Supplementary Information (SI) for RSC Advances.
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Supporting Information

Microfluidic Toolbox using Padlock Probes and Rolling Circle Amplification for Direct Detection and Genotyping of viral RNA

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Table S1: List of biotinylated capture oligonucleotides (Biot-Anchor), padlock probes (PLP), L-shaped oligonucleotides (L-Probe), detection oligonucleotides (DO), PLP-primer and restriction oligonucleotide (RO) sequences used for each assay. Color codes highlight complementary regions, with green highlighting sequences complementary to the target, blue for complementary probes, and red for detection probes. Riboses are identified in the "chimeric" PLPs with a purple color.

Sequence ID (assay)	**Sequence (5' - 3')**
Biot-Anchor 1 (HybRCA)	**Biotin - AAAAAAAAAA** TAGTGAACCGCCACACATGACCATTT CACTCAATACTTGAGCACACTCAT
Biot-Anchor 2 (HybRCA)	**Biotin - AAAAAAAAAAAA** TGTTTACGCAAATATGCGTAAAACT CATTCACAAAGTCTGTGTCAACA
Biot-Anchor 3 (HybRCA)	**Biotin - AAAAAAAAAA** GCTTCAGACATAAAAACATTGTTTTGAT AATAAAGAACTGACTTAAAGTT
L-Probe 1 (HybRCA)	ACATGTTGTGCCAACCACCATAGAATTTGCT **TTTTAGTGT** TACGATGTTGACCCCTGTA TTAGGGATGCGGGTAGTA
L-Probe 2 (HybRCA)	CATTTGAGTTATAGTAGGGATGACATTACGT **TTTTAGTGT** TACGATGTTGACCCCTGTA TTAGGGATGCGGGTAGTA
L-Probe 3 (HybRCA)	CAGATAGAGACACCAGCTACGGTGCGAGCTC **TTTTAGTGT** TACGATGTTGACCCCTGTA TTAGGGATGCGGGTAGTA
L-Probe 4 (HybRCA)	GCCATAATTCTAAGCATGTTAGGCATGGCTC **TTTTAGTGT** TACGATGTTGACCCCTGTA TTAGGGATGCGGGTAGTA
L-Probe 5 (HybRCA)	GCTACAACACGTTGTATGTTTGCGAGCAAGA **TTTTAGTGT** TACGATGTTGACCCCTGTA TTAGGGATGCGGGTAGTA
L-Probe 6 (HybRCA)	CAATTACTACAGTAGCTCCTCTAGTGGCGGC **TTTTAGTGT** TACGATGTTGACCCCTGTA TTAGGGATGCGGGTAGTA
L-Probe 7 (HybRCA)	CCCAACCCATAAGGTGAGGGTTTTCTACATC **TTTTAGTGT** TACGATGTTGACCCCTGTA TTAGGGATGCGGGTAGTA
L-Probe 8 (HybRCA)	GTGGCATCTCCTGATGAGGTTCCACCTGGTT **TTTTAGTGT** TACGATGTTGACCCCTGTA TTAGGGATGCGGGTAGTA
L-Probe 9 (HybRCA)	GACACTCATAAAGTCTGTGTTGTAAATTGCG **TTTTAGTGT** TACGATGTTGACCCCTGTA TTAGGGATGCGGGTAGTA
L-Probe 10 (HybRCA)	GAAACACACAACAGCATCGTCAGAGAGTATC **TTTTAGTGT** TACGATGTTGACCCCTGTA TTAGGGATGCGGGTAGTA
L-Probe 11 (HybRCA)	GAGGTCCTTTAGTAAGGTCAGTCTCAGTCCA **TTTTAGTGT** TACGATGTTGACCCCTGTA TTAGGGATGCGGGTAGTA
L-Probe 12 (HybRCA)	GCCGGCCCCTAGGATTCTTGATGGATCTGGG**TTTTAGTGT** TACGATGTTGACCCCTGTA TTAGGGATGCGGGTAGTA
PLP (HybRCA)	TACAGGGGTCAACATCGTA **TGCGTCTATTTAGTGGAGCCTT** AGTAGCCGTGACTATCGACT ACTACCCGCATCCCTAA

Sequence ID (assay)	**Sequence (5' - 3')**
Biot-Anchor 1 (C2CA)	**Biotin - TTTTT** AACATTAGTAGCGTTATTAACAA TAAGTAGGGACTGGGTC
Biot-Anchor 2 (C2CA)	**Biotin - TTTTT** CCAGTTTGCCCTGGAGCGATTTG TCTGACTTCATCACCTC
Biot-Anchor 3 (C2CA)	**Biotin - TTTTT** GAAACTTTTTGTTAGACTCAGTA AGAACACCTGTGCCTGT
Biot-Anchor 4 (C2CA)	**Biotin - TTTTT** AGCAGCAAGATTAGCAGAAGCTC TGATTTCTGCAGCTCTA
PLP 1-Wu (C2CA)	AGTGGGTTGGAAACC GTGTATGCAGCTCCTCAGTAATAGTGTCTTAC TGCGTCTATTTAGTGGAGCC GTAACCAACACCATrU
PLP 2-Wu (C2CA)	CCTGATAAAGAACAG GTGTATGCAGCTCCTCAGTAATAGTGTCTTAC TGCGTCTATTTAGTGGAGCC CTGTGCAGTTAACArU
PLP 1-Alfa (C2CA)	CAATGTCTCTGCCAA GTGTATGCAGCTCCTCAGTAATAGTGTCTTAC AGTAGCCGTGACTATCGAC CATCAGTAGTGTCArU
PLP 2-Alfa (C2CA)	AAGGATATCATTTAA GTGTATGCAGCTCCTCAGTAATAGTGTCTTAC AGTAGCCGTGACTATCGAC TTTGTCAAGACGTGrC
PLP 1-Beta (C2CA)	CACGCACTAAATTAA GTGTATGCAGCTCCTCAGTAATAGTGTCTTAC AGTCGATAGTCACGGCTACT AACCCTGAGGGAGArC
PLP 2-Beta (C2CA)	AACACCATTACAAGG GTGTATGCAGCTCCTCAGTAATAGTGTCTTAC AGTCGATAGTCACGGCTACT ACAATTAAAACCTTrU
PLP-Primer (C2CA)	TACTGAGGAGCTGCATACAC
RO (C2CA)	GTGTATGCAGCTCCTCAGTA
DO Biot-Common (C2CA)	GTAAGACACTATTACTGAGGATTTT - Biotin
DO Cy3-Wu (C2CA)	GGCTCCACTAAATAGACGCATTTT - Cy3
DO Cy5-Alfa (C2CA)	AGTCGATAGTCACGGCTACTTTT - Cy5
DO AF488-Beta (C2CA)	AGTAGCCGTGACTATCGACTTTT - AF488

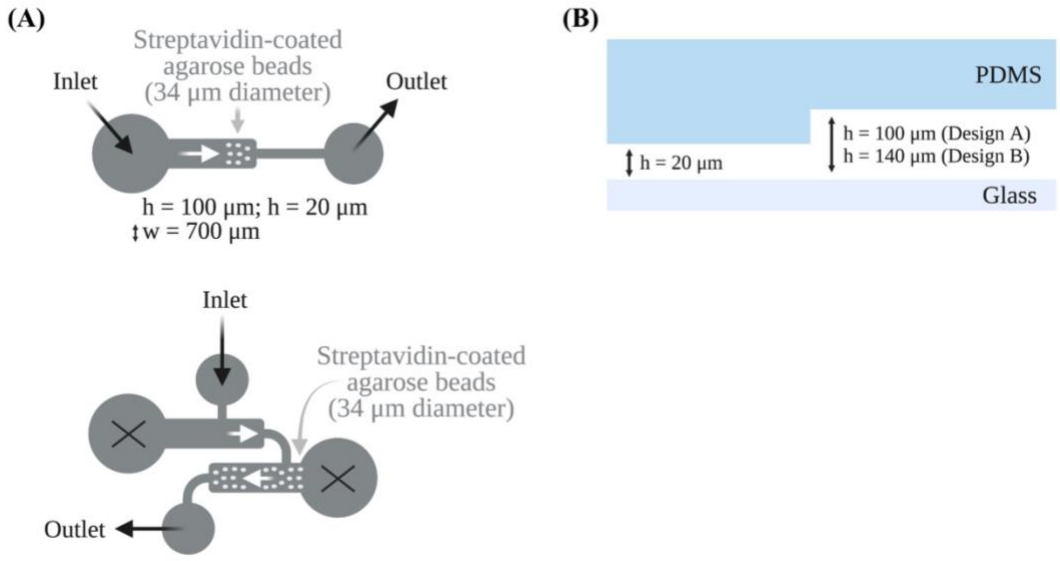

Figure S1: (A) Top and **(B)** side view of the microfluidic device designs. White arrows indicate the direction of the flow.