## **Electric Fields at Breast Cancer and Cancer Cell Collective Galvanotaxis**

Kan Zhu<sup>1</sup>, Nicholas R. Hum<sup>2,3</sup>, Brian Reid<sup>1</sup>, Qin Sun<sup>1,4</sup>, Gabriela G. Loots<sup>2,3\*</sup>, and Min Zhao<sup>1\*</sup>

 <sup>1</sup> Institute for Regenerative Cures, Departments of Dermatology, Department of Ophthalmology & Vision Science, School of Medicine, University of California, Davis, CA 95616
<sup>2</sup> Physical and Life Sciences Directorate, Lawrence Livermore National Laboratory, Livermore, CA 94550
<sup>3</sup>University of California, Merced, School of Natural Sciences, Merced, CA.
<sup>4</sup> School of Life Science, Yunnan Normal University, Yunnan, China

\* Correspondence: MZ (minzhao@ucdavis.edu) or GGL (loots1@llnl.gov)



**sFig. 1. Correlation between Tumor weight (size) and electric current density.** Compilation of all tumors tested. Data of current magnitude are from Fig. 1d. Solid line: linear regression ( $r^2$ =0.8319); r: correlation coefficient (P=0.0042).



**sFig. 2. Migration persistence of metastatic sublines in EFs.** (a) Cells in isolation; (b) Cells in monolayer. At least 50 cells were analyzed for each condition. Data are shown as mean  $\pm$  s.e.m. \* p < 0.05, \*\* p < 0.01 compared with its no EF control; # p < 0.05, ## p < 0.01 compared with parental 4T1 cells of the same condition.



**sFig 3. 4T1-GFP metastatic subline generation.** Cytometric analysis of GFP intensity of (a) naïve lung tissue, (b) WT 4T1, (c) 4T1-GFP-Luc in culture, (d-f) primary cell populations from tissues of interest, (g-i) established metastatic cell lines following 2 FACS isolations