Electronic Supplementary Material (ESI) for Analyst.

Table S1 Details of the DNA sequences

Capture probe (Cp)	5′-biotin-TTTTTT**<u>TCAACATCAGTCTGATAAGC</u>** **<u>TA</u>*TGGGTGGGTGGGTGGGTGGG***-3′
miR-21	5′- UAGCUUAUCAGACUGAUGUUGA-3′
Single-base mismatched miR-21 (SM)	5′- UA<u>C</u>CUUAUCAGACUGAUGUUGA-3′
noncomplementary miR-21 (NM)	5′- ACUGAAUAGUCUAAAUAUAAUT -3′
miR-141	5′-UAACACUGUCUGGUAAAGAUGG-3′
miR-143	5′- GAGAUGAAGCACUGUAGCUCA -3′

The underlined bold letters, italic bold letters and underlined letter represent target-binding sequence, signal output sequence and mismatched base, respectively.

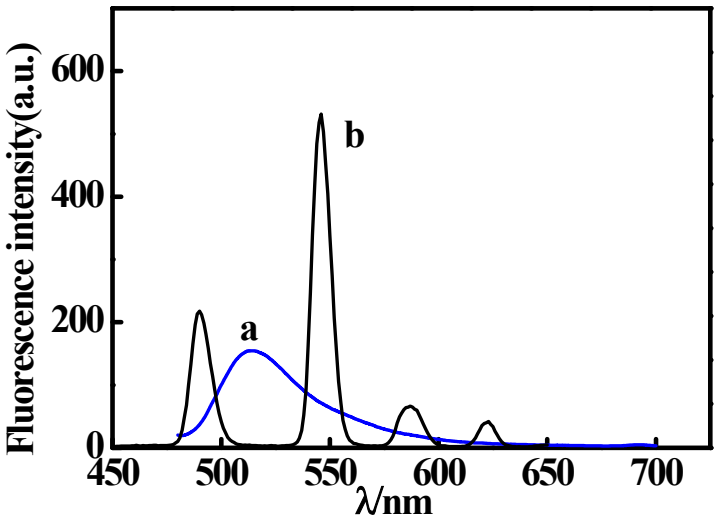

Figure S1 Investigated the fluorescence intensity of the proposed method and the FAM labelling approach at the same concentration of pure Cp. The concentration of Cp was 1 μM. The reactive time and temperature were 150 min and 50 °C.

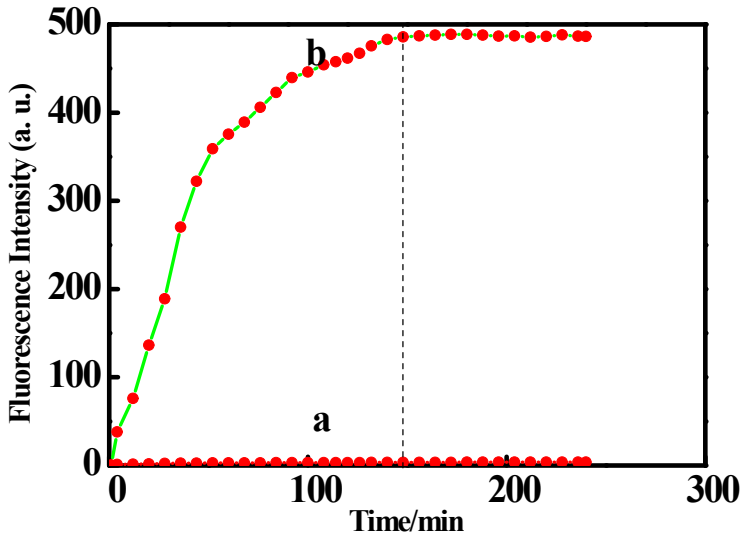

Figure S2 Real-time monitoring of detection system containing 1 μM Cp and 0.2 U DSN in the absence (a) or presence (b) of 1 pM miR-21.

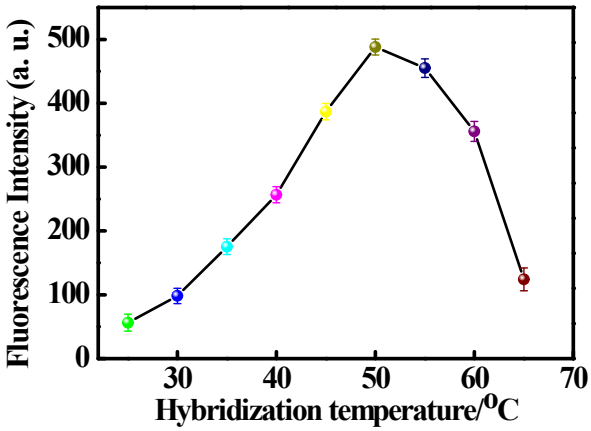

Figure S3 Influence of the reactive temperature. The concentration of Cp, miR-21 and DSN were 1 μM, 1 pM, and 0.2 U, respectively. Each data point represents the average value of three independent experiments with error bars indicated.

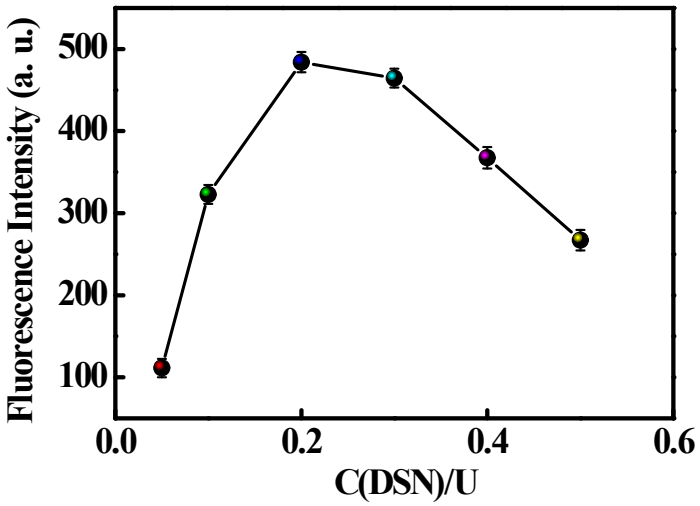

Figure S4 Influence of the concentration of DSN. The concentration of Cp and miR-21 were 1 μM, 1 pM, respectively. Each data point represents the average value of three independent experiments with error bars indicated.

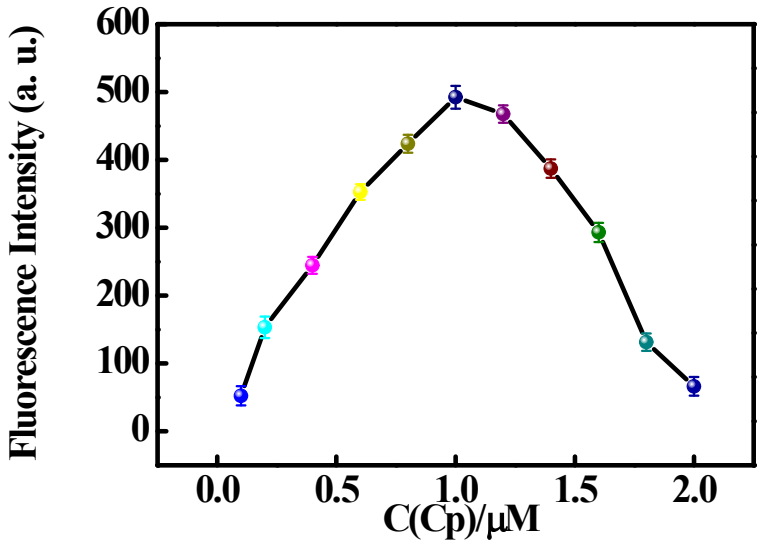

Figure S5 Influence of the surface density of MBs on the fluorescence intensity. The concentration of Tb^{3+}, miR-21 and DSN were 5 μM, 1 pM, and 0.2 U, respectively. Each data point represents the average value of three independent experiments with error bars indicated.

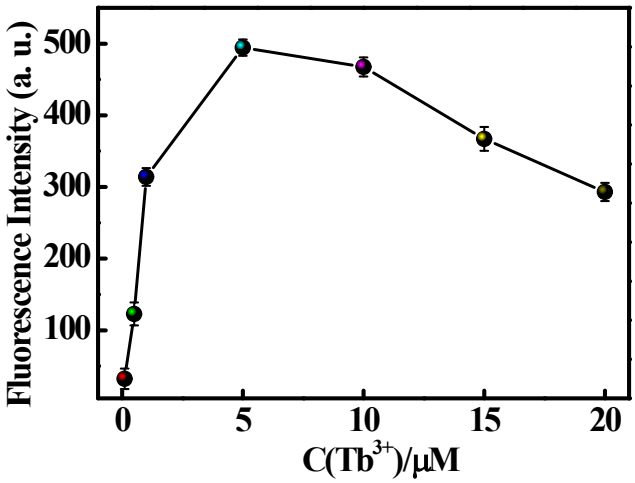

Figure S6 Influence of the concentration of Tb^{3+} on the fluorescence intensity. The concentration of Cp, miR-21 and DSN were 1 μM, 1 pM, and 0.2 U, respectively. Each data point represents the average value of three independent experiments with error bars indicated.

Table S2. The detection limit for miR-21 of this method and some different detection methods

Method	Detection limit	Refs.
Fluorescence	100 fM	Yin et al., 2012
Fluorescence	5 pM	Degliangeli et al., 2014
Fluorescence	300 fM	Xi et al., 2014
Electrochemistry	67 fM	Dong et al., 2012
Electrochemistry	10 fM	Wang et al., 2012
Electrochemistry	10 fM	Gao and Peng, 2011
Electrochemistry	60 fM	Yin et al., 2012
Colorimetry	10 nM	Zhang et al., 2009
Fluorescence	1.0fM	Yan et al., 2014
Electrochemistry	1.0fM	Ren et al., 2013
Electrochemistry	3.0fM	Yang et al., 2014
chemiluminescent	10fM	Deng et al., 2013
Colorimetry	0.1fM	Deng et al., 2014
Fluorescence	0.4pM	Lin et al., 2013
Fluorescence	60fM	Shen et al., 2015
Fluorescence	8 fM	This work

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