

Supplementary information

Single-Nucleotide Polymorphisms Detection Base on Active-Matrix Digital Microfluidics Pyrosequencing Lab-on- a-chip Platform

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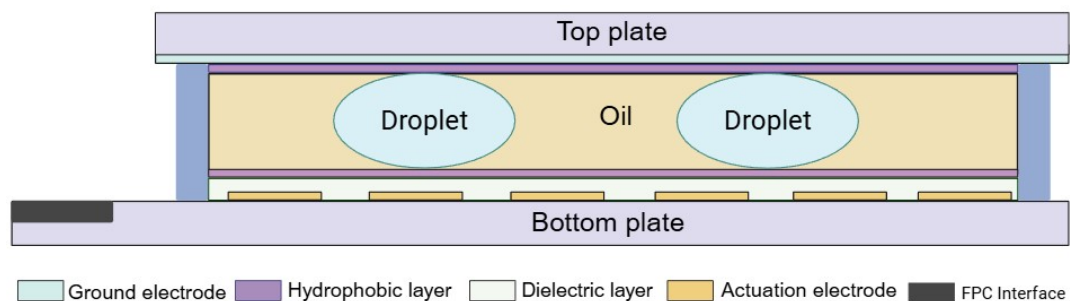


Figure S1. AM-DMF Chip Overall Structure Diagram

Table S1. The list of Primer sequence

Name	Sequence (5'-3')
Forward primer	Biotin – GGC TCT CAT GGA ATG GCT AAA GAC AAG ACC
Reverse primer	TTG TAT ATG AGG CCC ATG CAA CTG GCA AGT G
Sequencing primer	GCA CCA GTT GAA TAG CTT AG

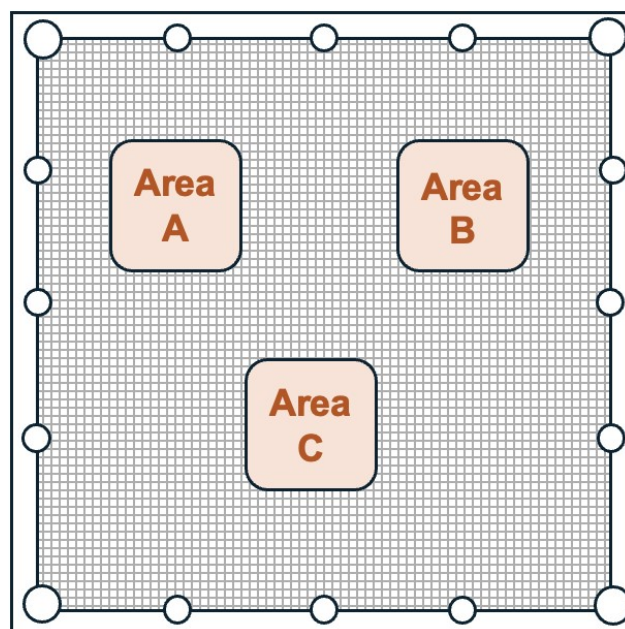


Figure S2. Schematic diagram of droplet movement area on the chip.

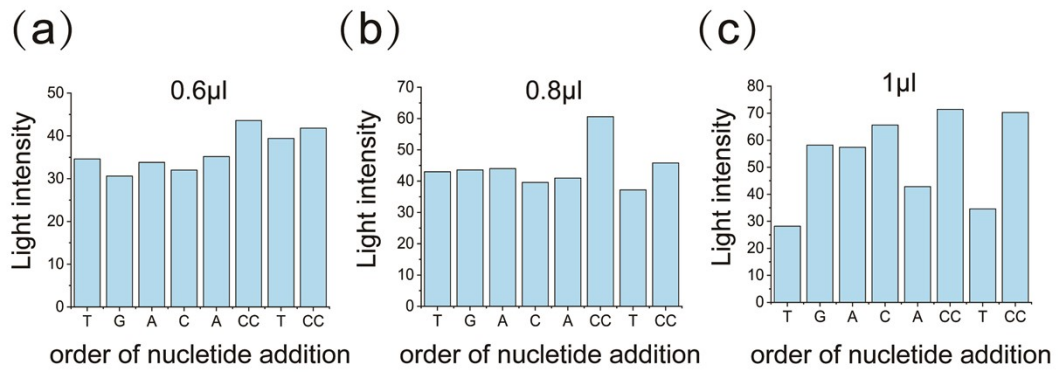


Figure S3. Detection results for nucleotides of varying volumes. (a) Add 0.6 μl of nucleotides. (b) Add 0.8 μl of nucleotides. (c) Add 1 μl of nucleotides.

Table S2. The list of SNP detection sequence

Detection of genetic loci	Sequence (5'-3')
CYP2C19*2 (G681A) rs4244285	CC/T GGG AAA TAA T
CYP2C19*3 (G636A) rs4986893	GG/A ATC CAG GT

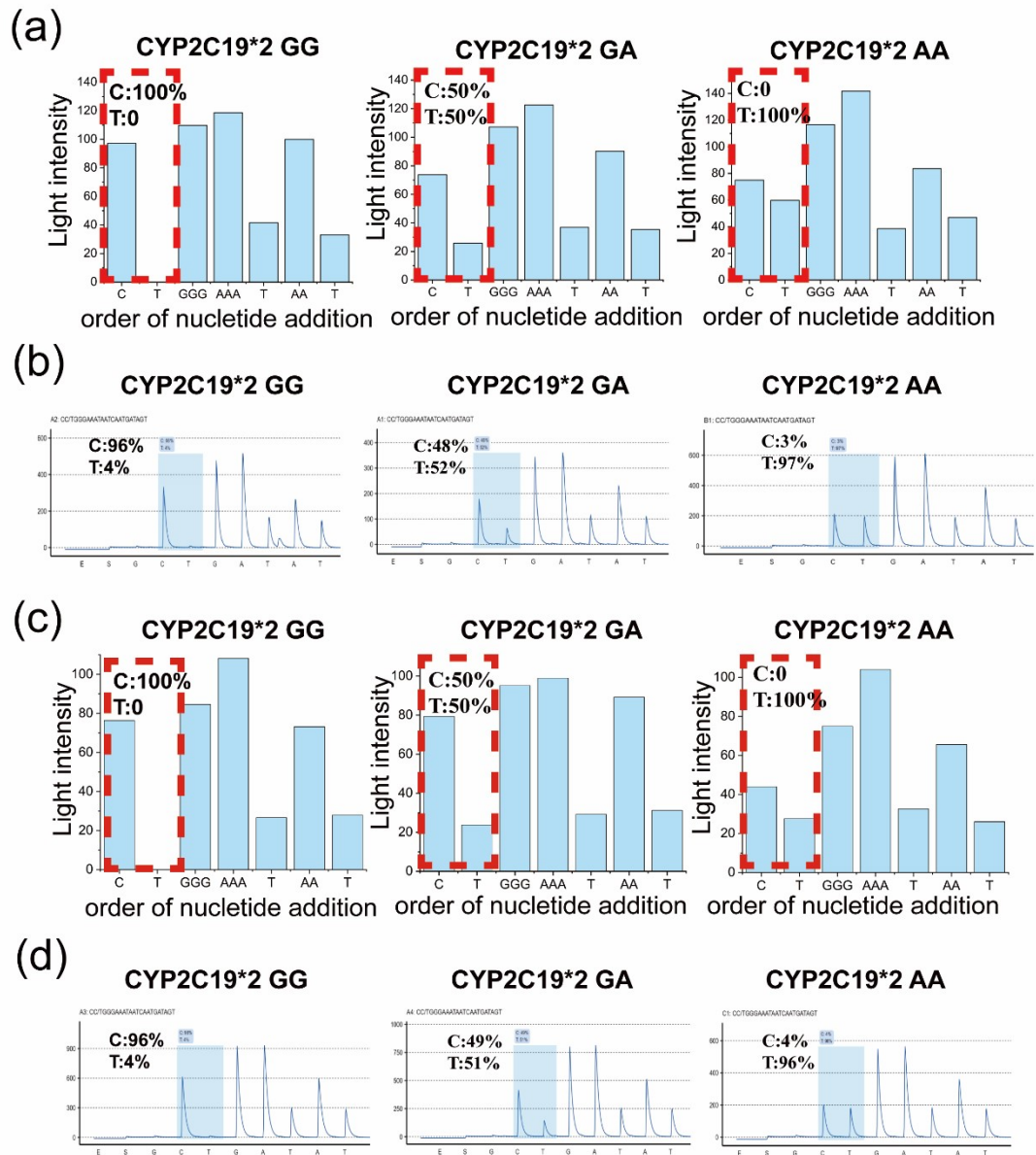


Figure S4. Comparison Chart of Systematic Detection Results for the *CYP2C19*2* Locus Gene and Clinical Outcomes. (a) (c) Systematic detection results for the *CYP2C19*2* locus gene. (b) (d) Clinical testing results for the *CYP2C19*2* gene locus. (The samples used in the system and in clinical practice are identical.)

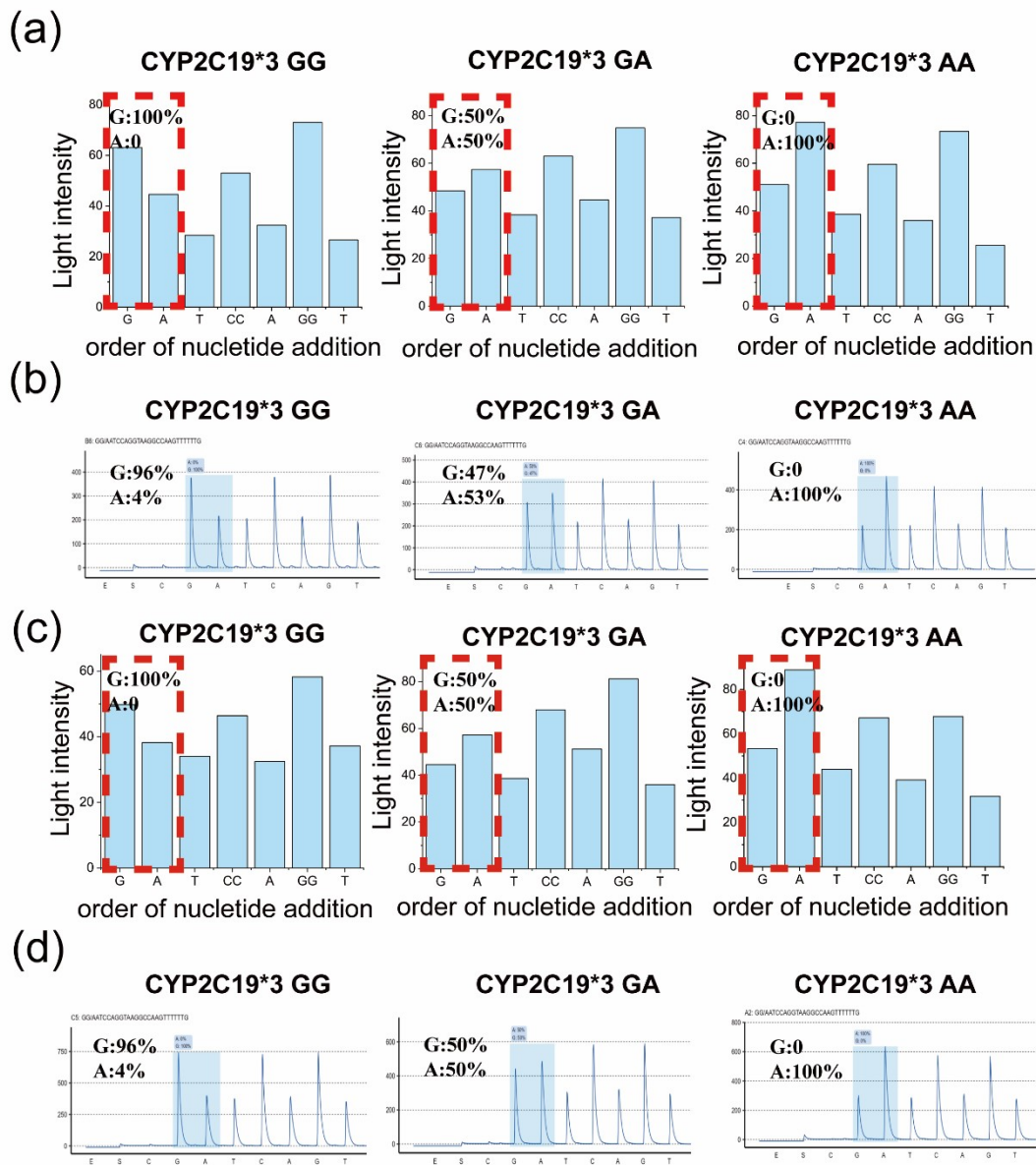


Figure S5. Comparison Chart of Systematic Detection Results for the *CYP2C19*3* Locus Gene and Clinical Outcomes. (a) (c) Systematic detection results for the *CYP2C19*3* locus gene. (b) (d) Clinical testing results for the *CYP2C19*3* gene locus.

(The samples used in the system and in clinical practice are identical.)

Table S3. Comparison of actual detection results for clinical samples between the Pyromark Q24 and AM-DMF

Detection genetic loci	Sample number	Genotype	PyromarkQ24 detection value	AM-DMF detection value
<i>CYP2C19*2</i>	1	GG	C: 96% T: 4%	C: 100% T: 0
	2	GA	C: 48% T: 52%	C: 52% T: 48%
	3	AA	C: 3% T: 97%	C: 18% T: 82%
	4	GG	C: 96% T: 4%	C: 100% T: 0
	5	GA	C: 49% T: 51%	C: 46% T: 54%
	6	AA	C: 4% T: 96%	C: 12% T: 88%
<i>CYP2C19*3</i>	7	GG	G: 96% A: 4%	G: 83% A: 17%
	8	GA	G: 47% A: 53%	G: 46% A: 54%
	9	AA	G: 0 A: 100%	G: 17% A: 83%
	10	GG	G: 96% A: 4%	G: 87% A: 13%
	11	GA	G: 50% A: 50%	G: 44% A: 56%
	12	AA	G: 100% A: 0	G: 87% A: 13%