



Supplementary Materials

A

| | | MCF7 | | MCF7- miR526b | | MCF7- miR655 | | |
|------|-------------------------|------|----------|------------------|----------|-----------------|----------|----------|
| | | 1 | 2 | 5 | 6 | 9 | 10 | |
| Key: | Negative Control | A | Result 1 | Result 2 | Result 1 | Result 2 | Result 1 | Result 2 |
| | Test Group | C | Result 1 | Result 2 | Result 1 | Result 2 | Result 1 | Result 2 |
| | | E | Result 3 | Result 4 | Result 3 | Result 4 | Result 3 | Result 4 |

Calculation: **Total Emission = (Test - Negative)**

B

| | | Basal | | miR526b cond. | | miR655 cond. | | |
|------|-------------------------|-------|----------|------------------|----------|-----------------|----------|----------|
| | | 1 | 2 | 4 | 5 | 7 | 8 | |
| Key: | Negative Control | A | Result 1 | Result 2 | Result 1 | Result 2 | Result 1 | Result 2 |
| | Test Group | B | Result 1 | Result 2 | Result 1 | Result 2 | Result 1 | Result 2 |
| | | D | | | Result 3 | Result 4 | Result 3 | Result 4 |
| | | E | | | | Result 3 | Result 3 | Result 4 |
| | | G | | | Result 4 | | | |

Calculation: **Total Emission = (Test - Negative)**

C

| | | Basal | | miR526b cond. | miR655 cond. |
|------|-------------------|-------|----------|------------------|--------------|
| | | 2 | | 6 | 8 |
| Key: | Test Group | A | Result 1 | Result 1 | Result 1 |
| | | B | Result 2 | Result 2 | Result 2 |
| | | C | Result 3 | Result 3 | Result 3 |

Figure S1. ROS and SO measurement plan. (A) 96-well plan for MCF7, MCF7-miR526b, and MCF7-miR655 cell lines. (B) 96-well plan for MCF7 cells treated with basal media or MCF7-miR526b/miR655 conditioned media. (C) 96-well plan for HUVECs treated with basal media or MCF7-miR526b/miR655 conditioned media. Negative controls were not included for HUVECs, because the toxicity of the ROS inducer had a drastic effect on HUVEC survival (Figure S4) compared to negative controls. Therefore, we calculated ROS/SO production by using basal emissions as the reference.

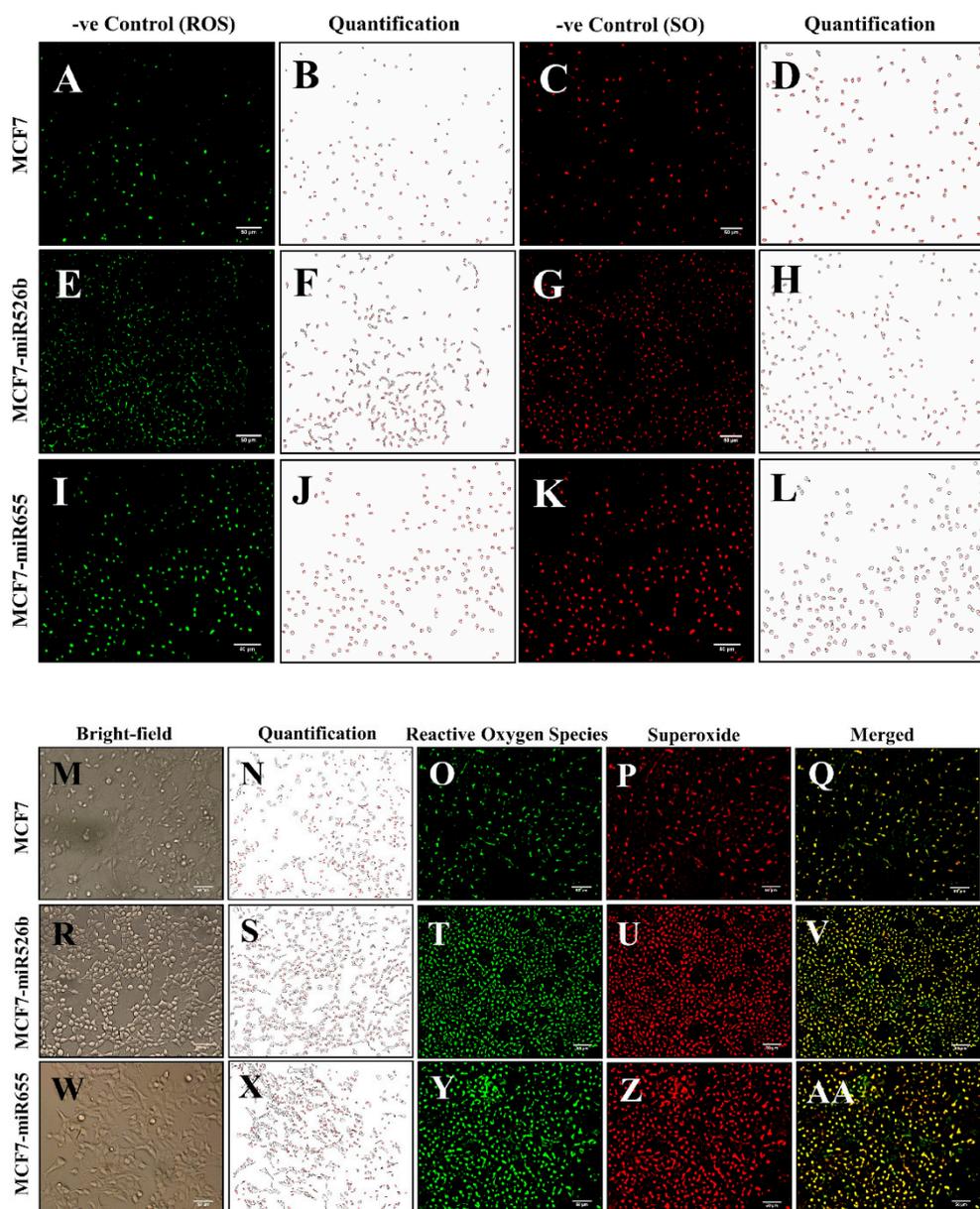


Figure S2. Fluorescence microscopy with MCF7, MCF7-miR526b, MCF7-miR655 using Fluorescein and Rhodamine filters. (A, E, I) Negative control ROS (green) fluorescence images of MCF7, MCF7-miR526b, and MCF7-miR655 cells, respectively. **(B, F, J)** Cell quantification of ROS negative control images for MCF7, MCF7-miR526b, and MCF7-miR655 cells, respectively. **(C, G, K)** Negative control SO (red) images of MCF7, MCF7-miR526b, and MCF7-miR655 cells, respectively. **(D, H, L)** Cell quantification of SO negative control images for MCF7, MCF7-miR526b, and MCF7-miR655 cells, respectively. **(M, R, W)** Bright-field images of MCF7, MCF7-miR526b, and MCF7-miR655 cells, respectively. **(N, S, X)** Cell quantification of bright-field images MCF7, MCF7-miR526b, and MCF7-miR655 cells, respectively. **(O, T, Y)** Fluorescence microscopy images of ROS (green) in MCF7, MCF7-miR526b, and MCF7-526b cells, respectively. **(P, U, Z)** Fluorescence microscopy images of SO (red) in MCF7, MCF7-miR526b and MCF7-526b cells respectively **(Q, V, AA)** Fluorescence microscopy images of ROS and SO merged (yellow) in MCF7, MCF7-miR526b and MCF7-526b cells respectively. Scale bar: 50 μ m.

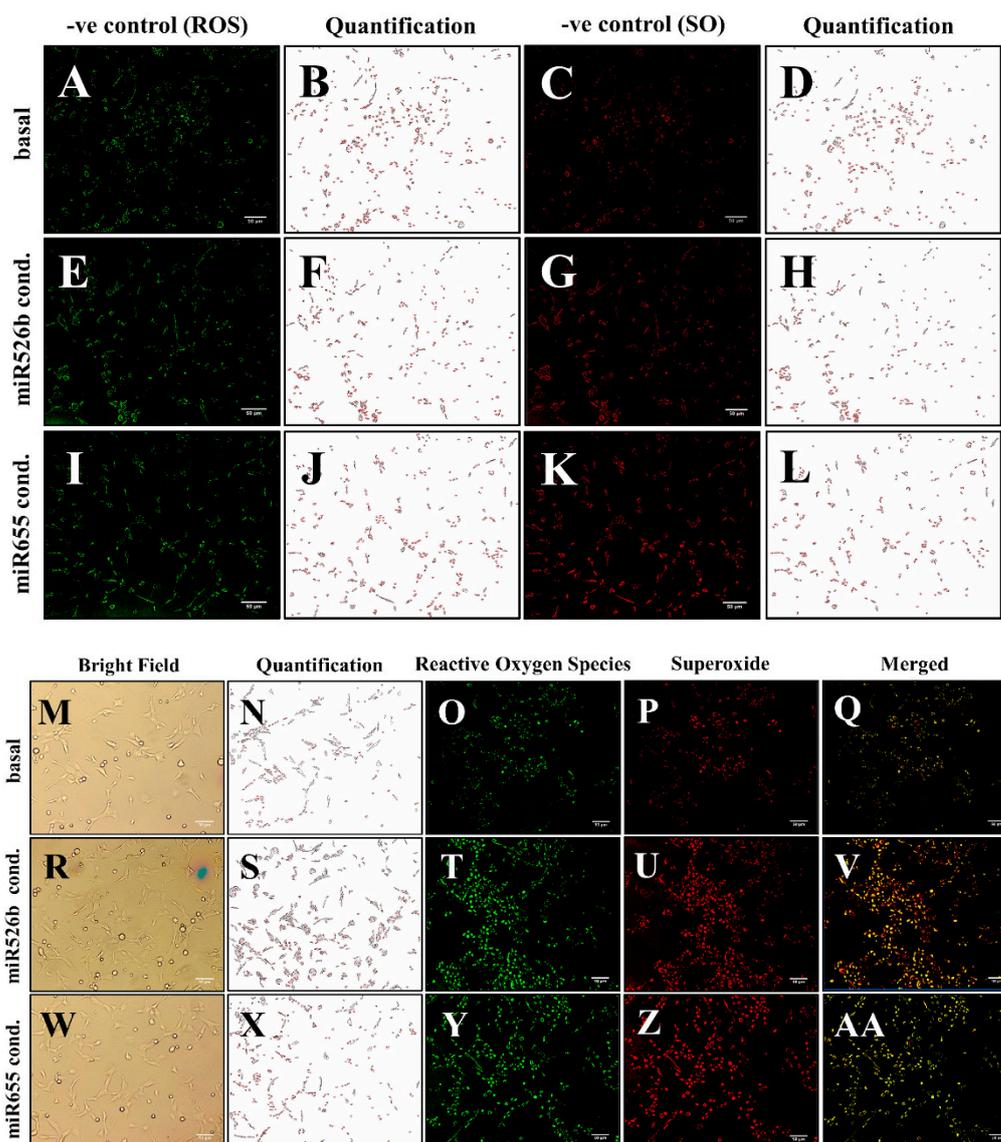


Figure S3. Fluorescence microscopy with MCF7 cells treated with basal media, MCF7-miR526b or MCF7-miR655 conditioned media using Fluorescein and Rhodamine filters. (A,E,I) Negative control images of ROS in MCF7 cells treated with basal media, MCF7-miR526b, and MCF7-miR655 conditioned media, respectively. **(B,F,J)** Cell quantification of ROS negative control images in MCF7 cells treated with basal media, MCF7-miR526b, and MCF7-miR655 conditioned media, respectively. **(C,G,K)** Negative control images of SO in MCF7 cells treated with basal media, MCF7-miR526b, and MCF7-miR655 conditioned media, respectively. **(D,H,L)** Cell quantification of SO negative control images in MCF7 cells treated with basal media, MCF7-miR526b, and MCF7-miR655 conditioned media, respectively. **(M,R,W)** Bright field images of MCF7 cells treated with basal media, MCF7-miR526b, and MCF7-miR655 conditioned media, respectively. **(N,S,X)** Cell quantification of bright field images of MCF7 cells treated with basal media, MCF7-miR526b, and MCF7-miR655 conditioned media. **(O,T,Y)** ROS (green) fluorescence images of MCF7 cells treated with basal media, MCF7-miR526b, and MCF7-miR655 conditioned media, respectively. **(P,U,Z)** SO (red) fluorescence images of MCF7 cells treated with basal media, MCF7-miR526b, and MCF7-miR655 conditioned media, respectively.

(Q,V,AA) Fluorescence images of ROS and SO merged (yellow) in MCF7 cells treated with basal media, MCF7-miR526b, and MCF7-miR655 conditioned media, respectively. Scale bar: 50 μ m.

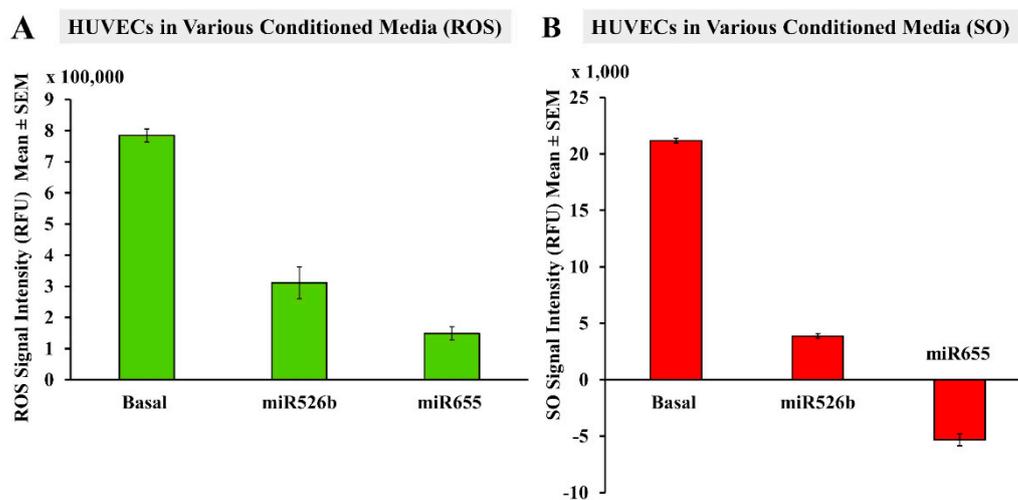


Figure S4. (A/B) Fluorescence Microplate assay with HUVECs treated with basal media or MCF7-miR526b/655 conditioned media 1 h after detection dyes were added; primary cells are more sensitive to the toxicity of cancer cells' media and ROS inducer than cancer cells, so after 1 h HUVECs start to die, leading to distrustful readings.