

Supplementary figures

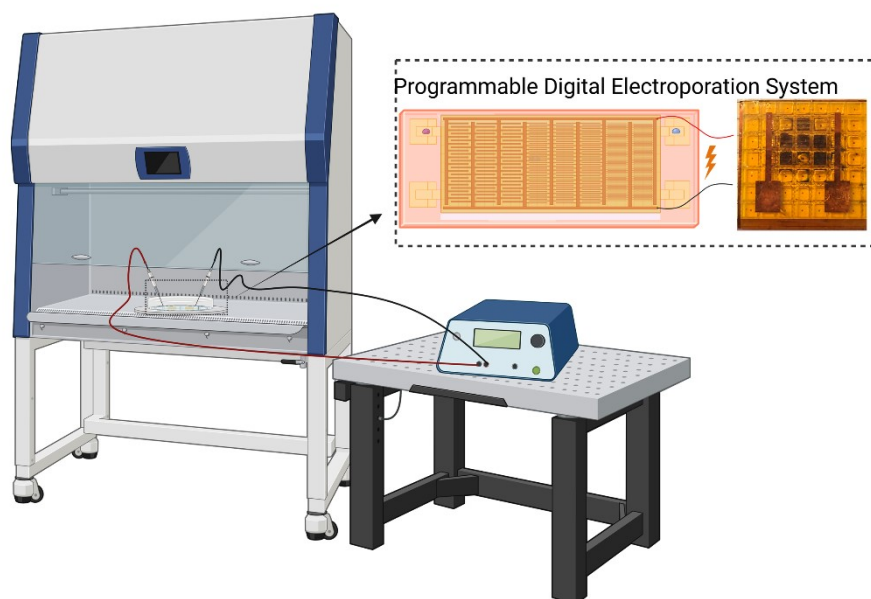


Fig SI 1 Schematic diagram of PDES operation

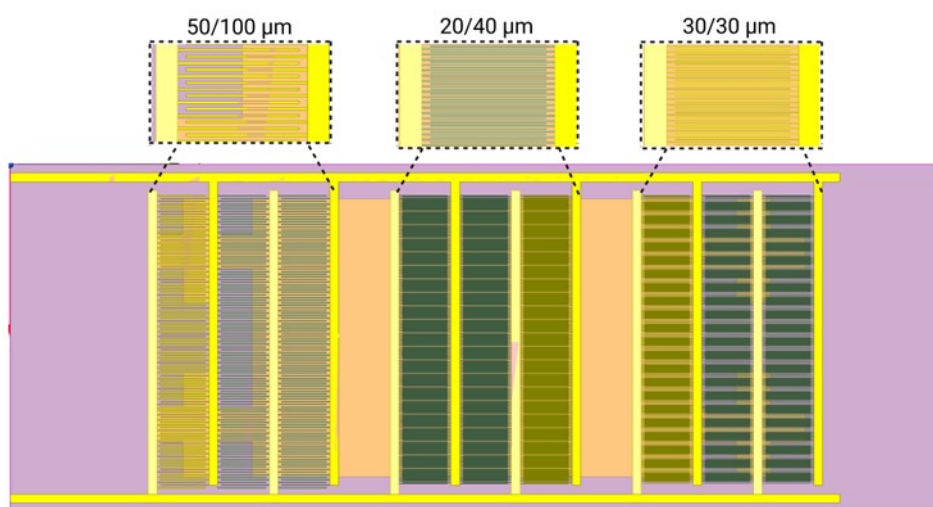


Fig SI 2 Schematic diagram of three groups of small size IDEs (from left to right, 50/100μm,20/40μm,30/30μm).

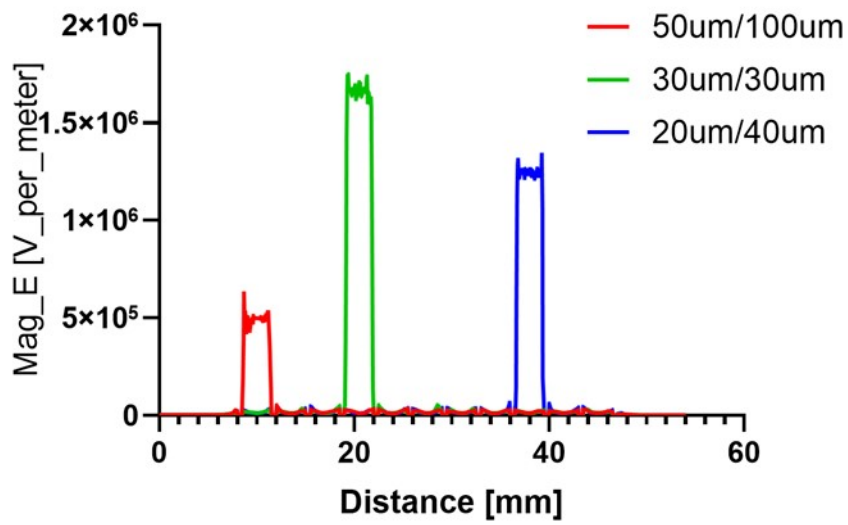


Fig SI 3 Simulation results of electric field strength of three groups of small-sized IDEs.

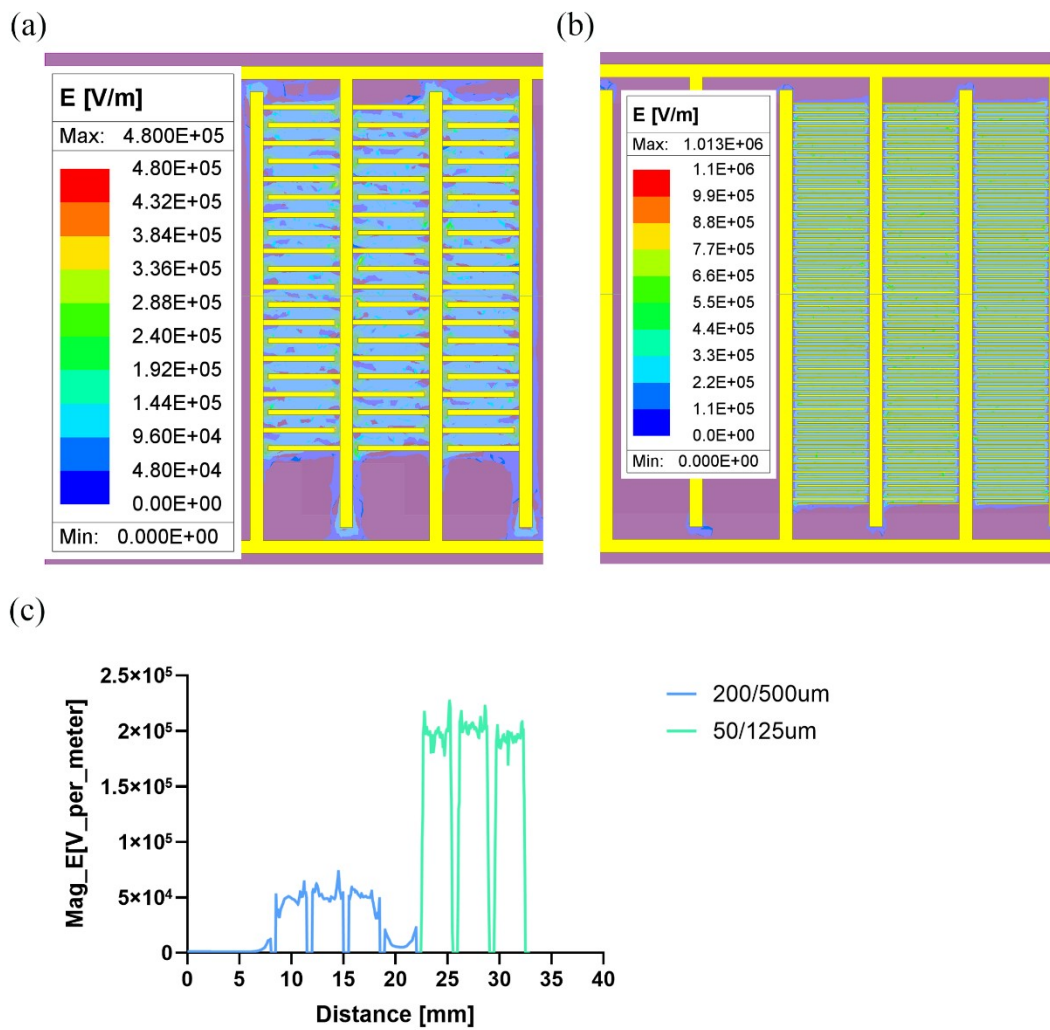


Fig SI 4 (a) Simulation results of the electric field intensity of wide electrodes

(200/500,190/510,210/490) on the PI substrate IDEs, and (b) simulation results of the electric field intensity of narrow electrodes (50/125,47.5/127.5,52.5/122.5). (c) Statistical results of the electric field intensities for the two specifications of finger-like structures.

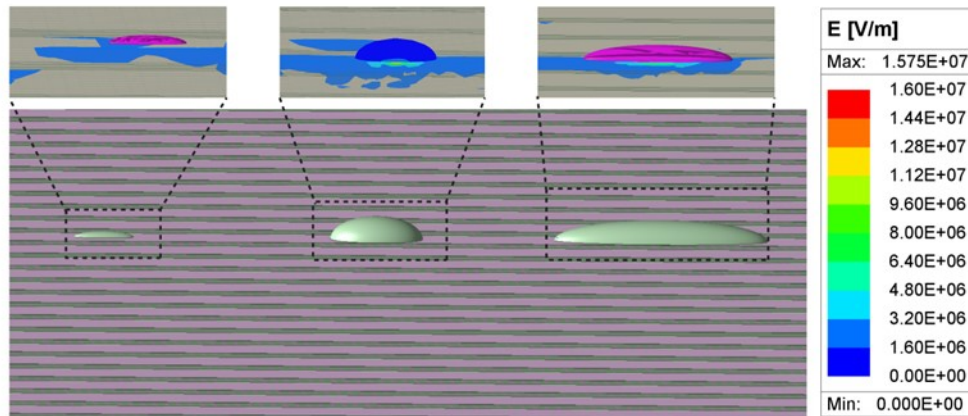


Fig SI 5 Electric field intensity distribution of different volume droplets between IDEs.

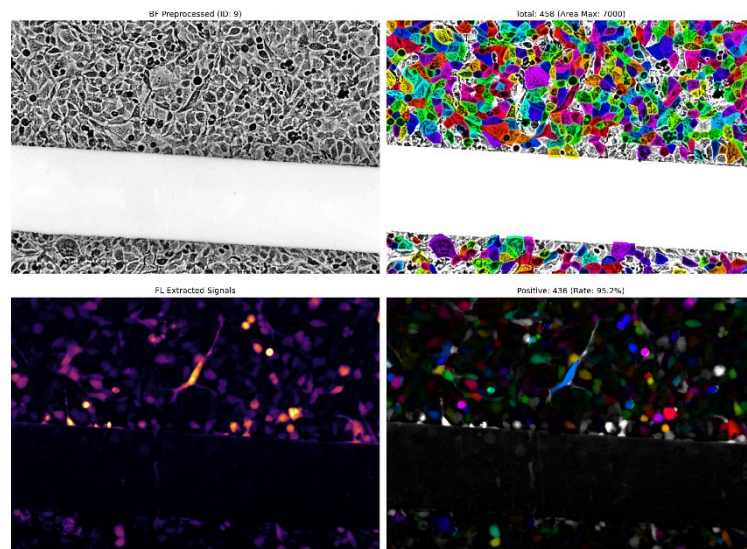


Fig SI 6 Quantitative Analysis of Cell eGFP Transfection Efficiency Based on Image Recognition.

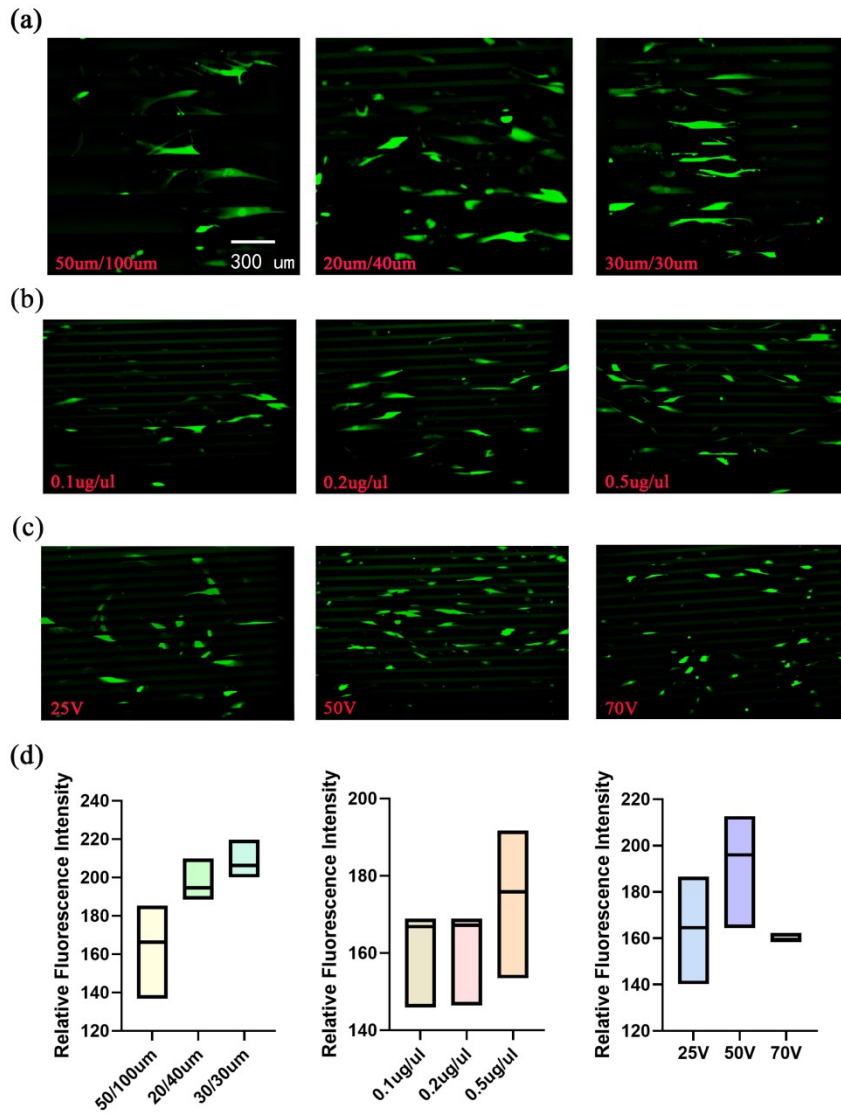


Fig SI 7 (a) Results of electroporation of eGFP mRNA with three small-sized electrodes at an input voltage of 70V. (b) Electroporation of eGFP mRNA using optimally sized electrodes at concentration gradients of 0.1 μg/μL, 0.2 μg/μL, and 0.5 μg/μL. (c) Electroporation with input voltage gradients of 25V, 50V, and 70V based on the degree of electrode surface wettability. (d) Semi-quantitative fluorescence analysis of eGFP mRNA electrotransfection efficacy across varying gradients of electrode geometry, mRNA concentration, and applied voltage. (scale bar = 300 μm).

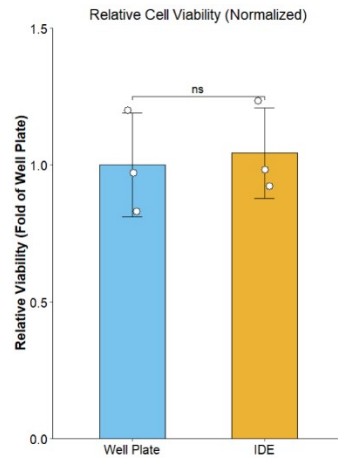


Fig SI 8 Comparison of cell viability between IDE base plates based on polyimide and cells cultured in standard tissue culture flasks.

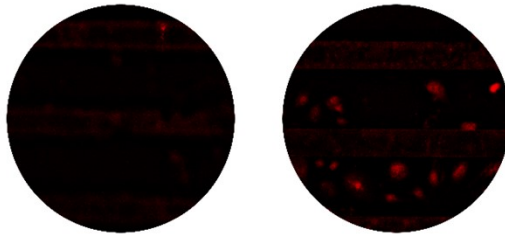


Fig SI 9 The differences in intracellular fluorescence between HFs that were simply left to stand and those that were processed through PDES.

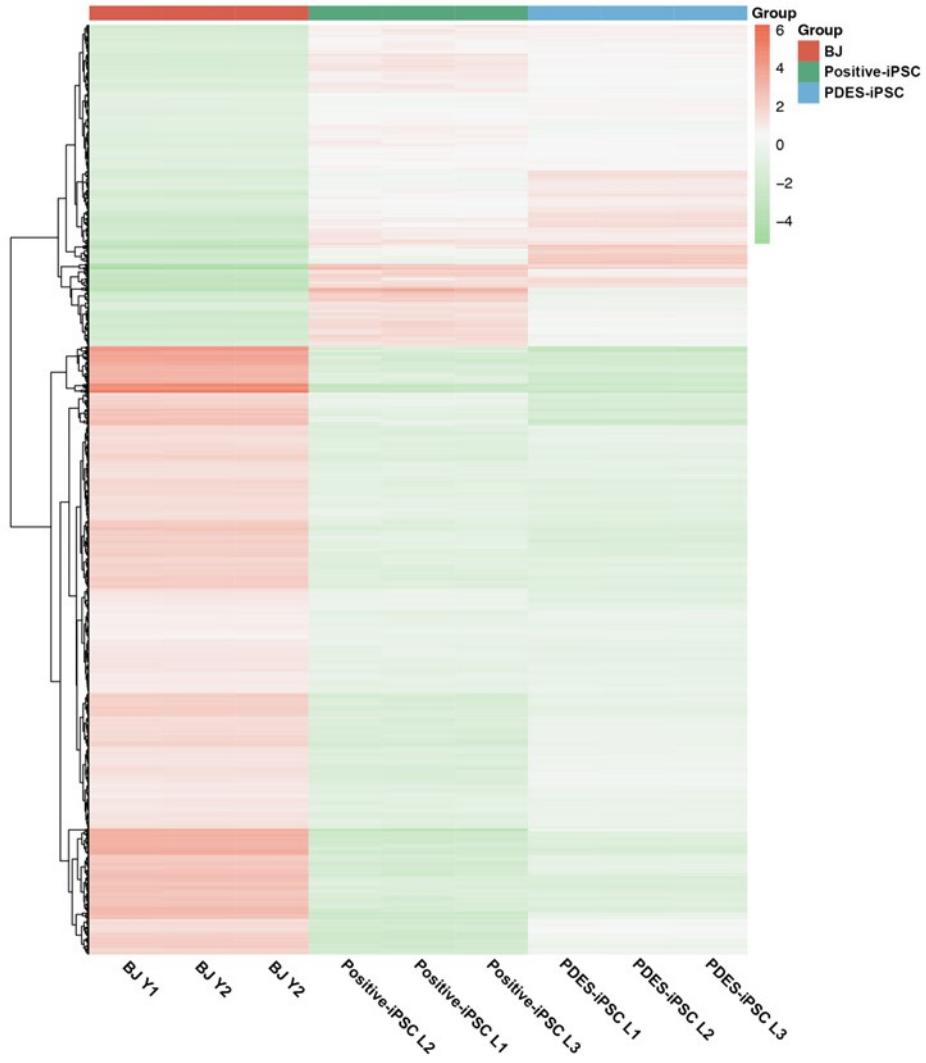


Fig SI 10 Heatmap of unsupervised clustering based on the expression of gene in primed and PDES-iPSCs. Values displayed are gene expression level (normalized log2 pseudocounts) scaled by row mean.