

Electronic Supplementary Information (ESI): Rapid Fabrication of Hydrophobic/Hydrophilic Patterns on Paper Substrates for Paper Spray Mass Spectrometry

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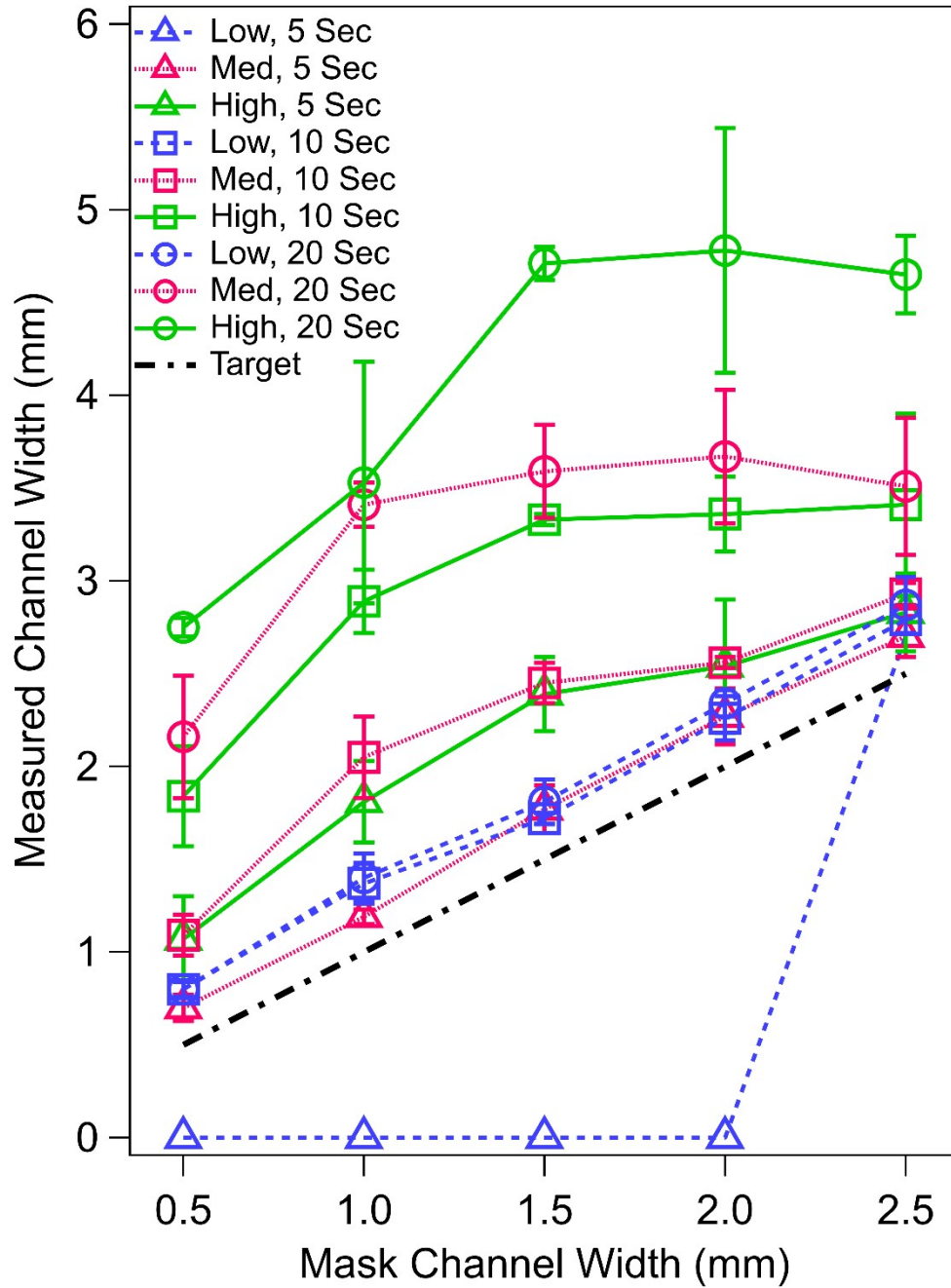


Figure S1. Measured channel width as a function of expected channel width for a 1-mm thick mask for 9 different oxygen plasma conditions. The dashed line indicates the predicted channel width.

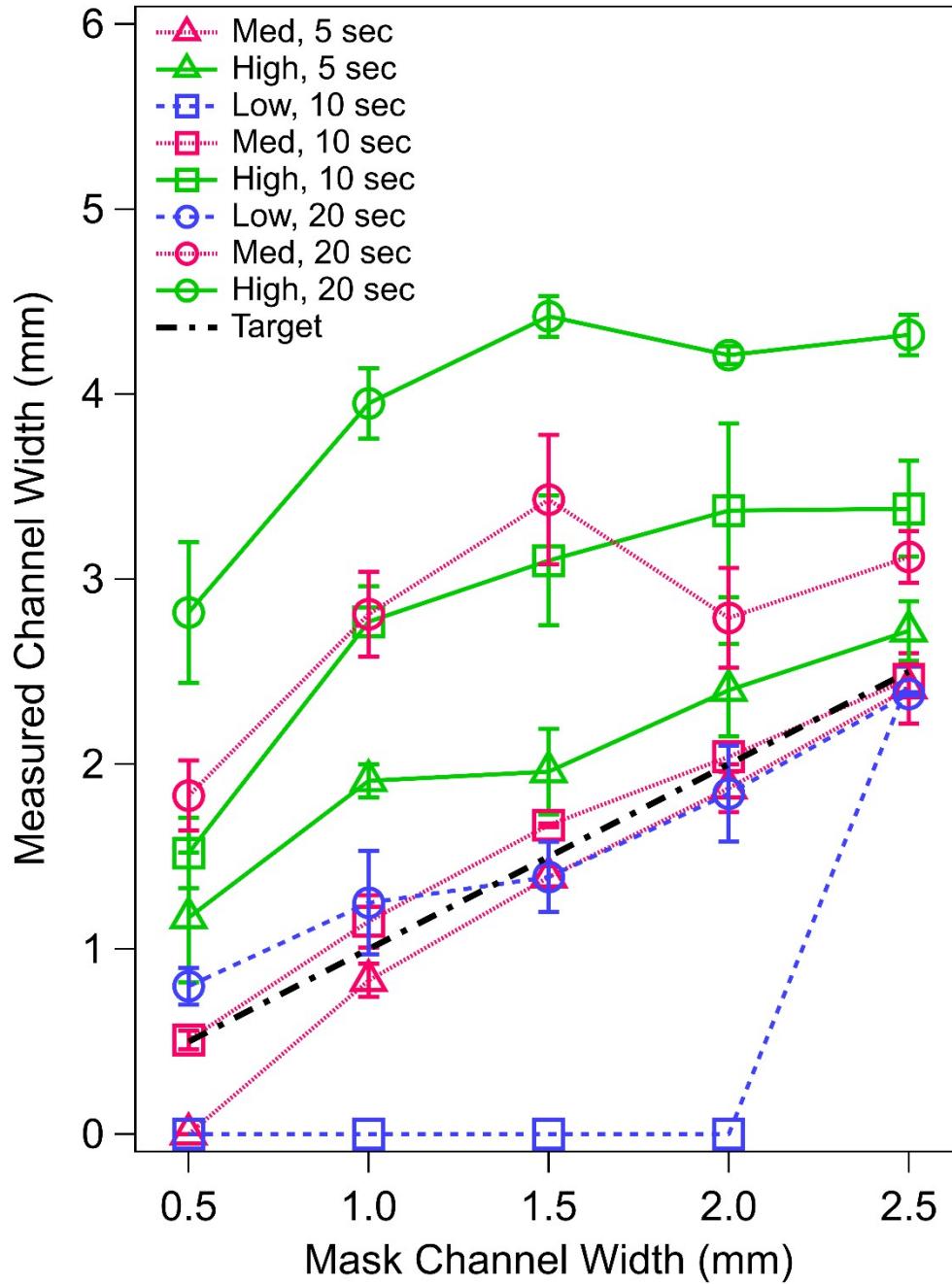


Figure S2. Measured channel width as a function of expected channel width for a 1.5-mm thick mask for 8 different oxygen plasma conditions. The dashed line indicates the predicted channel width. No channels were formed when the plasma cleaner was set at low for 5 seconds.

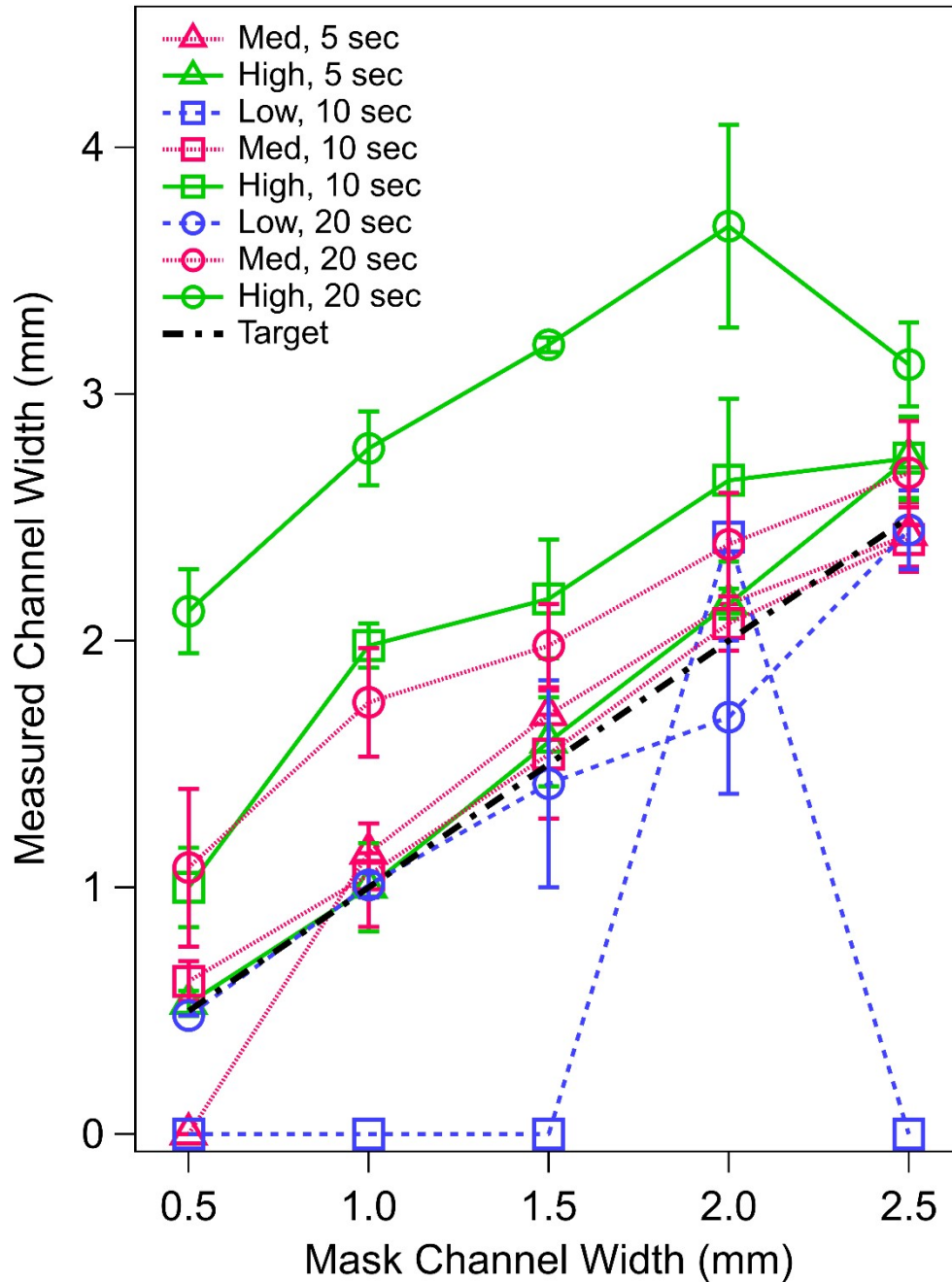


Figure S3. Measured channel width as a function of expected channel width for a 2.5-mm thick mask for 8 different oxygen plasma conditions. The dashed line indicates the predicted channel width. No channels were formed when the plasma cleaner was set at low for 5 seconds.

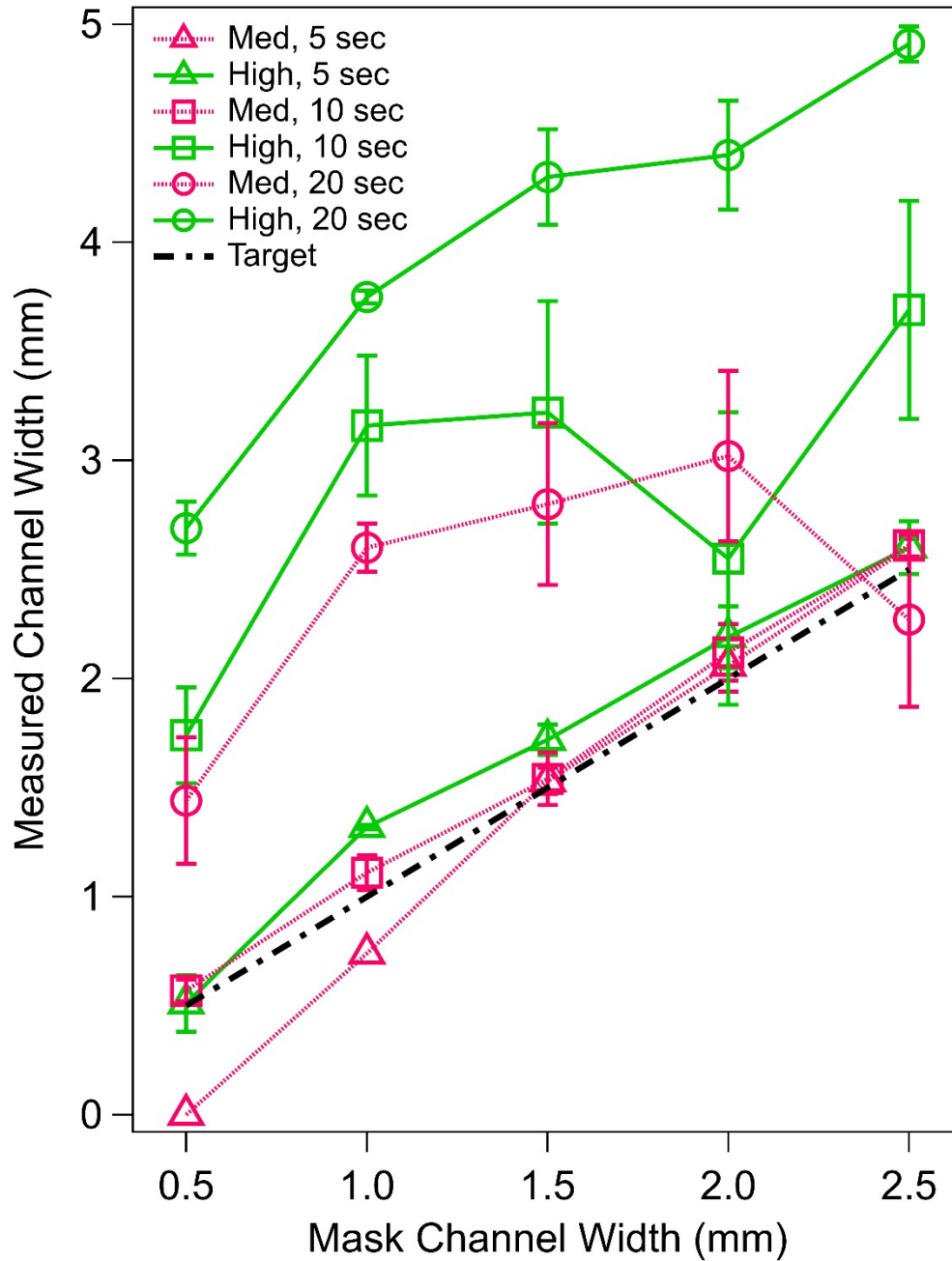


Figure S4. Measured channel width as a function of expected channel width for a 3-mm thick mask for 6 different oxygen plasma conditions. The dashed line indicates the predicted channel width. No channels were formed at low intensity.

Table S1. Optimum oxygen/plasma patterning parameters for each channel width.

<u>Channel Width (mm)</u>	<u>Mask Thickness (mm)</u>	<u>Intensity (s)</u>	<u>Time (s)</u>
0.5	1.5	low	12
1	2.5	low	20
1.5	3	low	15
2	1.5	low	15
2.5	1.5	low	7

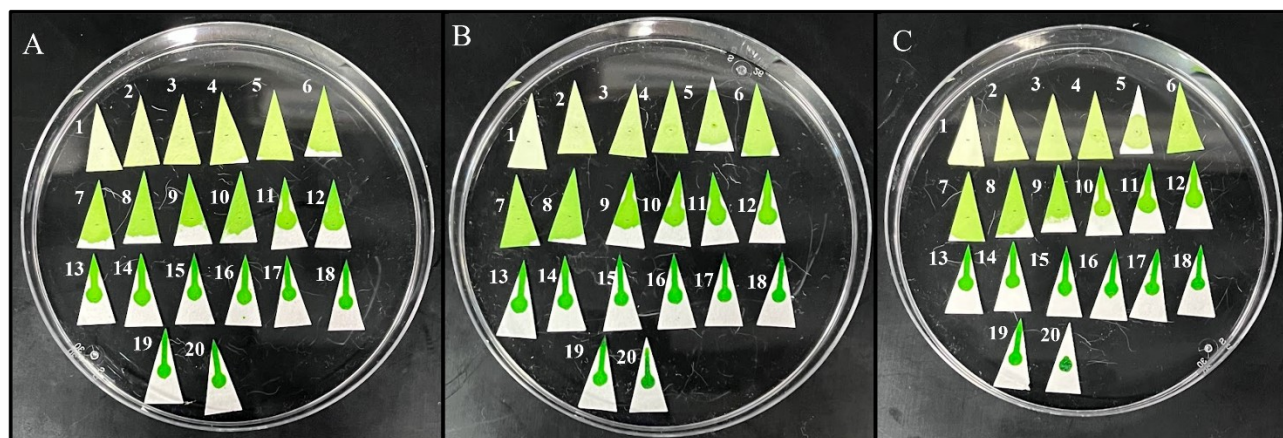


Figure S5. Pictures of patterned paper substrates with 1-mm wide channels with A) solvent spotted immediately after mixing, B) solvent left overnight at room temperature, and C) solvent refrigerated overnight at 4 °C. The solvent composition is increasing in aqueous content from 95% Methanol/5% aqueous (1) to 100% aqueous (20) in 5% increments. Triangle 10 in each picture is 50% methanol/50% aqueous. The dye was water soluble and was added to DI water before mixing with methanol.

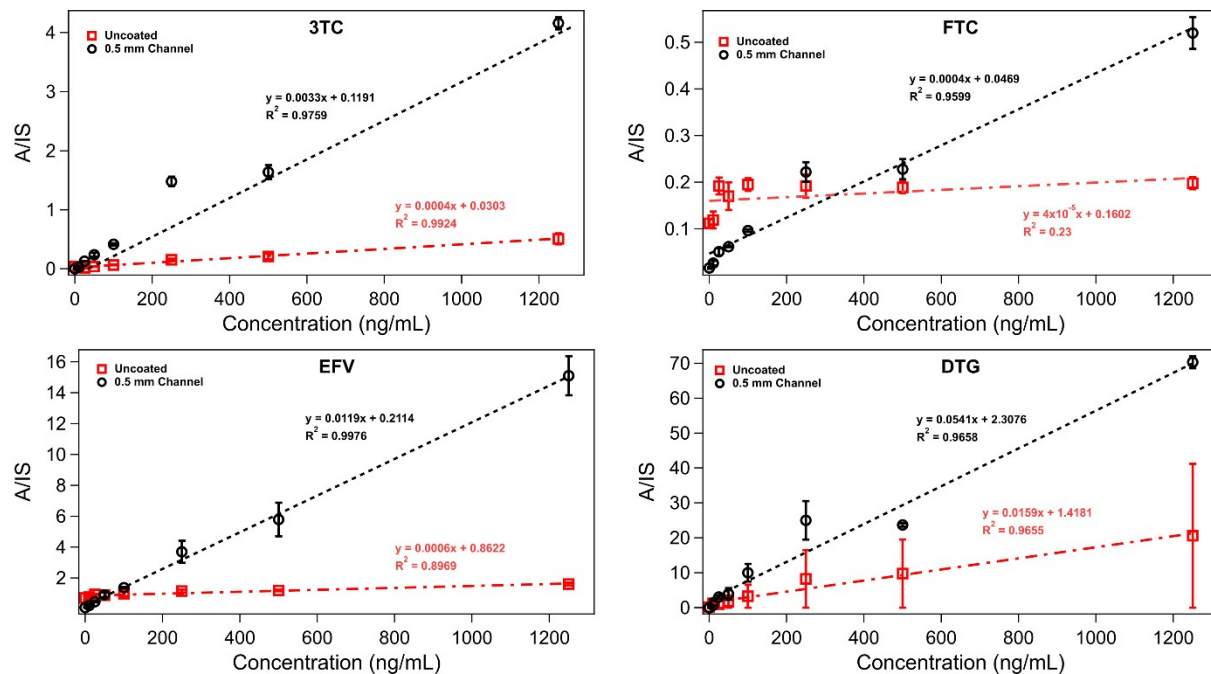


Figure S6. Calibration curves for uncoated (red squares) and patterned papers with 0.5-mm channels (black circles) for four target antiretrovirals. The error bars represent the standard error of 3 measurements.

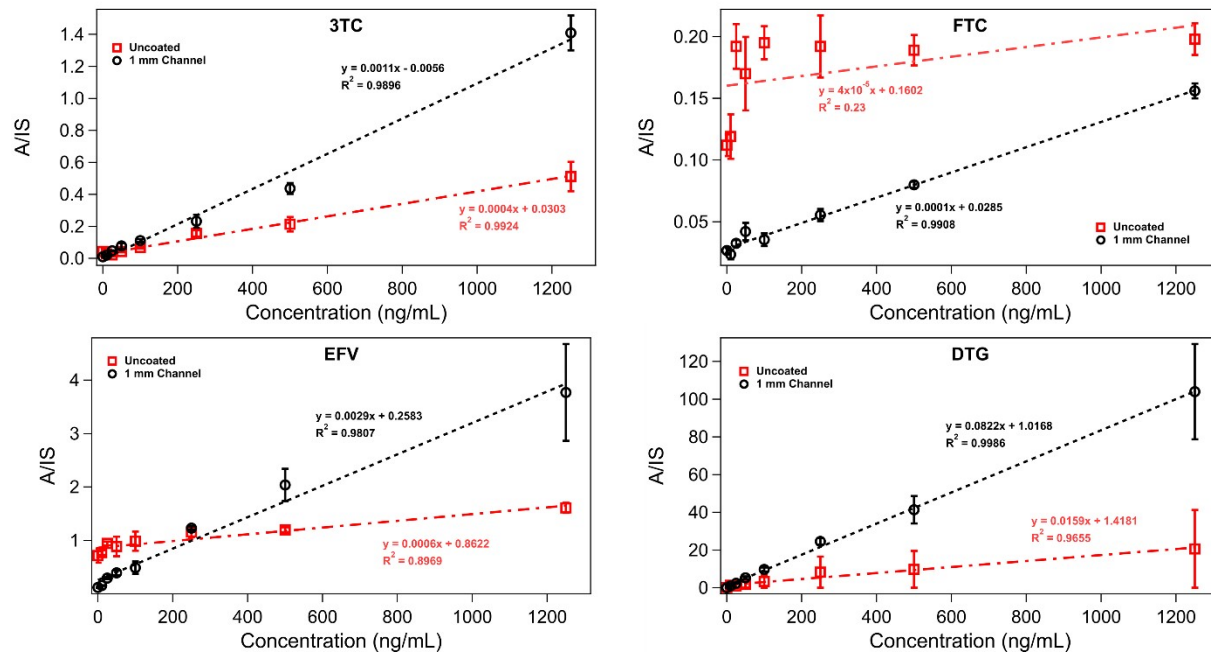


Figure S7. Calibration curves for uncoated (red squares) and patterned papers with 1-mm channels (black circles) for four target antiretrovirals. The error bars represent the standard error of 3 measurements.

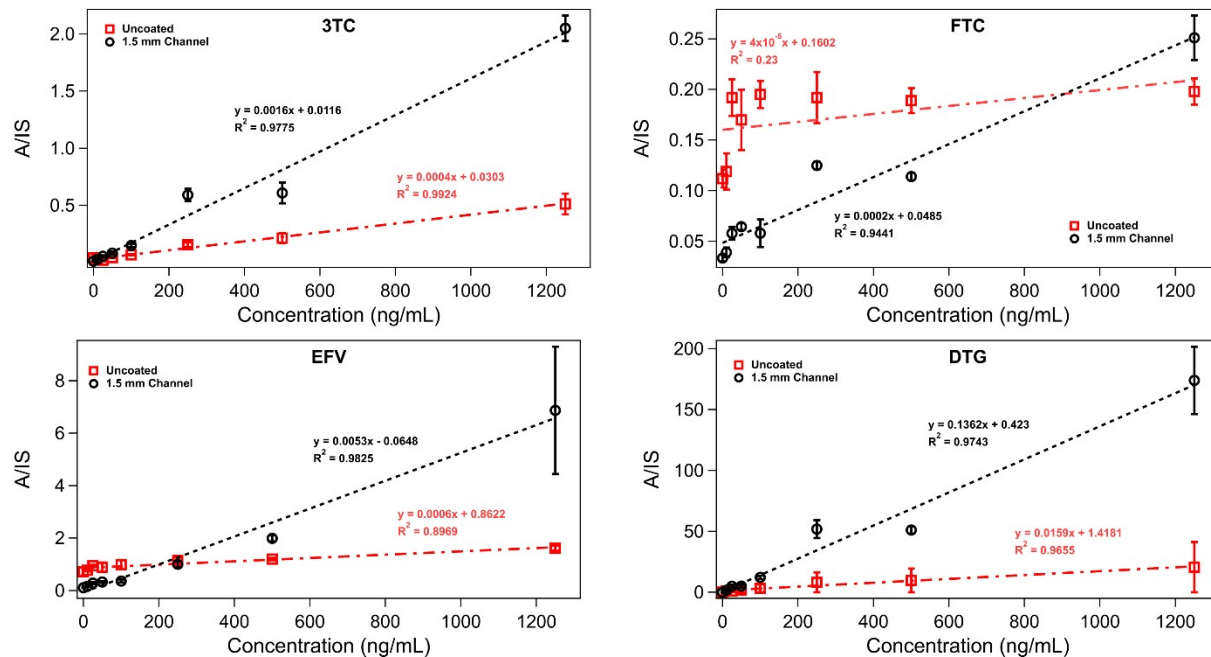


Figure S8. Calibration curves for uncoated (red squares) and patterned papers with 1.5-mm channels (black circles) for four target antiretrovirals. The error bars represent the standard error of 3 measurements.

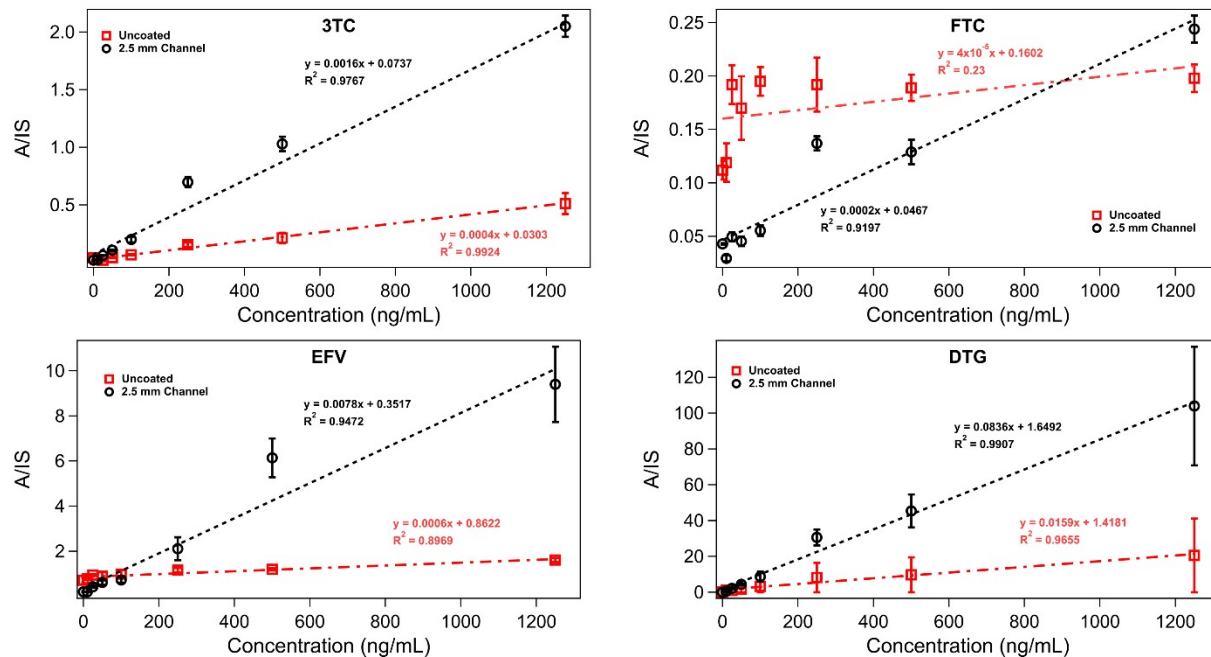


Figure S9. Calibration curves for uncoated (red squares) and patterned papers with 0.5-mm channels (black circles) for four target antiretrovirals. The error bars represent the standard error of 3 measurements.