

## Supporting Information

### Molecular Beacon for detection miRNA-21 as a biomarker of lung cancer

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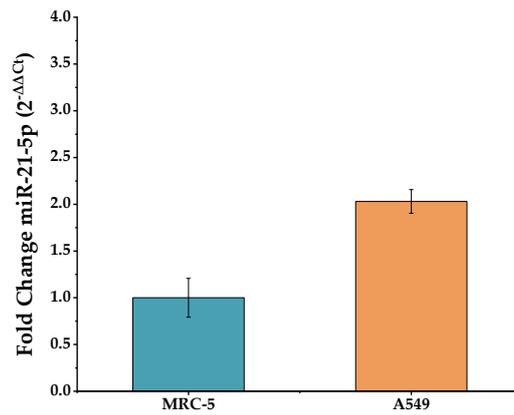
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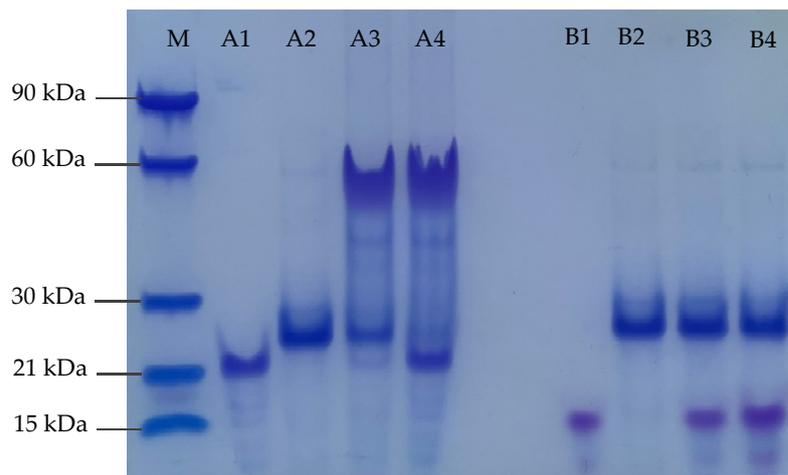
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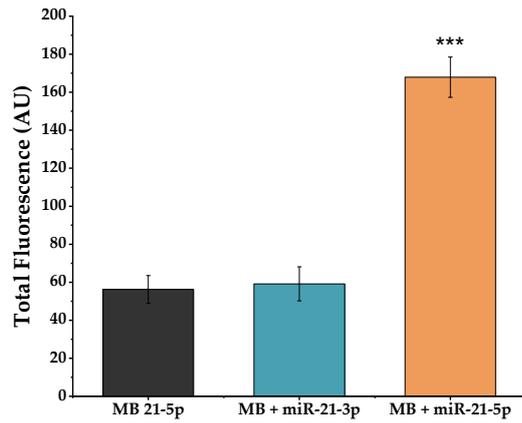
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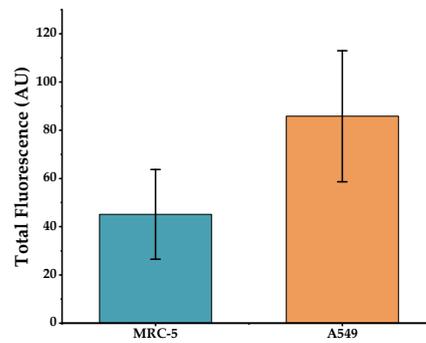
**Figure S1.** miRNA 21-5p relative expression in MRC-5 normal lung and A549 NSCLC cell lines. A549 miRNA expression was performed through RT-qPCR assays in duplicate, normalized, and standardized to MRC-5 control expression value 1 (mean  $\pm$  SD, n=5).



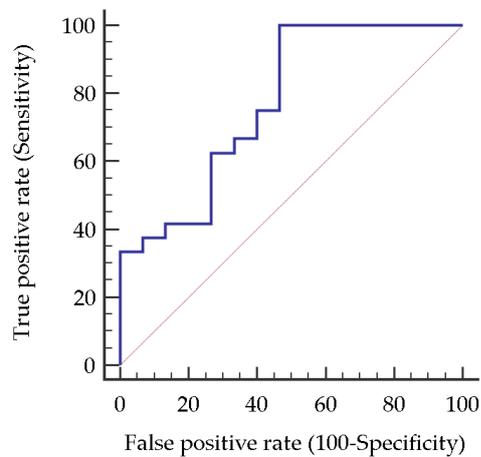
**Figure S2.** MB 21-5p hybridization native PAGE gel results with previous 41 °C incubation. M: Weight marker; A: MB 21-5p + specific miR-21-5p set; B: MB 21-5p + non-specific miR-21-3p set; 1: miRNA (5  $\mu$ M); 2: MB 21-5p ( $\mu$ M); 3: MB 21-5p (5  $\mu$ M) + miRNA (5 $\mu$ M); 4: MB 21-5p (5  $\mu$ M) + miRNA (10  $\mu$ M).



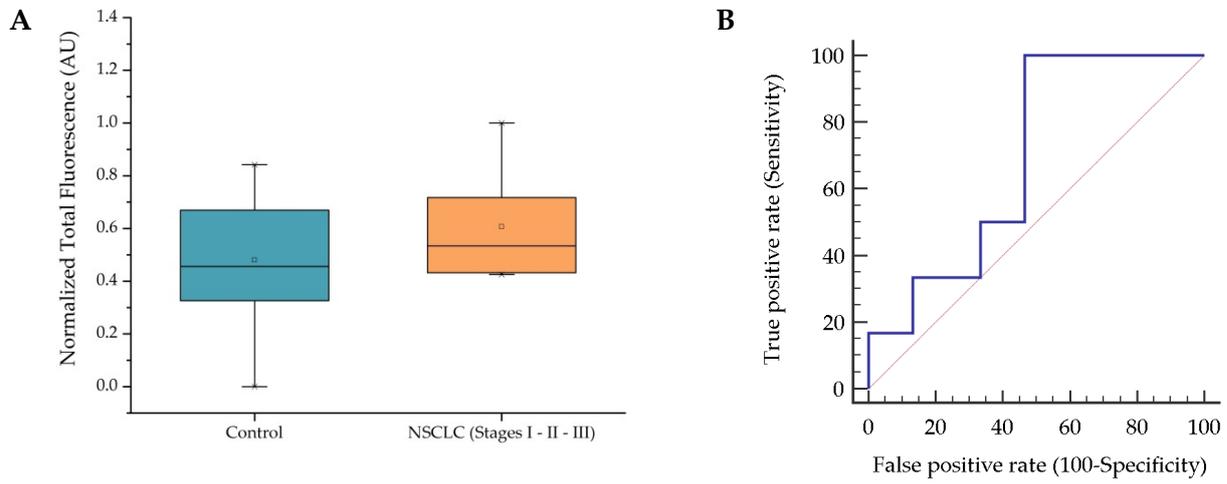
**Figure S3.** MB 21-5p hybridization with miR-21-5p and non-specific miR-21-3p (mean  $\pm$  SD, \*\*\* $p$  < 0.001). Fluorescence is represented in total values measured in the plate reader (n=3).



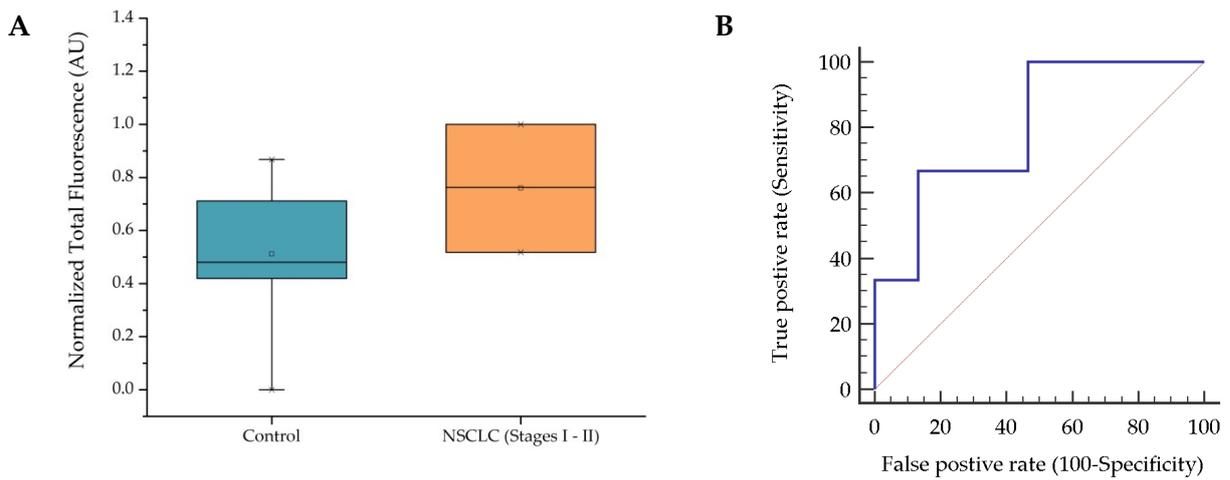
**Figure S4.** MB 21-5p MRC-5 and A549 RNA hybridization assays (mean  $\pm$  SD). Fluorescence data is represented with MB 21-5p basal fluorescence discounted (n=3).



**Figure S5.** ROC curve analysis on the developed MB 21-5p hybridization approach for miR-21-5p detection in RNA from healthy control and NSCLC PBMCs.



**Figure S6. A.** MB 21-5p hybridization studies with healthy and NSCLC PBMCs in stages I, II, and III. (mean  $\pm$  SD). Data corrected for basal fluorescence and normalized to [0, 1]. Samples in study comprised: healthy control group (n=15); NSCLC stages I, II and III group (n=6), with NSCLC stage I (n=1), NSCLC stage II (n=2), and NSCLC stage III (n=3). **B.** ROC curve analysis on the developed MB 21-5p hybridization approach for miR-21-5p detection for healthy control and NSCLC PBMCs in stages I, II, and III.



**Figure S7. A.** MB 21-5p hybridization studies with healthy and NSCLC PBMCs in stages I and II. (mean  $\pm$  SD). Data corrected for basal fluorescence and normalized to [0, 1]. Samples in study comprised: healthy control group (n=15); NSCLC stages I and II group (n=3), with NSCLC stage I (n=1) and NSCLC stage II (n=2). **B.** ROC curve analysis on the developed MB 21-5p hybridization approach for miR-21-5p detection for healthy control and NSCLC PBMCs in stages I and II.