

**a**

**b**

**c**

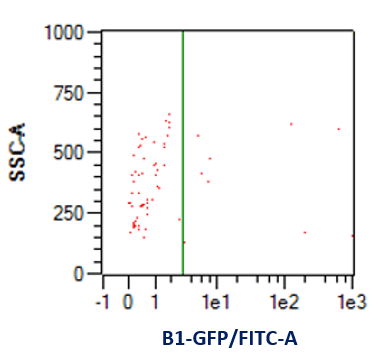
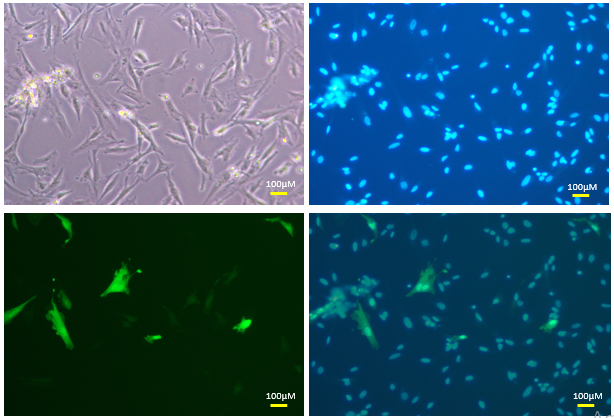
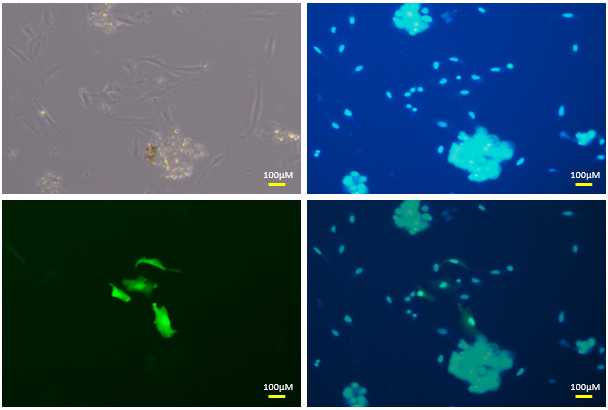


Fig. S1: **Analyzing the effect of electroporation buffer on transfection efficiency using flow cytometry. a**) Non-transfected cells as negative control (Number of cells analyzed: 14,598). b) Cells transfected in the carrier medium of Opti-MEM had 40.33% transfection rate (Number of cells analyzed: 9381), whereas with c) commercial Biorad Buffer it was only 12.31% (Number of cells analyzed: 1729).

**b**

**a**





**c**

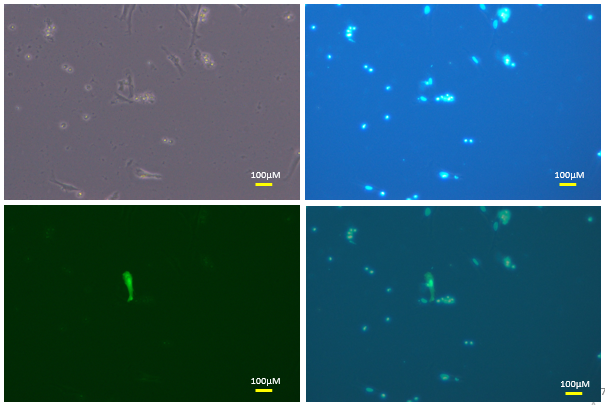
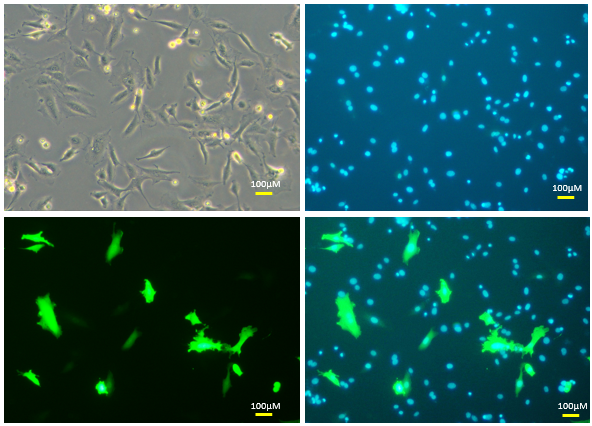


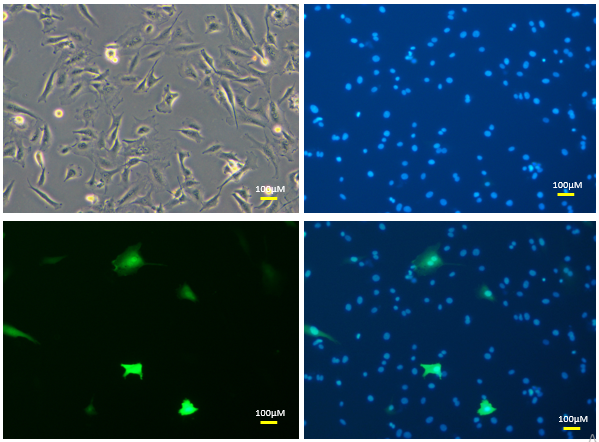
Fig. S2: **Analyzing the effect of electroporation buffer on transfection efficiency**

Comparison of transfection efficiency in bovine embryonic fibroblasts with different electroporation buffers, Biorad electroporation buffer (a), Opti-MEM with GlutaMax (b), PBS (c). Opti-MEM has better transfection efficiency than other two solutions. In each of the figure sub-sets, the four images starting from the left top clockwise are brightfield, Hoechst 33342-stained nuclei, merge of Venus and Hoechst fluorescence, and Venus fluorescence, respectively. (Other pulse conditions: square wave, 4 mm cuvette, 1 pulse, 400V, 10 milliseconds, 5 µg DNA, room temperature handling).

**b**

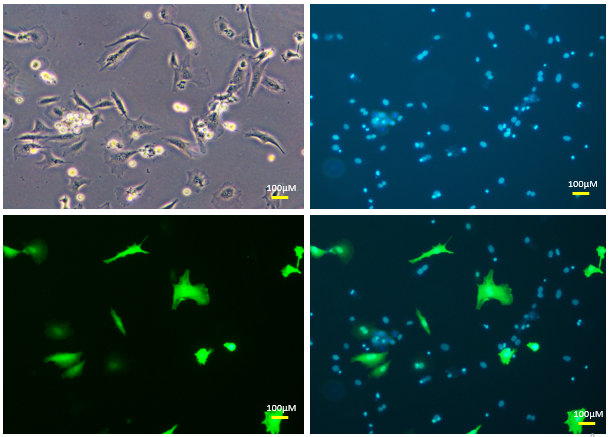
**a**





**d**

**c**



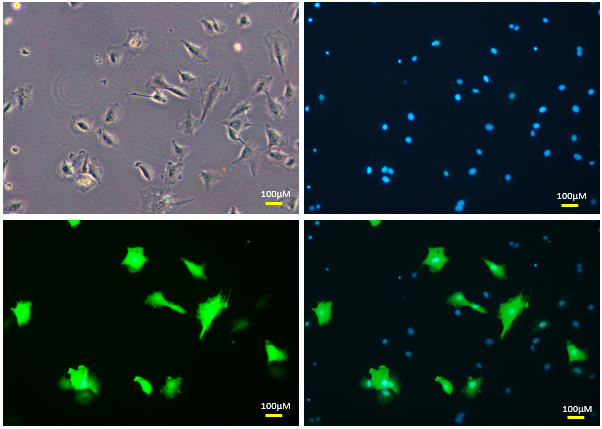
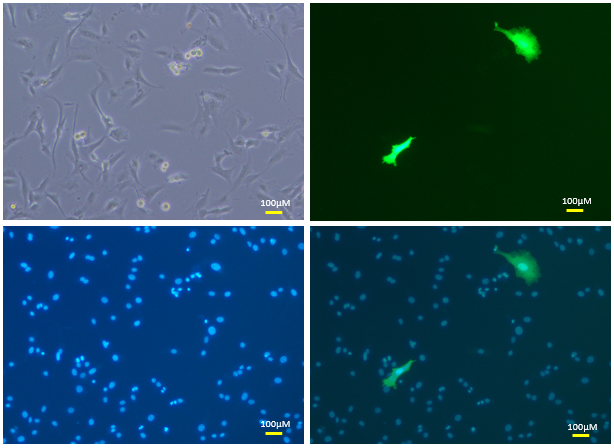


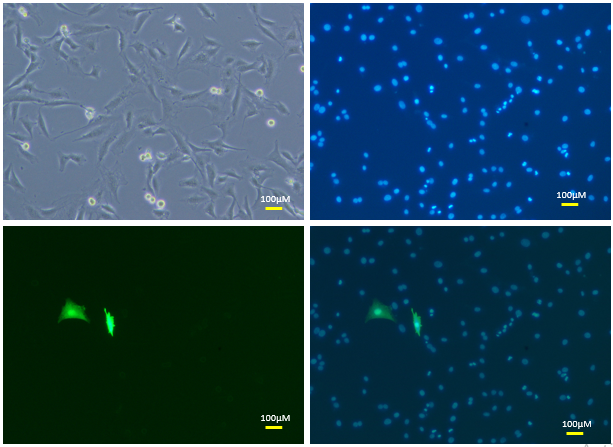
Fig. S3: **Analyzing the effect of DNA concentration on transfection efficiency**

Comparison of transfection efficiency in bovine embryonic fibroblasts with varying DNA concentrations i.e., (a) 5µg (b) 10µg (c) 15µg (d) 20µg. In each of the figure sub-sets, the four images starting from the left top clockwise are brightfield, Hoechst 33342-stained nuclei, merge of Venus and Hoechst fluorescence, Venus fluorescence, respectively. (other pulse conditions: 4 mm cuvette, 1 pulse, 300V, 10 milliseconds, opti-MEM as electroporation buffer, room temperature handling).

**b**

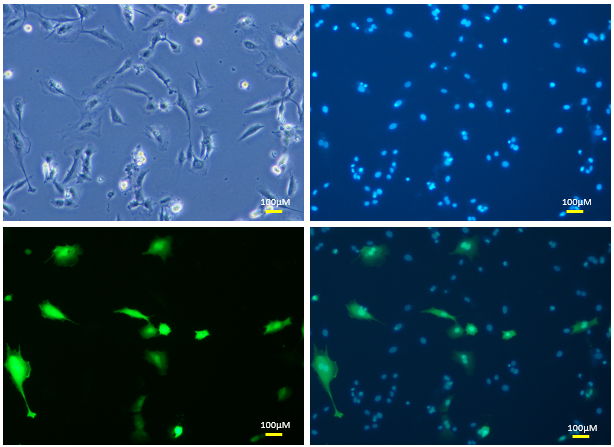
**a**





**d**

**c**



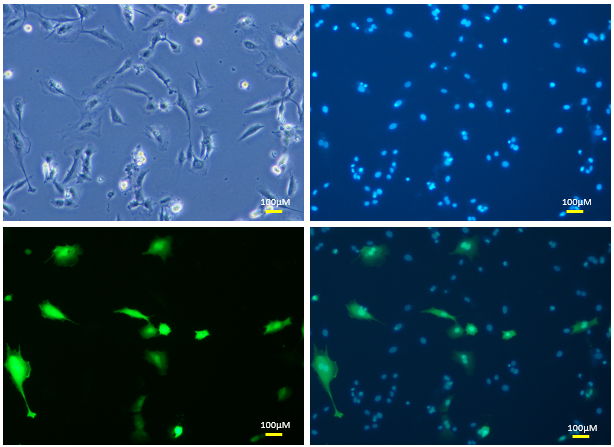


Fig. S4: **Analyzing the effect of pulse strength on transfection efficiency**

Comparison of transfection efficiency in bovine embryonic fibroblasts with varying pulse voltages i.e., (a) 200V (b) 300V (c) 400V (d) 500V. In each of the figure sub-sets, the four images starting from the left top clockwise are brightfield, Hoechst 33342-stained nuclei, merge of Venus and Hoechst fluorescence, and Venus fluorescence, respectively. (other pulse conditions: 4 mm cuvette, 1 pulse, 5 µg DNA, 10 milliseconds, opti-MEM as electroporation buffer, room temperature handling).