**SUPPLEMENTAL FIGURE LEGEND**

**Supplemental Fig. 1 (S1):**

**Stable transfection of pCD63-GFP in MSCs and BCCs.** The expression vector (A) was stably transfected in MSCs or BCCs (MDA-MB-231 and T47D). The validity of transfection was indicated by GFP expression by microscopy, 200x (B) and by western blot for GFP (C).

**Supplemental Fig. 2 (S2):**

**The band densities for western blots in Figure 2A.** The densities are presented as the mean±SD for three blots, each performed independently with exosomes from different MSC donors.

**Supplemental Fig. 3 (S3)**

**Normalized band densities for western blots in Figure 3D.** The densities of bands shown in Figure 3D were normalized with the bands for β-actin and then presented graphically as normalized band densities.

**Supplemental Fig. 4 (S4):**

**A)** Western blot for Dicer using whole cell extracts from MDA-MB-231 transfected with control or dicer siRNA. **B)** Propidium iodide labeling with MDA-MB-231 transfected with control or dicer siRNA.

**Supplemental Fig. 5 (S5):**

**Pathway analyses of miRNAs from exosomes of naïve and primed MSCs.** Pathway networks are shown for input miRNAs with ratios of exosomes from T47D-primed MSCs/naïve MSCs **(A)** and MDA-MB-231-primed MSCs/naive MSCs **(B)**.

**Supplemental Fig. 6 (S6):**

 **Real time PCR for cellular miR-222 and -223.** Real time PCR for miR-222 (**A**) and miR-223 (**B**) was performed with RNA from MSCs and BCCs (T47D and MDA-MB-231). The results are shown as the mean±SD for four independent studies, relative to HY3 expression.

**Supplemental Fig. 7 (S7):**

**Sensitivity in the detection of human cells in mice femurs.** 106 nucleated cells from the femurs of mice were mixed with serial dilutions of human BCCs (106 - 1). RNA from the cell mix was analyzed for human PPIB. The Ct values were plotted against ranges of human cells with the highest number and the lower number assigned as 4 and 1, respectively. The Ct values for murine GAPDH were similar for all dilutions.

**Supplemental Fig. 8 (S8):**

**Dose-response curve for carboplatin-treated MSCs.** MSCs were plated in 96-well plate at 2.5x103 per well in 150 μL of DMEM with 10% FCS. After 24 h, different concentrations of carboplatin were added in 50 μL media. Control (untreated) MSCs were provided with 50 μL of vehicle. The plates were incubated and after 4 days, the cultures were assayed with Celltiter-Blue Cell Viability Assay from Promega. The analyses were performed according to manufacturer’s protocol. The results are shown for the mean absorbance at 570 nm±SD, n=4.

**SUPPLEMENTAL MOVIES**

**Supplemental Movie 1. Nanoparticle Tracking Analysis using the Nanosight**

The size of secreted microvesicles was established using nanoparticle tracking analyses using a Nanosight LM10 system (Malvern, UK). The samples were diluted with PBS and then loaded into a flow-cell-top-plate using a syringe pump. The recordings were performed and the data were analyzed by the Nanosight software (NANOSight version 2.3).

**Supplemental Movie 2**. **CD63-GFP (green) transfected cells Donor Cells/ Upper well**

**Supplemental Movie 3. CD63-GFP (green) transfected cells Donor Cells/ Lower well**

CD63-GFP (green) transfected cells were imaged with confocal fluorescent microscopy (Clsi, Nikon, Japan). The samples were counterstained with the Gold anti-fade reagent and DAPI (blue) to identify the nuclei. Multiple planed images were taken at different depths and then compiled to form a three-dimensional version, also known as a z-stack. Images were taken at 20X, and scale bars were 50 μm. The z-stacks are shown as movies.