Supporting Information for "Rapid Generation of Highly Specific Aptamers via Micromagnetic Selection" by Jiangrong Qian<sup>1</sup>, Xinhui Lou<sup>2</sup>, Yanting Zhang<sup>3</sup>, Yi Xiao<sup>1,2</sup>\* and H.Tom Soh<sup>1, 2</sup>\*

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**Table S1**: Sequences of DNA molecules used in these experiments. All DNAs were synthesized by Integrated DNA Technologies, Inc., (Coralville, IA)

Name	Sequence	Description
	5' AGCAGCACAGAGGTCAGATG-	Primer sites in bold, random
ssDNA library	N <sub>60</sub> -CCTATGCGTGCTACCGTGAA	sequence in N <sub>60.</sub>
		Forward primer used for
FP	5' AGCAGCACAGAGGTCAGATG	cloning and partition efficiency
		measurements.
		Reverse primer used for cloning
RP	5' TTCACGGTAGCACGCATAGG	and partition efficiency
		measurements.
		Forward primer with Alexa 488
FP-Alexa	5'Alexa488-AGCAGCACAGAGGTCA	label used in fluorescence based
	GATG	dissociation constant (K <sub>D</sub> )
		measurements.
		Reverse primer used for ssDNA
<b>RP-Biotin</b>	5' Bio-TTCACGGTAGCACGCATAGG	generation.

DNA library scheme:

	Primer	Random Region	Primer	
5′-	AGCAGCACAGAGGTCAGATG	имимимимимимимимимимимимимими	CCTATGCGTGCTACCGTGAA	-3'



Figure S1: The MMS device allows significantly higher recovery of the beads in comparison to the CMACS chip.



Flow rate (mL/hr) Process Time (min)

Figure S2: The MMS device allows higher throughput separation in a comparison to the CMACS device.



**Figure S3.** Surface Plasmon Resonance (SPR) sensorgrams of clone 10 binding to target (SA) and non-target (BSA) molecules. The SPR response confirms the specific affinity of clone 10 for SA and negligible affinity for BSA. The SA and BSA molecules were immobilized on individual SPR chips through EDC/NHS coupling, and 6  $\mu$ L of 50 nM and 20  $\mu$ L of 200 nM solution of clone 10 were injected for SA and BSA binding reaction, respectively.