A Novel Method that allows SNP Discrimination with 160:1 ratio for Biosensors Based on DNA-DNA hybridization

Satish Balasaheb Nimse,[a†] Keum-Soo Song,[b†] Shrikant Dashrath Warkad,[b] Taisun Kim[a*]

[a]Institute for Applied Chemistry and Department of Chemistry, Hallym University, Chuncheon, 200-702, Korea, Fax: +82-33-256-3421, E-mail: tskim@hallym.ac.kr

[b]Biometrix Technology, Inc. 202 BioVenture Plaza, Chuncheon, 200-161, Korea

Supporting Information

Table S1. Sequences of the probes used for derivation of SWAT

Probes	Sequence	T_m (°C)	
		[4(G+C)+2(A+T)–5]	Nearest neighbor method
Probe1	5'-9G-vertical spacer-TAC CGA CCC ACG CGG GC-3'	55	55.96
Probe2	5'-9G-vertical spacer-TAC CGG CCC ACG CGG GC-3'	57	58.45
Probe3	5'-9G-vertical spacer-TAC CGG CCC ACC CGG GC-3'	57	56.30
Probe4	5'-9G-vertical spacer-TAC CGA CCC ACG TGG GC-3'	53	52.37
Probe5	5'-9G-vertical spacer-TAC CGG CCT ACG CGG GC-3'	55	56.78
Probe6	5'-9G-vertical spacer-TAC CGG CCC ACC TGG GC-3'	55	54.3

9G- nine consecutive guanines (GGG GGG GGG) used for the immobilization of the probes on the AMCA DNAChip; Vertical spacer- nine consecutive thymidine's (TTT TTT TTT); T_M: melting temperature

Table S2. Sequences of probes used for the detection and discrimination of MTB strains and NTM Strains

Probes	Probe Description	Sequence	T_m(°C)
Probe7	*MTB*	5'-9G-vertical spacer-TAG CGA CCG ACG TGG GC-3'	53
Probe8	*Chelonae*	5'-9G-vertical spacer-TAC CGG CCT ACG CGG GC-3'	55
Probe9	*Avium*	5'-9G-vertical spacer-TAG CGG CCC ACC TGG GC-3'	55
Probe10	*Marinum*	5'-9G-vertical spacer-TAC CGG CCC ACC TGG GC-3'	55
Probe11	*Abscessus*	5'-9G-vertical spacer-TAC CGA CCC ACG TGG GC-3'	53
Probe12	*kansasii*	5'-9G-vertical spacer-TAT CGG CCG ACATGG GC-3'	53
Probe13	PCR	5'-9G-vertical spacer-CGA CCS ACV CGS GCC AGG TC -3'	61
Probe14	NC	5'-9G-vertical spacer-GCC AGG TCG TAG CGC TTC TC-3'	61
Probe15	HC	5'-9G-vertical spacer-CCT AGT GGC TCT ATG GTA AC-3'	55
HC-Cy5-T1	HC Target DNA	3'- GGA TCA CCG AGA TAC CAT TG GAG ACT GCG -Cy5-5'	

HC – probe for the Hybridization control; HC-Cy5-T1 – Target oligonucleotide for HC probe9G- nine consecutive guanines (GGG GGG GGG) used for the immobilization of the probes on the AMCA DNAChip; Vertical spacer- nine consecutive thymidine's (TTT TTT TTT); T_M: melting temperature

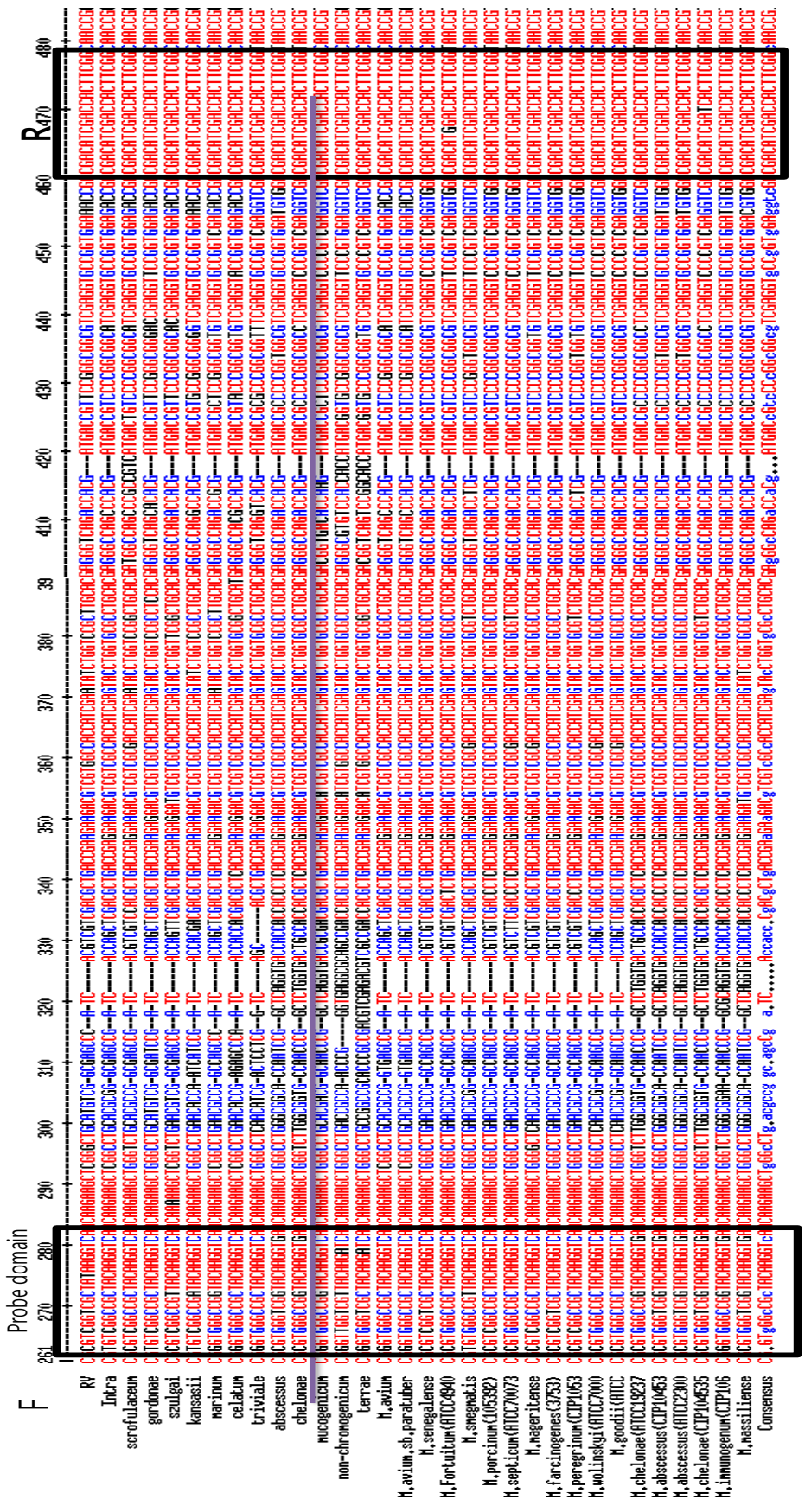


Figure S1: Homology in the sequences of the genomic DNA of the MTB and NTM strains

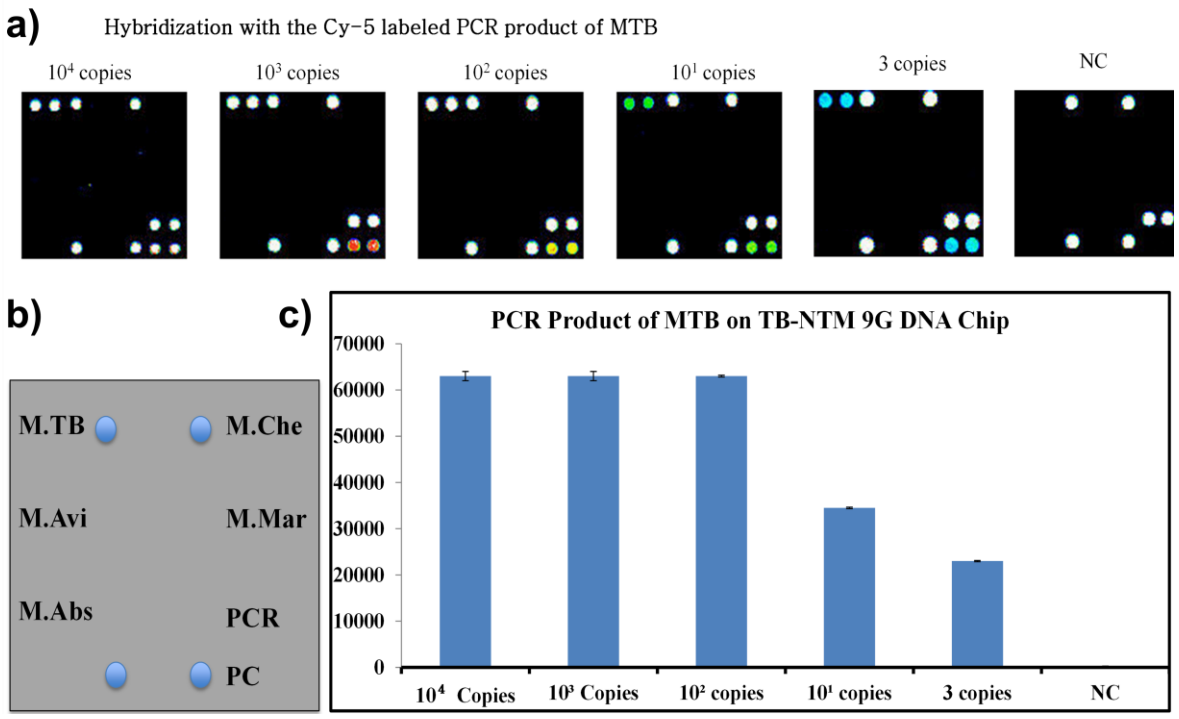


Figure S2: Limit of detection for the identification of MTB.

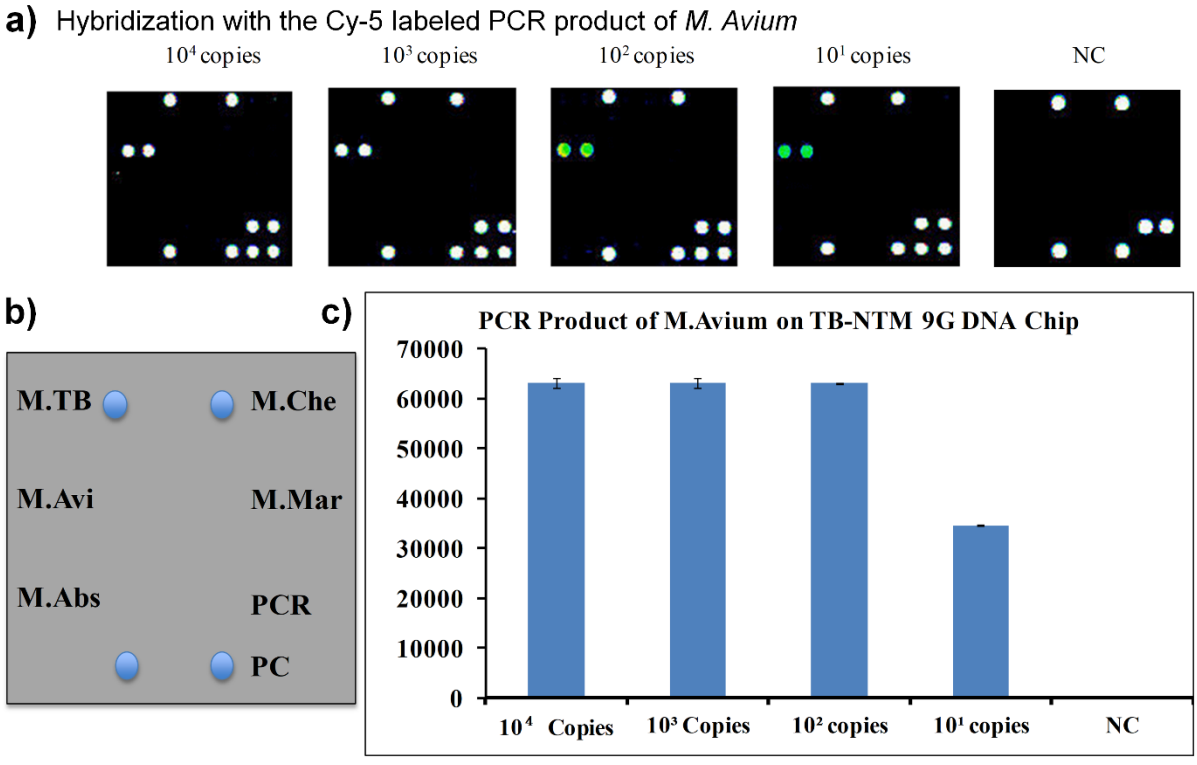


Figure S3: Limit of detection for the identification of *Mycobacterium Avium*.

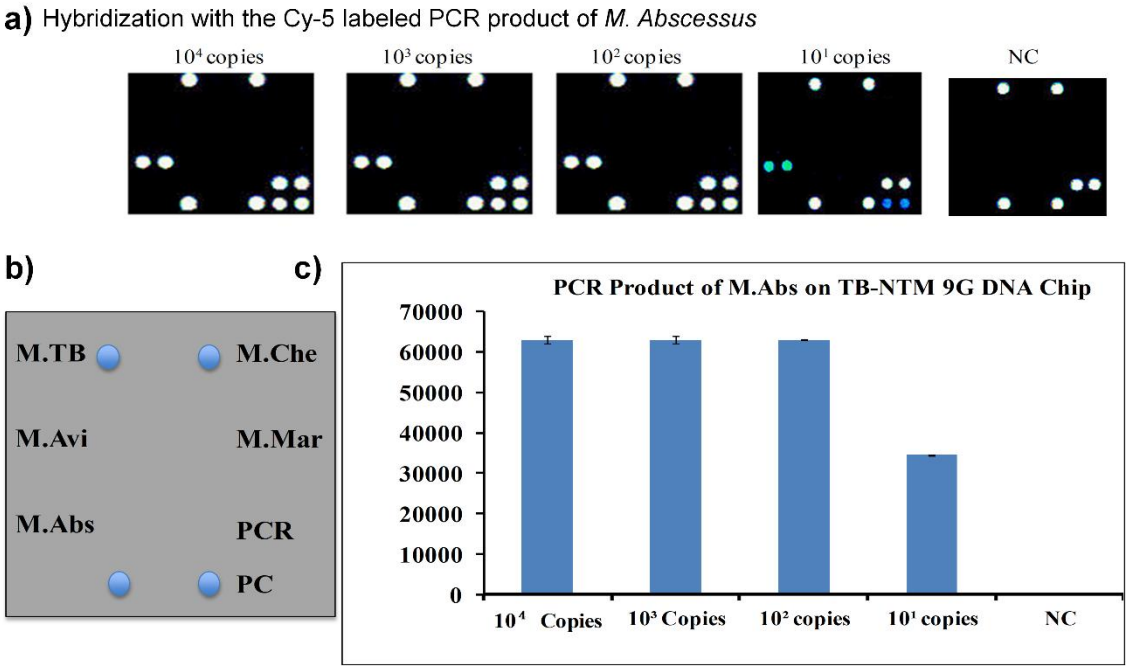
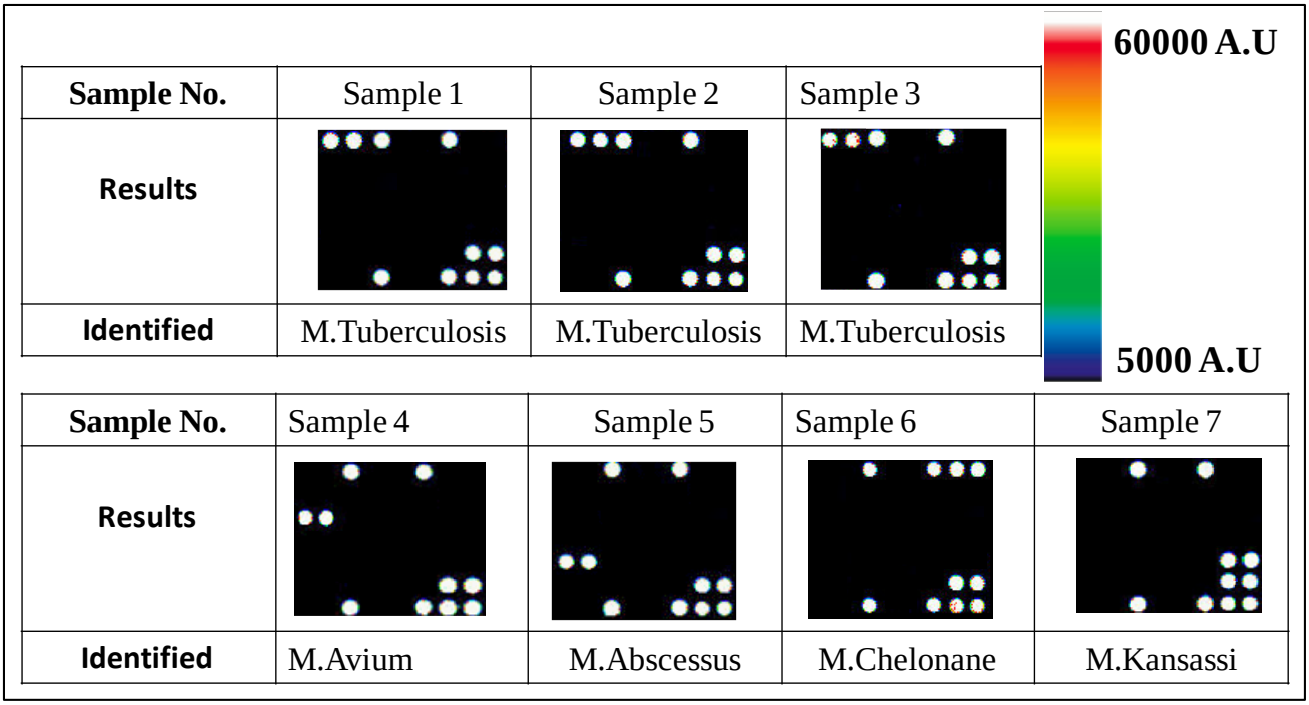


Figure S4: Limit of detection for the identification of *Mycobacterium Abscessus*.



Sample No.	Sample 1	Sample 2	Sample 3
Results			
Identified	M.Tuberculosis	M.Tuberculosis	M.Tuberculosis

Sample No.	Sample 4	Sample 5	Sample 6	Sample 7
Results				
Identified	M.Avium	M.Abscessus	M.Chelonane	M.Kansassi

Figure S5: The detection and discrimination of the MTB and NTM strain in the clinical samples.