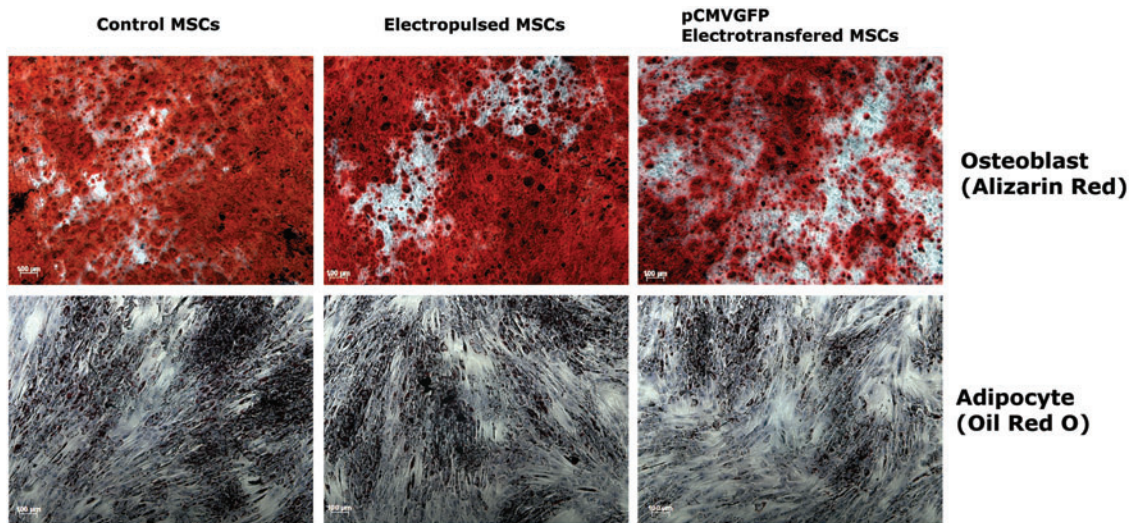
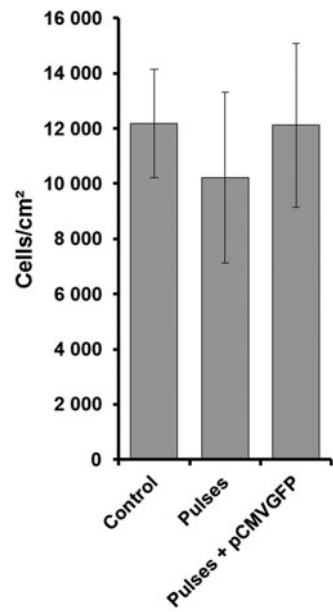


**SUPPLEMENTARY FIG. S3.** Analysis of MSC surface antigen marker expressions 7 days after electrotransfer with a pCMVGFP plasmid. GFP expression, CD44, and CD90 were analyzed by flow cytometry. Control MSCs, electropulsed MSCs, and pCMVGFP-electrotransferred MSCs maintain their stem cell surface antigen expression profile (CD44 and CD90) after a week in culture. MSCs stained with fluorochrome-conjugated nonspecific IgG were examined as a background control. The GFP plot shows the GFP expression in electrotransfected cells (in green) compared with mock-transfected control cells (in black), 7 days after electrotransfer with a pCMVGFP plasmid.



**SUPPLEMENTARY FIG. S4.** Adipogenic and osteogenic differentiation of control MSCs, electropulsed MSCs, or pCMVGFP-electrotransfected MSCs. After electric treatment, cells were allowed to differentiate under appropriate chemical stimulation into one of the two lineages. Cells were fixed and stained with Oil Red O to detect lipid vacuoles, and Alizarin Red to detect accumulation of deposited calcium. The visible accumulation of lipid droplets and the level of Oil Red O staining as well as the accumulation of calcium-containing mineral deposits in the extracellular matrix demonstrate maintenance of the MSC differentiation potential after electroporation.



**SUPPLEMENTARY FIG. S5.** MSCs maintain their proliferation rate after electrotransfer. Four days after electrotransfection, cells were trypsinized, plated in 6-well plates at 30 cells/cm<sup>2</sup>, and cultured for 11 days. MSCs were then trypsinized, stained with Trypan Blue, and counted on Biorad TC20 Automated Cell Counter. The cell numbers of pCMVGFP-electrotransfected cells were compared with electropulsed MSCs and to nontransfected control cells.