Supplemental Material

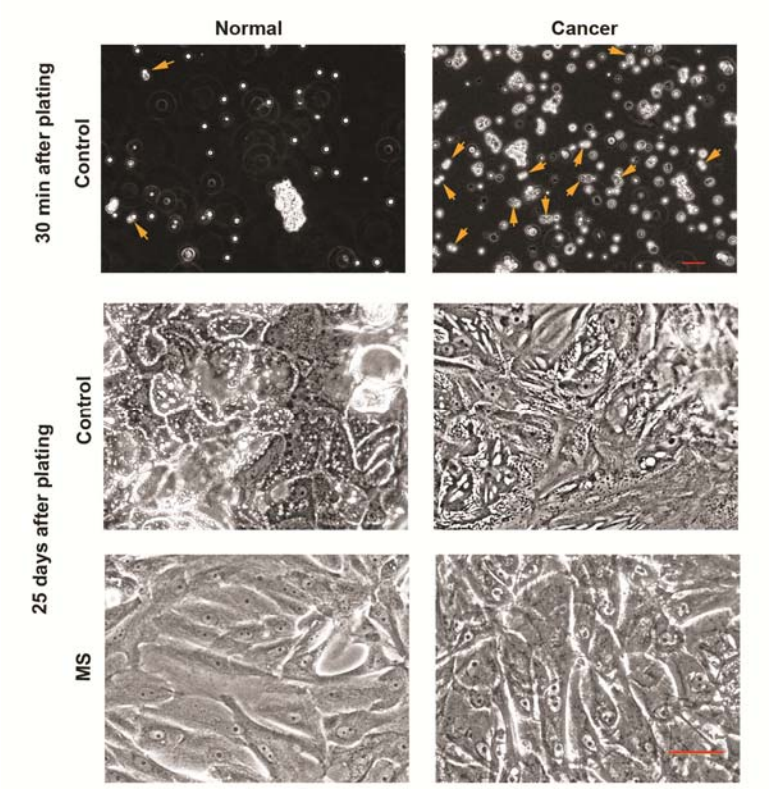

Figure S1 Legend: Effect of methyl sulfone on normal and cancer breast cells from patient #009. Normal and cancer cells from patient #009 (for pathology report, see Supplemental Table S1) were plated into Primaria tissue culture dishes containing WIT-P medium. Every 48 hours medium was changed and cells were photographed. After 22 days in culture, medium was replaced with WIT-P media without (control) and with 200 mM methyl sulfone (MS). Shown at the top of the figure are phase contrast photographs of normal and cancer cells in control medium 30 minutes after plating. Arrowheads identify some mitotic cells (anaphase). The middle photographs are normal and cancer cells after 25 days in culture in control medium. The bottom photographs are normal and cancer cells in 200 mM methyl sulfone for the last three days of a 25-day culture. Scale bar corresponds to 20 μm.

Figure S1 Results: Results from patient #009 are shown Figure S1 (for the pathology report, see Supplemental Table S1). Single cells and organoids at the time of plating are shown in the top photographs. Note the high number of mitotic cells (anaphase cells) within the cancer sample relative to the low number of mitotics in the normal sample. After 25 days in culture without methyl sulfone, both normal and cancer cells looked disorganized and unhealthy (middle photographs of Figure S1). However, when 200 mM methyl sulfone was added to the cultures for the last three days of a 25-day culture, cells reverted to a healthy appearing phenotype. Specifically, vesiculation disappeared, the cytoplasm to nuclei ratio increased, there was generally one nucleoli per nucleus, and cells appeared to be contact inhibited.

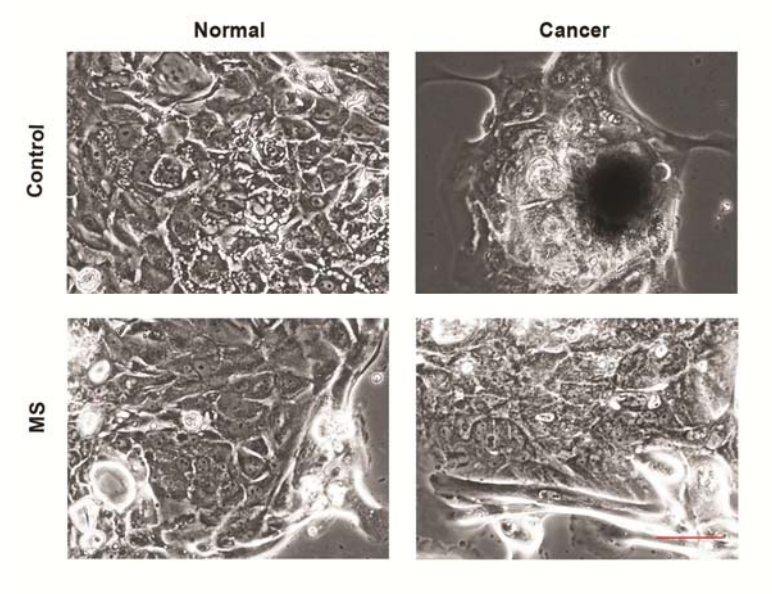

Figure S2 Legend: Effect of methyl sulfone on normal and cancer breast cells from patient #010. Normal and cancer cells from patient #010 (for pathology report, see Supplemental Table S1) were plated into Primaria tissue culture dishes containing WIT-P medium. Every 48 hours, medium was changed and cells were photographed. After 26 days in culture, medium was replaced with WIT-P media without (control) and with 200 mM methyl sulfone (MS). The top phase contrast photographs are normal and cancer cells after 29 days in culture in control medium. The bottom photographs are normal and cancer cells in 200 mM methyl sulfone for the last three days of a 29-day culture. Scale bar corresponds to 20 μm.

Figure S2 Results: Tissue samples from patient #010 are shown in Figure S2 (for the pathology report, see Supplemental Table S1). After 29 days in the absence of methyl sulfone, normal cells looked disorganized and unhealthy with vesiculation and overlapping cells. Nucleoli often appear prominent, pleomorphic and numerous with

more than two per nuclei (top left photograph of Figure S2). Without methyl sulfone, cancer cells formed a three-dimensional structure reminiscent of a tumor. This structure lacked order (top right photograph of Figure S2). When 200 mM methyl sulfone was added for the last three days of culture, both normal and cancer cells became contact inhibited bottom photographs of Figure S2). Vesiculation disappeared, as did the tumor formation, and what looked to be myoepithelial cells lined the methyl sulfone-induced organized islands of cells.