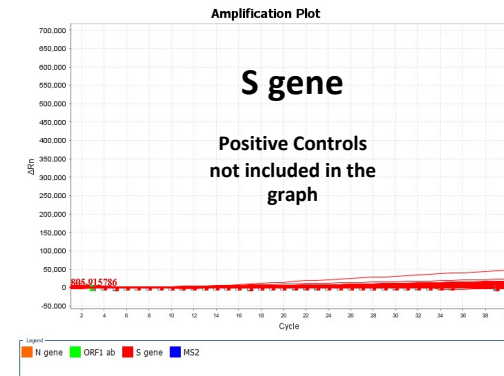
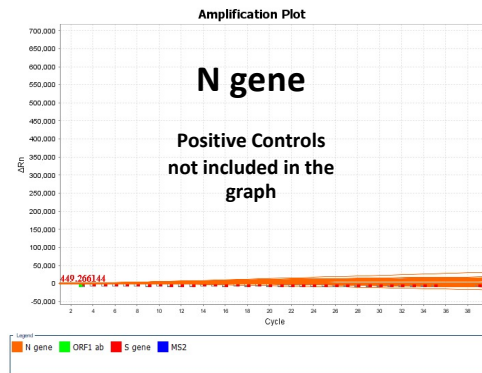
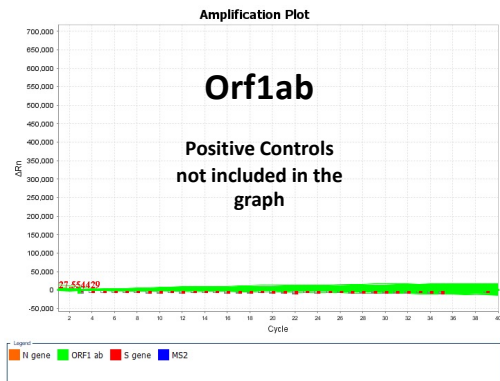
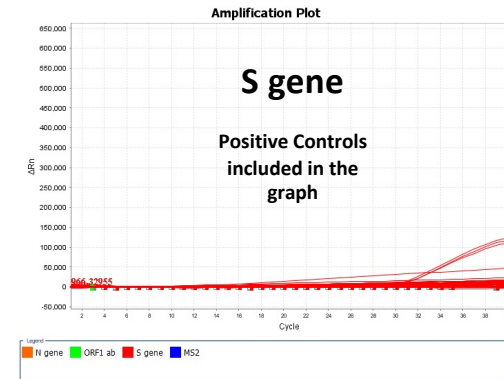
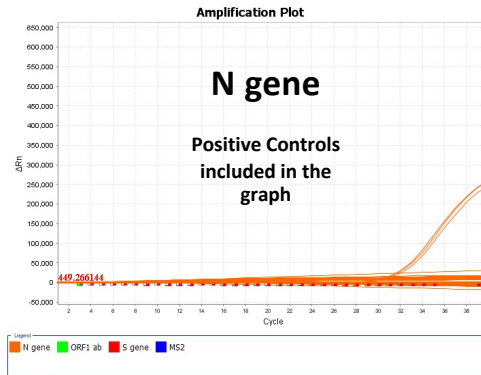
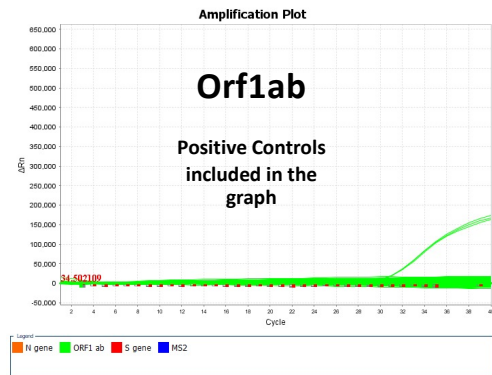
Amplification plots for the SARS-COV2 viral genes
384-well PCR plate



Note: the experiments were done when the Alpha variant was the predominant variant in the positive sample population. Thermo TaqPath kit targets an area of the S gene that is deleted in the Alpha variant, hence fewer results are available for the S gene.

Plasma_Cleaning_Exp3

RESULTS: **AFTER** Plasma cleaning



Plasma_Cleaning_Exp3

RESULTS: **BEFORE** Plasma cleaning

Orf1ab Cq values

Plate #1 (Quadrant A1) AD20210405KJ_Plasma_PRE_CLEAN												
	01	02	03	04	05	06	07	08	09	10	11	12
A	11.1	11.7	12.4	13.5	14.7	15.6	16.4	17.3	18.2	19.2	20.0	21.0
B	22.0	22.9	23.9	24.7	25.6	26.6	27.6	28.3	29.5	30.1	31.9	32.2
C												
D		11.6		12.3								
E			11.3		14.4							
F		11.8		11.8								
G			11.8		11.7							
H												31.1

Plate #2 (Quadrant A2) AD20210405KJ_Plasma_PRE_CLEAN												
	01	02	03	04	05	06	07	08	09	10	11	12
A	10.9	11.3	12.3	12.8	14.3	15.4	16	17.1	17.6	18.6	19.3	20.4
B	21.6	22.3	23	23.7	25	26.1	26.9	27.9	28.6	29.8	30.8	31.6
C												
D		11.3		12.8								
E			11.6		11.9							
F		11.3		11.4								
G			12.5		12.3							
H												29.6

Plate #3 (Quadrant B1) AD20210405KJ_Plasma_PRE_CLEAN												
	01	02	03	04	05	06	07	08	09	10	11	12
A	11.2	11.6	12.5	13.2	14.6	15.6	16.4	17.3	18.0	19.0	20.0	21.0
B	22.0	22.8	23.7	24.8	25.7	26.5	27.5	28.7	29.5	30.5	31.9	31.6
C												
D		11.5		12.4								
E			12.6		12.4							
F		11.6		11.6								
G			11.9		11.1							
H												30.6

	Negative Control
	Positive Control
	SARS-CoV-2 samples

NOTE:



Plasma_Cleaning_Exp3

RESULTS: **AFTER** Plasma cleaning

Orf1ab Cq values

Plate #1 (Quadrant A1) AD20210428KJ_Plasma_POST_CLEAN												
	01	02	03	04	05	06	07	08	09	10	11	12
A												
B												
C												
D												
E												
F												
G												
H												

Plate #2 (Quadrant A2) AD20210428KJ_Plasma_POST_CLEAN												
	01	02	03	04	05	06	07	08	09	10	11	12
A												
B												
C												
D												
E												
F												
G												
H												

Plate #3 (Quadrant B1) AD20210428KJ_Plasma_POST_CLEAN												
	01	02	03	04	05	06	07	08	09	10	11	12
A												
B												
C												
D												
E												
F												
G												
H												

	Negative Control
	Positive Control
	SARS-CoV-2 samples



Plasma_Cleaning_Exp3

RESULTS: **BEFORE** Plasma cleaning

N gene Cq values

Plate #1 (Quadrant A1) AD20210405KJ_Plasma_PRE_CLEAN												
	01	02	03	04	05	06	07	08	09	10	11	12
A	12.1	13.5	14.2	15.5	16.3	17.1	18.1	19	20.2	21	22	23.3
B	23.8	25	26	26.8	27.4	28.3	29.2	29.8	30.8	32.1	32.6	35.5
C												
D		11.4		10.5								
E			11.8		12.1							
F		11.5		12								
G			11.6		11.4							
H												31.5

Plate #2 (Quadrant A2) AD20210405KJ_Plasma_PRE_CLEAN												
	01	02	03	04	05	06	07	08	09	10	11	12
A	10.1	10.5	11.6	12.2	13.3	14.1	15.2	16.3	17.1	18.1	18.9	20
B	20.9	21.7	22.7	23.6	24.7	25.8	26.6	27.3	28.6	29.5	30.6	31.3
C												
D		11.5		12.9								
E			11.4		11.4							
F		11.3		11.1								
G			11.4		12.4							
H												30.7

Plate #3 (Quadrant B1) AD20210405KJ_Plasma_PRE_CLEAN												
	01	02	03	04	05	06	07	08	09	10	11	12
A	10.5	11.3	12	12.8	13.7	15.1	16	16.7	17.7	18.3	19.5	20.5
B	21.2	22.1	23.2	24.2	25.1	26.1	27.3	28.2	29.1	30	30.4	31.7
C												
D		11.5		11.6								
E			11.4		11.7							
F		13.2		10.8								
G			11.7		12.6							
H												30.7

	Negative Control
	Positive Control
	SARS-CoV-2 samples

NOTE:



Plasma_Cleaning_Exp3

RESULTS: **AFTER** Plasma cleaning

N gene Cq values

Plate #1 (Quadrant A1) AD20210428KJ_Plasma_POST_CLEAN												
	01	02	03	04	05	06	07	08	09	10	11	12
A												
B												
C												
D												
E												
F												
G												
H												

Plate #3 (Quadrant B1) AD20210428KJ_Plasma_POST_CLEAN												
	01	02	03	04	05	06	07	08	09	10	11	12
A												
B												
C												
D												
E												
F												
G												
H												

Plate #2 (Quadrant A2) AD20210428KJ_Plasma_POST_CLEAN												
	01	02	03	04	05	06	07	08	09	10	11	12
A												
B												
C												
D												
E												
F												
G												
H												

	Negative Control
	Positive Control
	SARS-CoV-2 samples



Plasma_Cleaning_Exp3

RESULTS: **BEFORE** Plasma cleaning

S gene Cq values

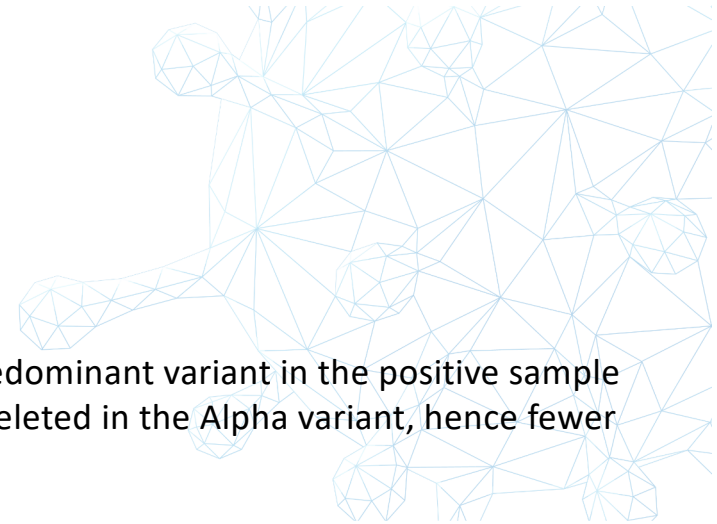
Plate #1 (Quadrant A1) AD20210405KJ_Plasma_PRE_CLEAN												
	01	02	03	04	05	06	07	08	09	10	11	12
A	11.4	12.1	13.1	13.7	15	16	18.5	18.9	19.9	20.9	21.4	22.5
B	21.5	23.6	24.8	25.9	26.9	27.3	28.4	29.1	30.2	31.9	31.9	35
C												
D												
E												
F												
G												
H												32.7

Plate #2 (Quadrant A2) AD20210405KJ_Plasma_PRE_CLEAN												
	01	02	03	04	05	06	07	08	09	10	11	12
A												
B												
C												
D												
E												
F												
G					13							
H												30.8

Plate #3 (Quadrant B1) AD20210405KJ_Plasma_PRE_CLEAN												
	01	02	03	04	05	06	07	08	09	10	11	12
A												
B												
C												
D												
E												
F		12.4										
G					11.5							
H												31.1

	Negative Control
	Positive Control
	SARS-CoV-2 samples

Note: the experiments were done when the Alpha variant was the predominant variant in the positive sample population. Thermo TaqPath kit targets an area of the S gene that is deleted in the Alpha variant, hence fewer results are available for the S gene.



Plasma_Cleaning_Exp3

RESULTS: **AFTER** Plasma cleaning

S gene Cq values

Plate #1 (Quadrant A1) AD20210428KJ_Plasma_POST_CLEAN												
	01	02	03	04	05	06	07	08	09	10	11	12
A												
B												
C												
D												
E												
F												
G												
H												

Plate #3 (Quadrant B1) AD20210428KJ_Plasma_POST_CLEAN												
	01	02	03	04	05	06	07	08	09	10	11	12
A												
B												
C												
D												
E												
F												
G												
H												

Plate #2 (Quadrant A2) AD20210428KJ_Plasma_POST_CLEAN												
	01	02	03	04	05	06	07	08	09	10	11	12
A												
B												
C												
D												
E												
F												
G												
H												

	Negative Control
	Positive Control
	SARS-CoV-2 samples



Plasma_Cleaning_Exp3

RESULTS: **AFTER** Plasma cleaning

Pictures of the plates after they went through plasma cleaning process showing that cold plasma does not remove sharpie writing on plates or ink on barcodes.

