

1 SUPPLEMENTARY MATERIAL

2 **S1 Fig. Optimization of MB and miRNA oligo concentration.** (A) MB for detecting miRNA-21  
3 with 6-FAM attached and no quencher was detectable above background fluorescence (assay buffer  
4 only) at concentrations of 25 nM and above. (B) miRNA-21 MB at 25 nM tested against miRNA-21  
5 oligos at concentrations ranging from 0-1000 nM. All charts show mean fluorescence ratio +/- SEM.

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8 **S2 Fig. Purification of Poly-A MB and miRNA-21 specific MB constructs by HPLC.** Upper  
9 figure- HPLC report obtained for the Poly-A MB construct. Peak 2 corresponds to the fraction  
10 containing the poly-A MB construct with an area of  $\approx 96\%$ . Lower figure- HPLC report obtained for  
11 the miRNA-21 specific construct. Peak 3 corresponds to the fraction containing the miRNA-21 MB  
12 construct with an area of  $\approx 97\%$ .

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14 **S3 Fig. Characterization of Poly-A MB and miRNA-21 specific MB constructs by Mass**  
15 **Spectrometry.** The sharp peaks of high intensity correspond to the observed  $M_w$  of the purified  
16 constructs. Upper image- MS spectra obtained for the purified poly-A MB construct showing a  
17 sharp, defined peak corresponding to the  $M_w$  of the construct (11384.78 Da). Lower image- MS  
18 spectra obtained for the purified miRNA-21 specific MB construct showing a sharp, defined peak  
19 corresponding to the  $M_w$  of the construct (12001.09 Da).

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21 **S4 Fig. Fluorescence spectra of tryptophan present in the peptide coupled to the Poly-A MB**  
22 **structure.** Fluorescence excitation spectrum was obtained upon fixing fluorescence emission at  
23 350nm and fluorescence emission spectrum was obtained upon excitation at 295nm (specific for  
24 tryptophan).

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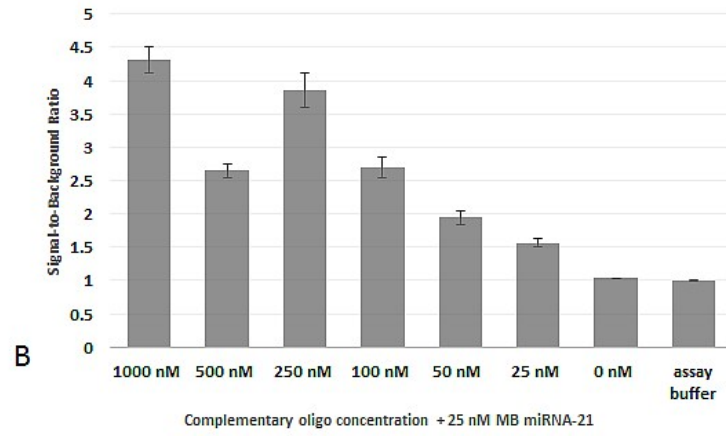
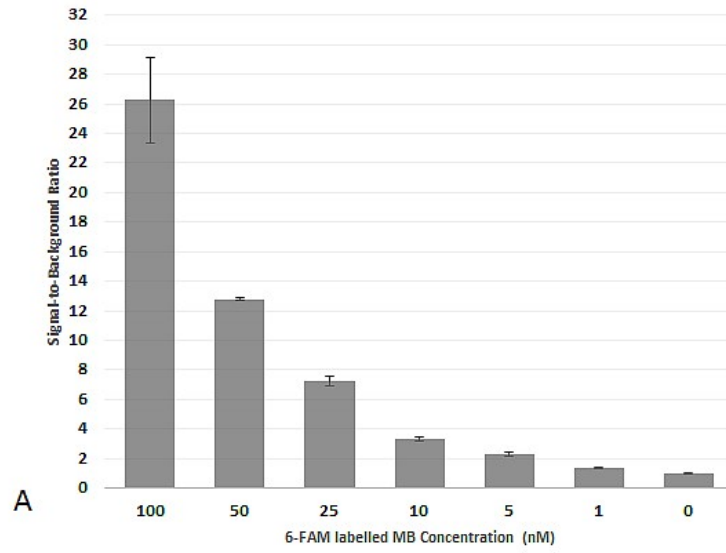
26 **S5 Fig. Analysis of bioavailability of a LAMI immobilized poly-A MB array onto a SH**  
27 **derivatized quartz slide using CFM:** Cy3 fluorescence emitted by the immobilized poly-A MB  
28 construct (left), Cy5 labeled non-complementary poly-A oligonucleotide fluorescence (centre) and  
29 overlapping of Cy3 and Cy5 fluorescence images (right)

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31 **S6 Fig. Analysis of bioavailability of a LAMI immobilized miRNA-21 specific MB array onto a**  
32 **SH derivatized quartz slide using CFM:** Cy3 labeled miRNA-21 MB construct fluorescence (left),  
33 Cy5 labeled non-complementary oligonucleotide Poly-A fluorescence (centre) and overlapping of  
34 Cy3 and Cy5 fluorescence images (right).

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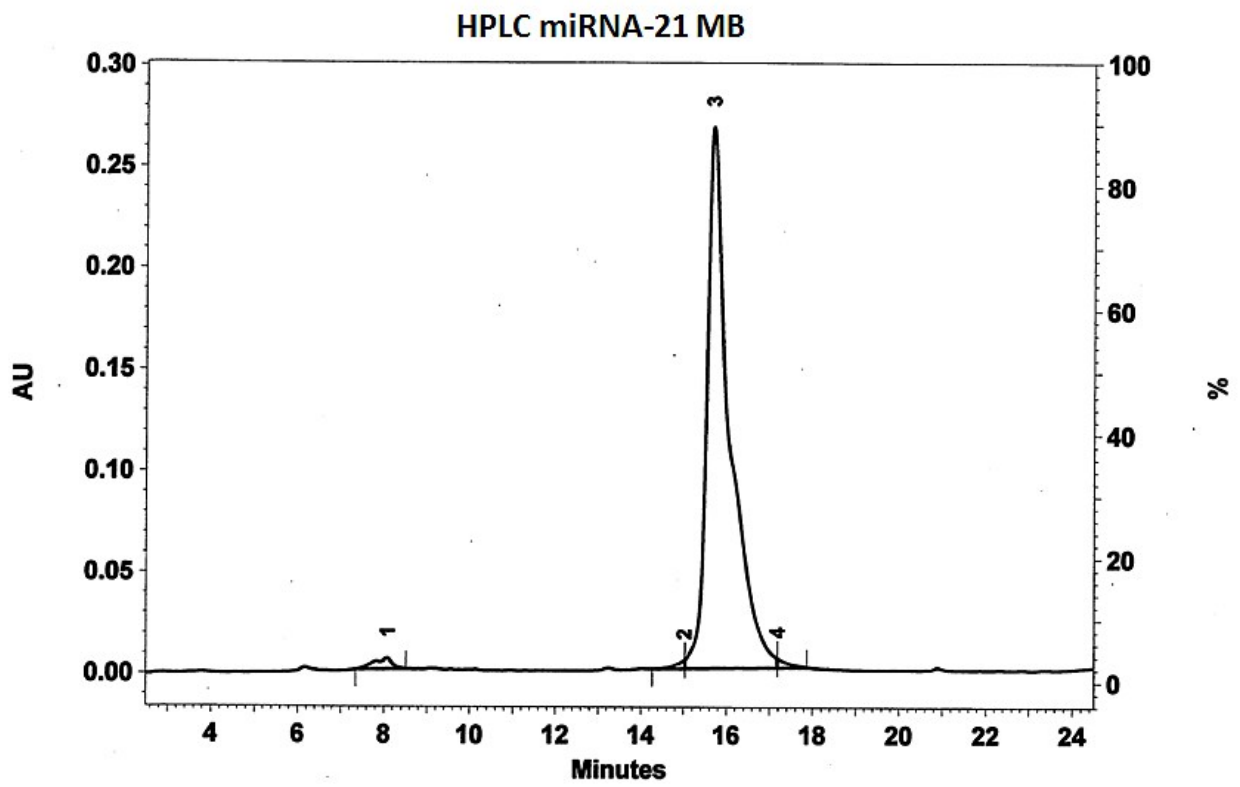
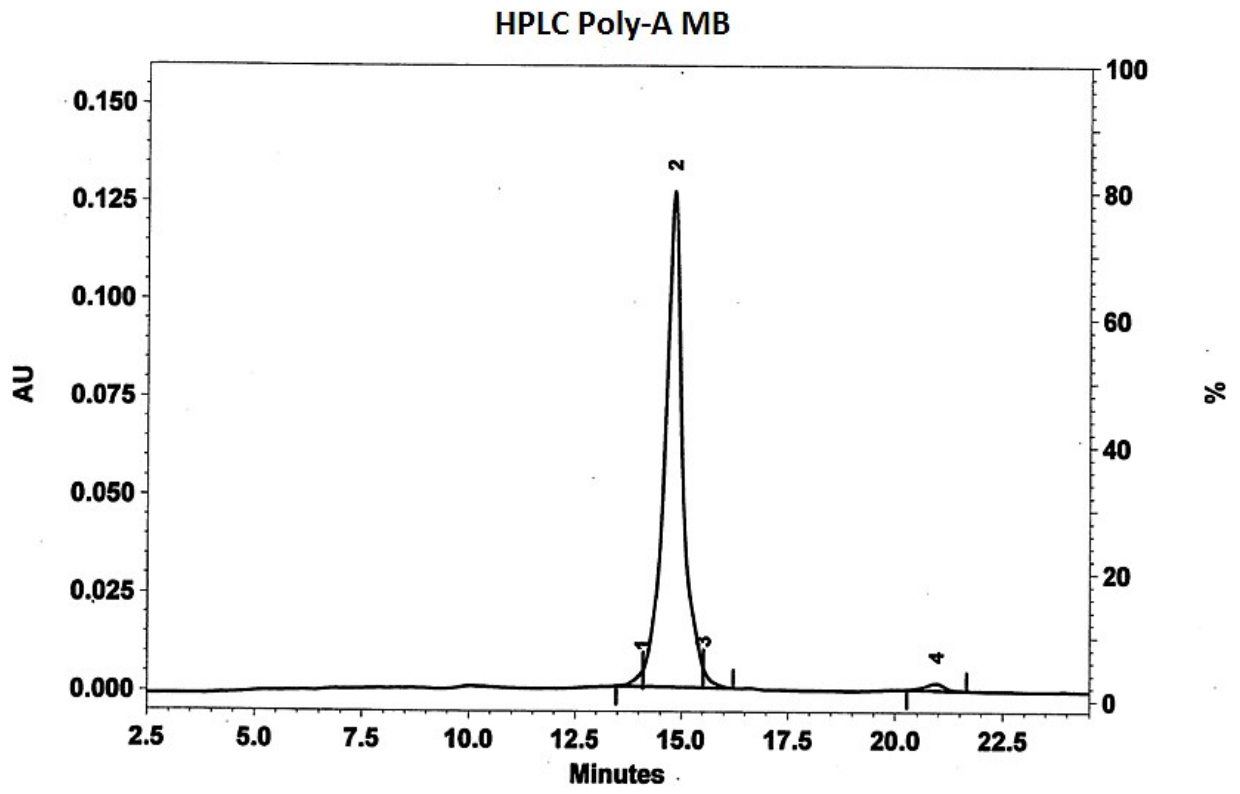
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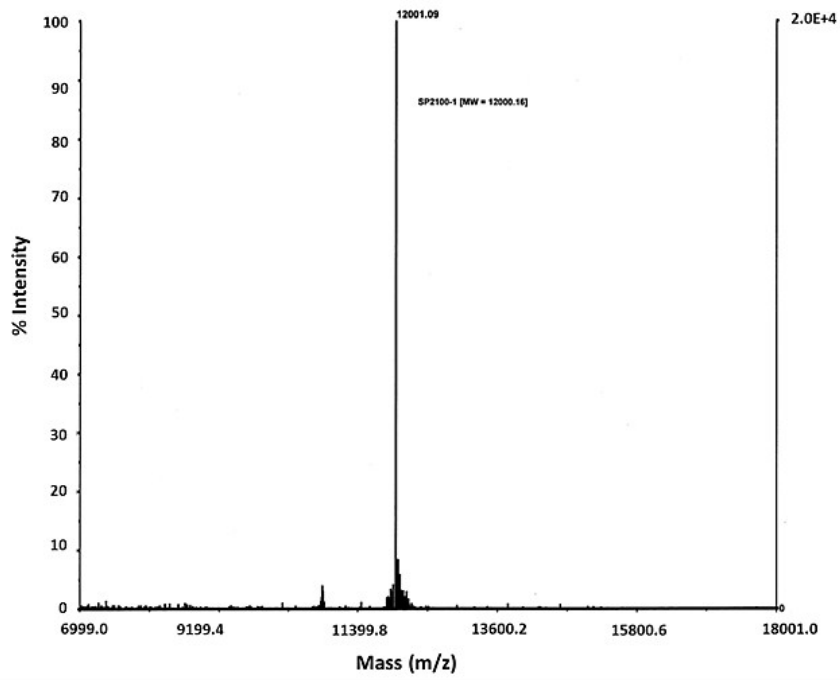
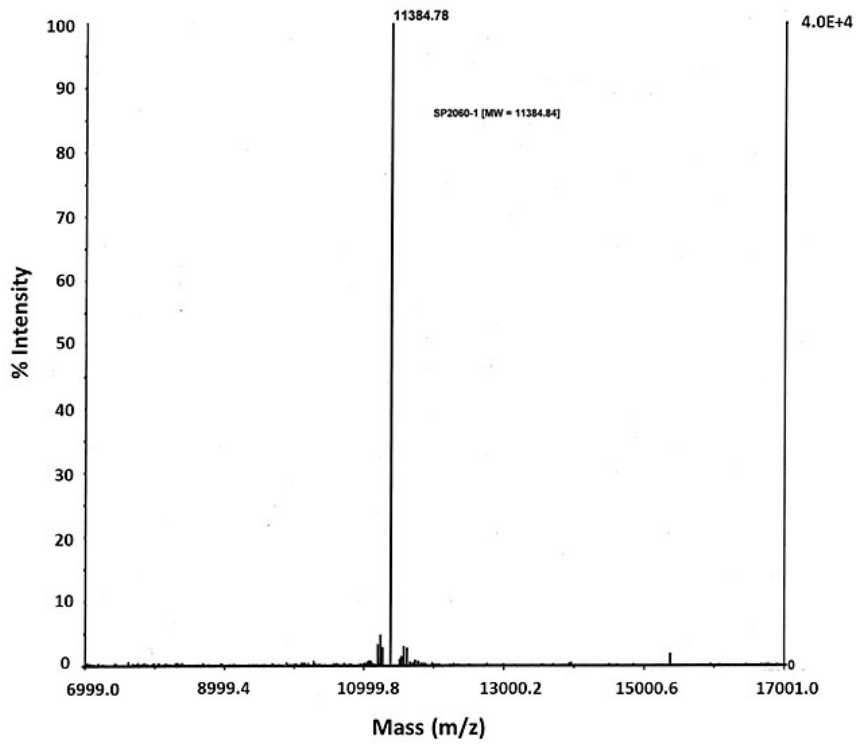
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**S1 Fig**



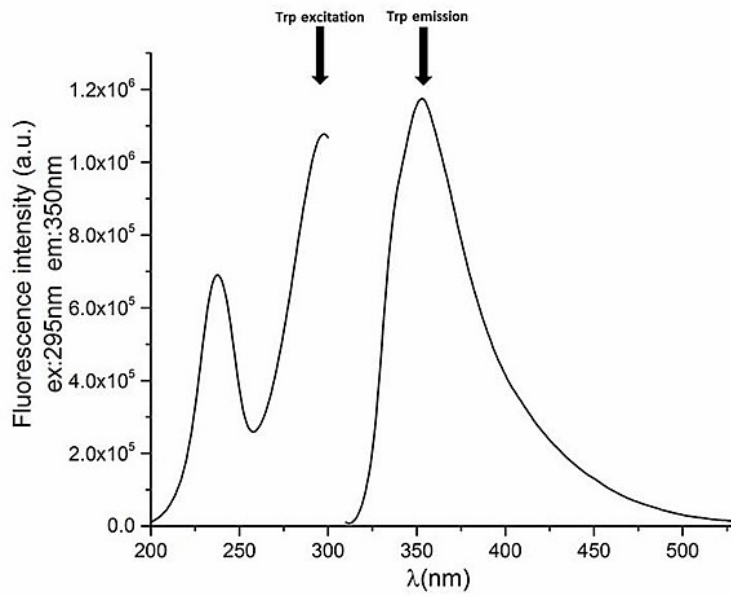
S2 Fig.

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S3 Fig.



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S4 Fig.

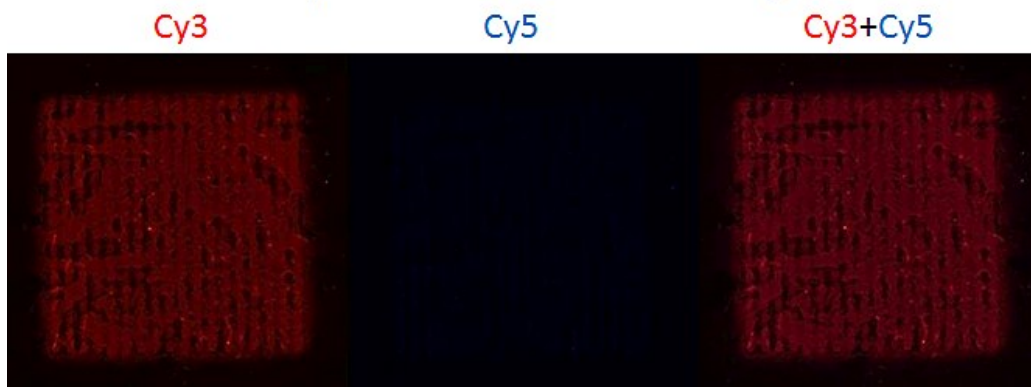
**poly-A MB on SH derivatized quartz slides**



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S5 Fig.

**miRNA-21 specific MB on SH derivatized quartz slides**



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S6 Fig.