

Supporting Information

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

Daniela Alexandre^{1,†}, Bernardo Teixeira^{1,†}, André Rico¹, Salete Valente², Ana Craveiro², Pedro V. Baptista^{3,4} and Carla Cruz ^{1,*}

¹CICS-UBI - Centro de Investigação em Ciências da Saúde, Universidade da Beira Interior, Av. Infante D. 5 Henrique, Covilhã, Portugal;

²Serviço de Pneumologia do Centro Hospitalar Universitário Cova da Beira (CHUCB), Covilhã, Portugal;

³UCIBIO, Department of Life Sciences, Faculdade de Ciências e Tecnologia, Universidade NOVA de Lisboa, 2829-516 Caparica, Portugal.

⁴i4HB, Associate Laboratory - Institute for Health and Bioeconomy, FCT-NOVA

*Correspondence: Corresponding author email: carlacruz@fcsaude.ubi.pt

[†]These authors contributed equally to this work.

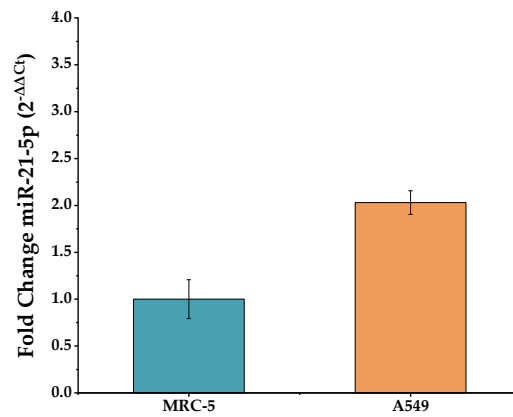


Figure S1. miRNA 21-5p relative expression in MRC-5 normal lung and A549 NSCLC cell lines. A549 miRNA expression was performed through RT-qPCR assays in duplicate, normalized, and standardized to MRC-5 control expression value 1 (mean \pm SD, n=5).

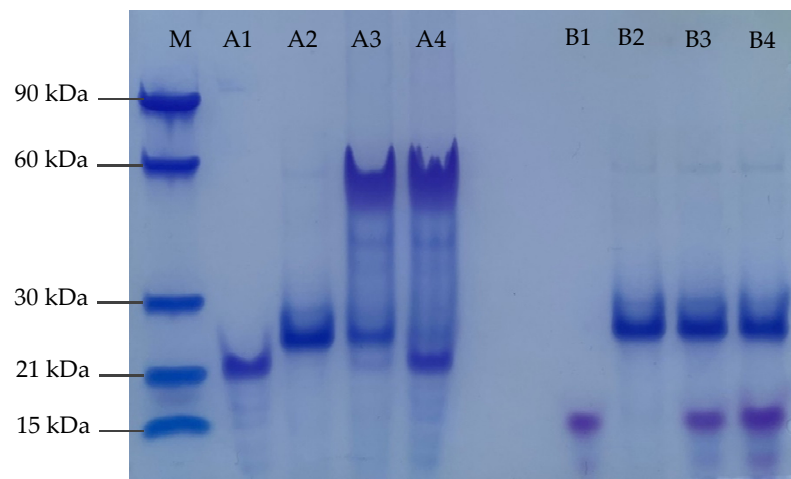


Figure S2. MB 21-5p hybridization native PAGE gel results with previous 41 °C incubation. M: Weight marker; A: MB 21-5p + specific miR-21-5p set; B: MB 21-5p + non-specific miR-21-3p set; 1: miRNA (5 μ M); 2: MB 21-5p (5 μ M); 3: MB 21-5p (5 μ M) + miRNA (5 μ M); 4: MB 21-5p (5 μ M) + miRNA (10 μ M).

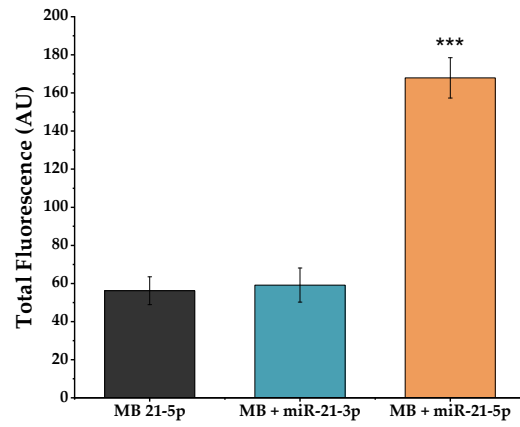


Figure S3. MB 21-5p hybridization with miR-21-5p and non-specific miR-21-3p (mean \pm SD, *** p < 0.001). Fluorescence is represented in total values measured in the plate reader (n=3).

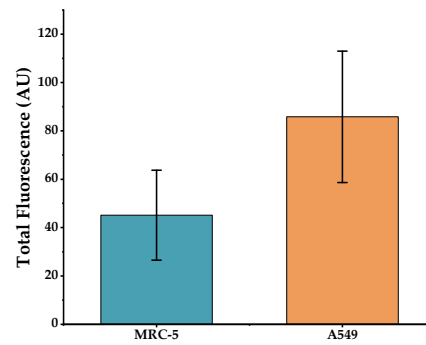


Figure S4. MB 21-5p MRC-5 and A549 RNA hybridization assays (mean \pm SD). Fluorescence data is represented with MB 21-5p basal fluorescence discounted (n=3).

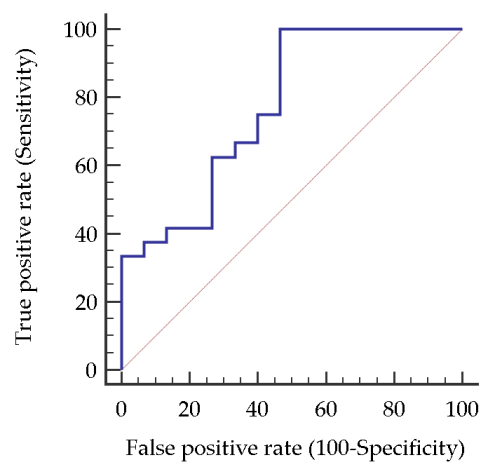


Figure S5. ROC curve analysis on the developed MB 21-5p hybridization approach for miR-21-5p detection in RNA from healthy control and NSCLC PBMCs.

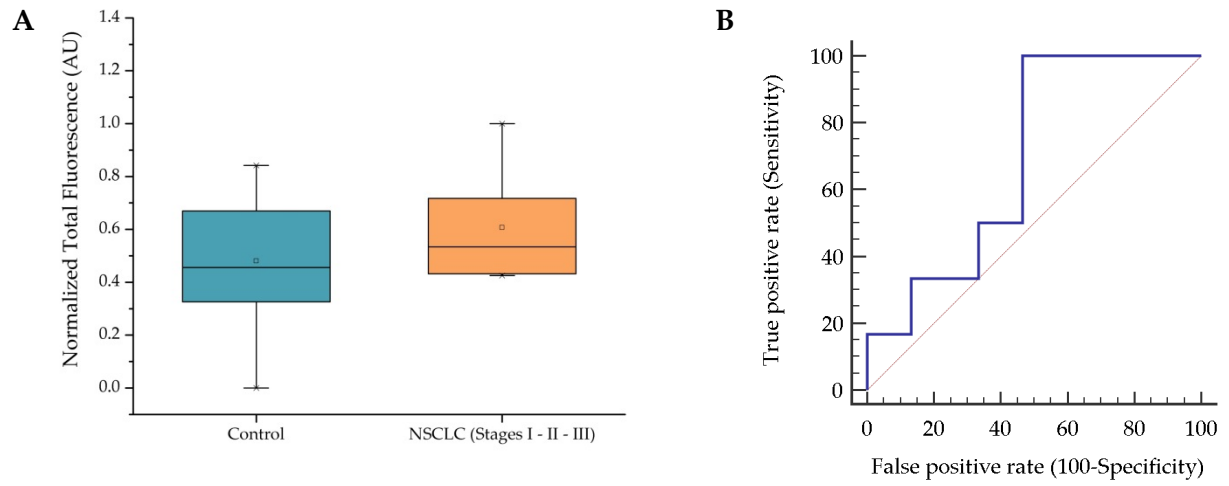


Figure S6. A. MB 21-5p hybridization studies with healthy and NSCLC PBMCs in stages I, II, and III. (mean \pm SD). Data corrected for basal fluorescence and normalized to [0, 1]. Samples in study comprised: healthy control group (n=15); NSCLC stages I, II and III group (n=6), with NSCLC stage I (n=1), 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.

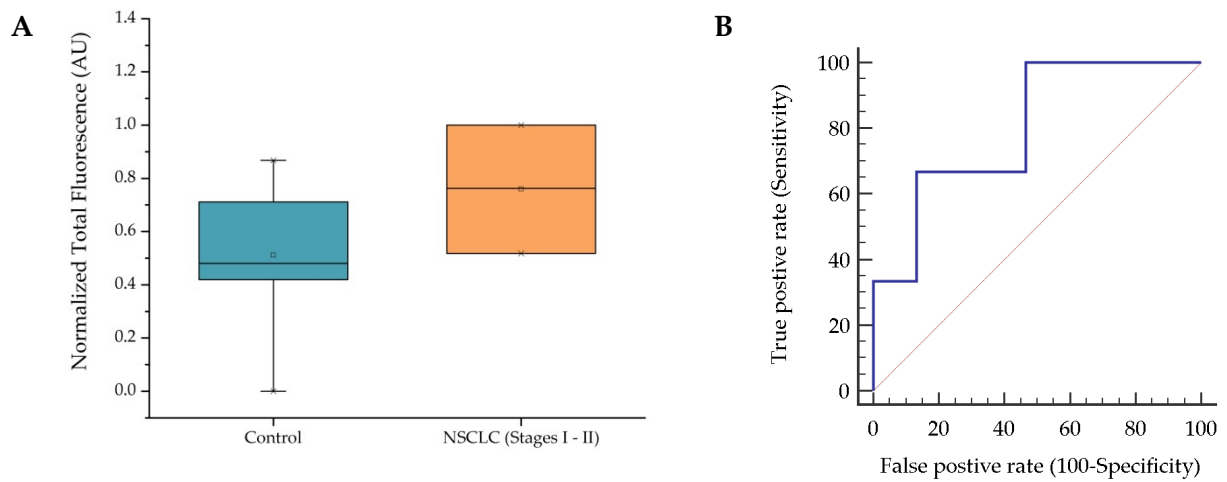


Figure S7. A. MB 21-5p hybridization studies with healthy and NSCLC PBMCs in stages I and II. (mean \pm SD). Data corrected for basal fluorescence and normalized to [0, 1]. Samples in study comprised: healthy control group (n=15); NSCLC stages I and II group (n=3), with NSCLC stage I (n=1) and NSCLC 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.