A circular ferrofluid driven microchip for rapid polymerase chain reaction

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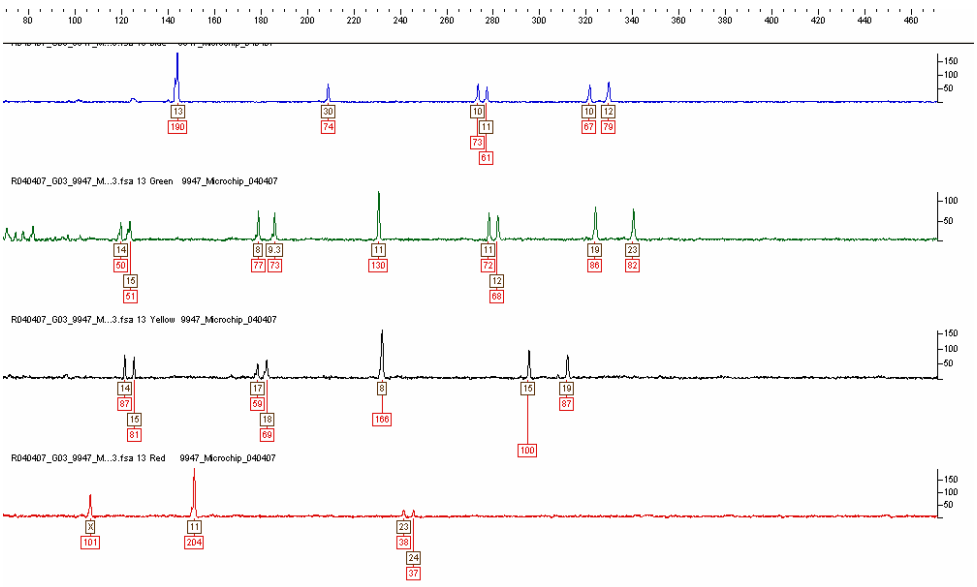
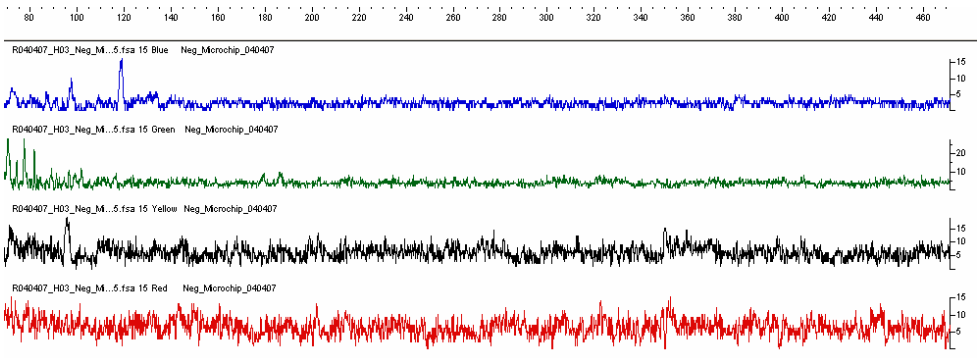


(a)



(b)

Fig. 7 Electropherograms of (a) 9947 and (b) negative control amplified using ferrofluid driven PCR microchip. A total number of 25 cycles was completed in 13 mins with a flow velocity of 2 mm/s and cycle rate of 31.4 sec/cycle. Four fluorescent dyes (6-FAM, VIC, NED, and PET dyes) were used to label DNA fragments. All STR loci included in the Applied Biosystems Identifiler® STR analysis kit are co-amplified in a single PCR and analyzed simultaneously in a single capillary electrophoresis injection with ABI 3100 PRISM DNA analyzer. The separation was performed under an electric field strength of 83.3 V/cm with an effective separation length of 36 cm for 20 min. STR loci D8S1179, D21S11, D7S820,and CSF1PO are depicted in blue; D3S1358, TH01, D13S317, D16S539, and D2S1338 are reprented in green; D19S433, vWA, TPOX, and D18S51 are shown in black; Amelogenin, D5S818 and FGA are depicted in red.