

## Supplementary Information

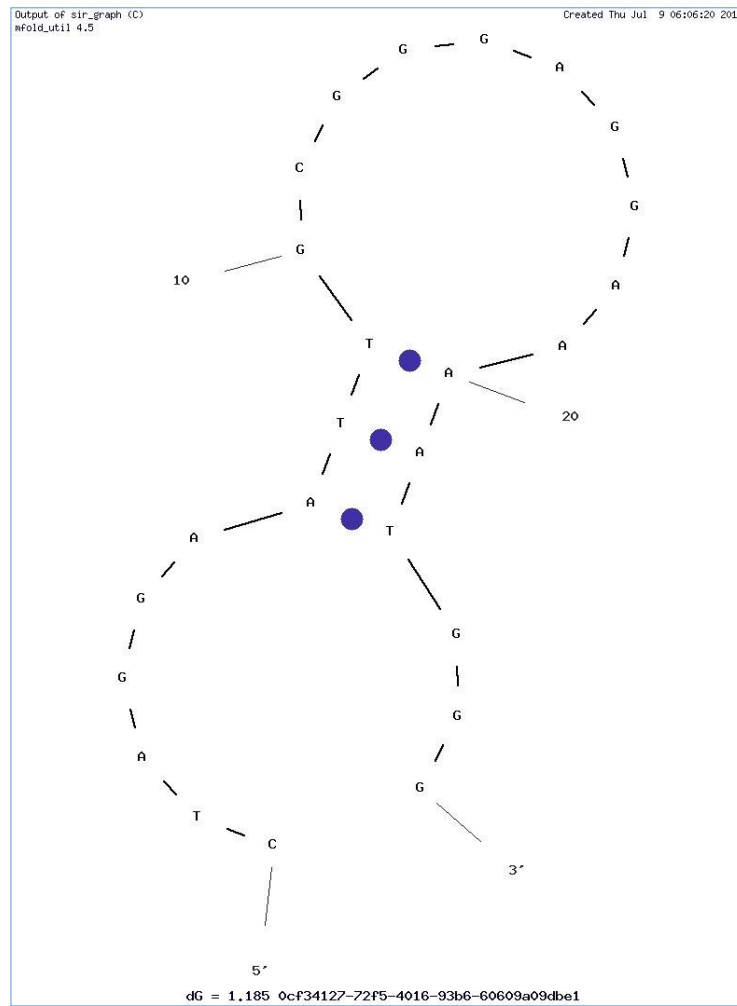
### Mismatch detection enhancement based on silicon nanowires 3D microarray

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**Figure S1: Hairpin formation probability**



$$\Delta G = 1.18 \text{ kcal/mole}$$

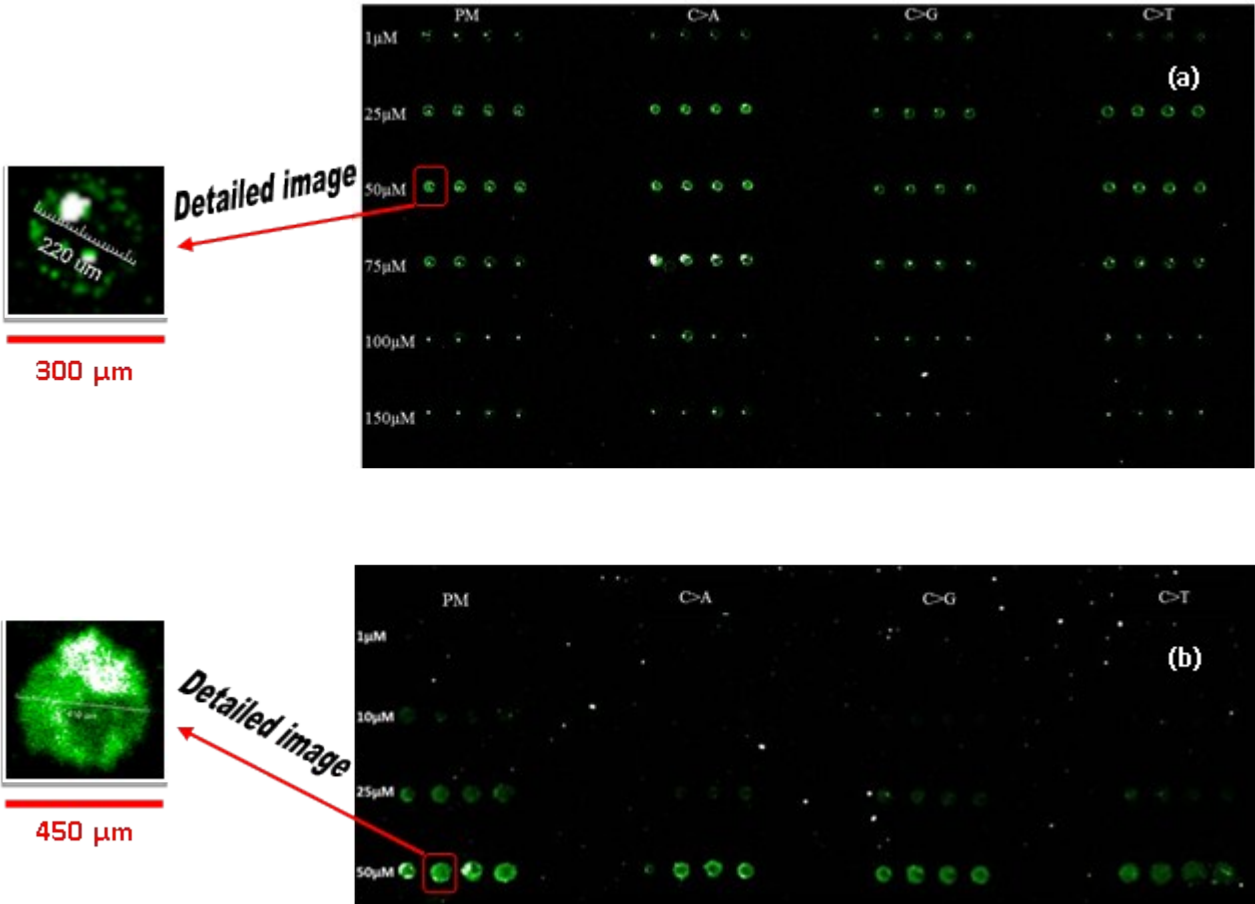
$$\Delta H = -16.2 \text{ kcal/mole}$$

$$\Delta S = -58.31 \text{ cal/ K * mole}$$

**Table S1: Self-dimer formation probability**

<b>Probe Sequence</b>	
5'- CCCATTTTCCTCCCGCAATTCCTAG -3'	
Maximum Delta G: -52.23 kcal/mole	
<b>Delta G: -5.36 kcal/mole Base Pairs: 4</b>	
5'	CTAGGAATTGCGGGAGGAAAATGGG
	: :      : :
3'	GGGTAAAAGGAGGGCGTTAAGGATC
<b>Delta G: -4.16 kcal/mole Base Pairs: 4</b>	
5'	CCCATTTTCCTCCCGCAATTCCTAG
3'	GATCCTTAACGCCCTCCTTTTACCC
<b>Delta G: -3.61 kcal/mole Base Pairs: 2</b>	
5'	CCCATTTTCCTCCCGCAATTCCTAG
	: :    : :
3'	GATCCTTAACGCCCTCCTTTTACCC
<b>Delta G: -3.42 kcal/mole Base Pairs: 3</b>	
5'	CCCATTTTCCTCCCGCAATTCCTAG
	:::
3'	GATCCTTAACGCCCTCCTTTTACCC
<b>Delta G: -3.14 kcal/mole Base Pairs: 2</b>	
5'	CCCATTTTCCTCCCGCAATTCCTAG
	:    :
3'	GATCCTTAACGCCCTCCTTTTACCC

Figure S2: Comparison of the microarray scanned images obtained on 2D (a) and 3D (b) platforms, respectively



**Table S2: The hybridization thermodynamics calculated for the selected sequences, with IDT Biophysics software**

<b>Sequences</b>	<b><math>\Delta G_{37}</math></b> [kcal/mole]	<b><math>\Delta H</math></b> [kcal/mole]	<b><math>\Delta S</math></b> [cal/(K·mole)]
<b>Normal</b>	-14.78	-194.30	-578.82
<b>C&gt;A</b>	-11.73	-178.50	-537.72
<b>C&gt;G</b>	-12.46	-184.80	-555.67
<b>C&gt;T</b>	-12.24	-182.40	-548.62