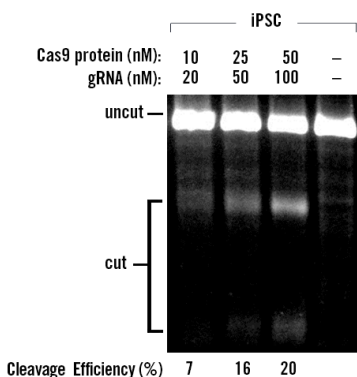




Stem Cell Transfection Solutions

TransIT[®] Transfection Reagents enable high efficiency transfection of stem cells and other hard to transfect cell types used in stem cell research.

- Perform genome editing with *TransIT*-X2[®] Dynamic Delivery System
- Transfect DNA effectively with *TransIT*[®]-2020 or *TransIT*[®]-LT1 Transfection Reagents
- Perform repeated, low toxicity mRNA transfections using *TransIT*[®]-mRNA Transfection Kit
- Electroporate efficiently and cost-effectively with Ingenio[®] Electroporation Solution



NEW DATA! CRISPR/Cas9 Editing in Human iPSCs

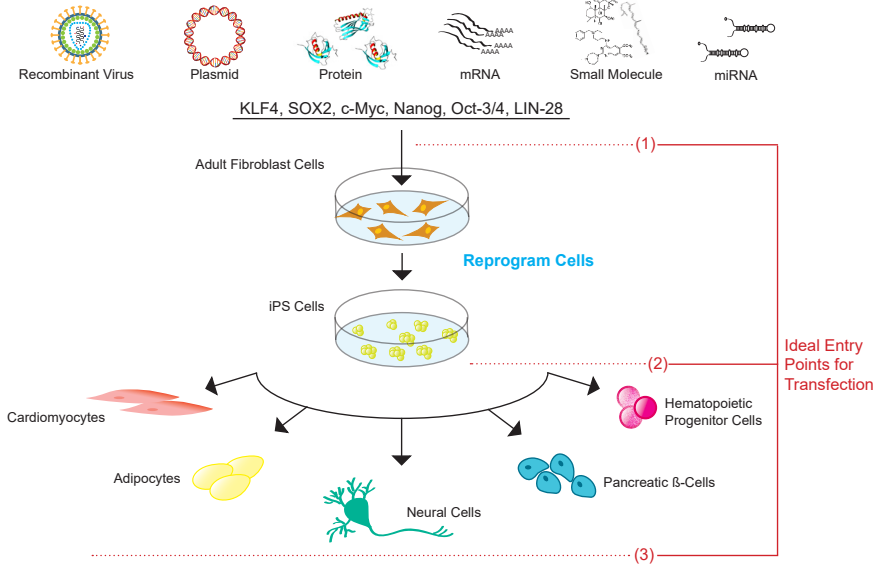
Efficient Genome Editing with CRISPR/Cas9 in Human Induced Pluripotent Stem Cells (iPSCs). The *TransIT*-X2[®] Dynamic Delivery System was used to deliver Cas9 protein/guide RNA ribonucleoprotein (RNP) complexes in human induced pluripotent stem cells (iPSCs).



Why Stem Cells?

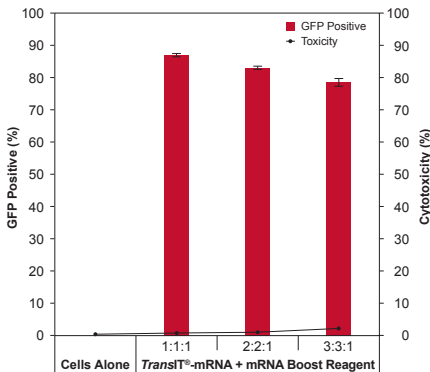
Advances in the field of stem cell differentiation and reprogramming have accelerated drug development by providing disease relevant models for testing. Several of these breakthroughs rely on the use of transfection for non-viral delivery of nucleic acids into different cell types. Mirus Bio provides high efficiency nucleic acid and ribonucleoprotein delivery tools through a suite of *TransIT*[®] Transfection Reagents and *Ingenio*[®] Electroporation Kits that have been validated for many of these applications.

The Role of Transfection in Stem Cells Applications



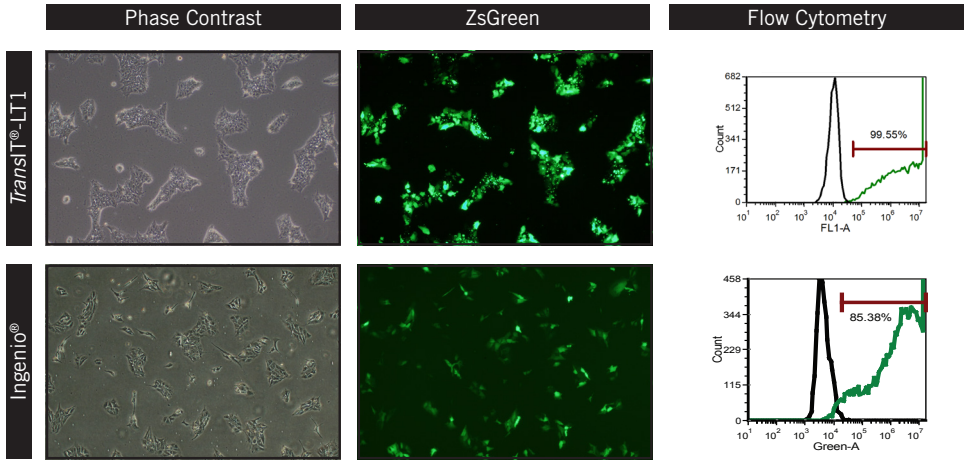
Ideal Entry Points for Transfection in Stem Cell Workflow. Somatic cells such as adult fibroblasts can be transfected or transduced via several methods (e.g. recombinant virus, plasmid, protein, mRNA, small molecule and miRNA) with a combination of transcription factors including KLF4, SOX2, c-Myc, Nanog, Oct-3/4 and LIN-28 to reprogram the cells to a pluripotent state. iPS cells can then be differentiated to a myriad of cell types through growth factor addition and/or transfection of selection markers driven by cell type specific promoters. Stem cell derived cell types such as cardiomyocytes, adipocytes, neural cells, pancreatic-β cells, and hematopoietic progenitor cells can provide researchers with relevant models for their experiments.

Effective, Low Toxicity Delivery of mRNA into Fibroblasts



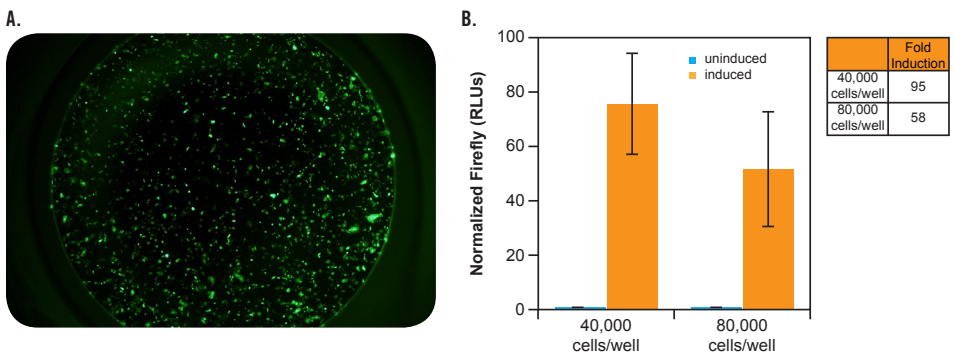
***TransIT*[®]-mRNA Provides Effective and Low Toxicity mRNA Transfection.** The *TransIT*[®]-mRNA Transfection Kit was used to transfect BJ human neonatal foreskin fibroblasts with GFP mRNA incorporating pseudouridine and 5-Me-C modified bases (Trilink Biotechnologies, Inc.). Transfections were performed using 1-3 μ l of *TransIT*[®]-mRNA Transfection Reagent and mRNA Boost Reagent to deliver 1 μ g of RNA (1:1:1, 2:2:1 and 3:3:1; reagent:boost:RNA ratio). At 18 hours post-transfection, GFP was measured and cytotoxicity was measured using propidium iodide stain (black line).

High Efficiency DNA Transfection of Human iPS Cells



Data courtesy of  Cellular Dynamics International
a FUJIFILM company

Ideal Entry Points for Transfection in Stem Cell Workflow. *TransIT*[®]-LT1 Transfection Reagent was used to reverse transfect 1.3×10^6 iPS cells with a ZsGreen expressing plasmid (Takara Bio USA). Reverse transfections were performed in 6-well plates using 12 μ l of *TransIT*[®]-LT1 Transfection Reagent to deliver 4 μ g of DNA (3:1, reagent: DNA). The Ingenio[®] Electroporation Kit was used to transfect 2×10^6 iPS cells on the Amaxa[®] Nucleofector[®] II/2b Device with 8 μ g ZsGreen expressing plasmid in 100 μ l and plated in 6-well plates at 0.33×10^6 cells/well. Cells were visualized 24 hours post-transfection. Cells were also assayed at 24 hours post-transfection on. The histograms represent the fluorescence intensity of ZsGreen in untransfected cells (black line) compared to cells transfected with plasmid (green line).



Plasmid DNA Delivery to iCell[®] Cardiomyocytes Using *TransIT*[®]-LT1 Transfection Reagent. (A) High efficiency transfection of iCell[®] Cardiomyocytes (Cellular Dynamics) with a GFP encoding plasmid. Cells were transfected with 100 ng/well of pMAXGFP (Lonza) using *TransIT*[®]-LT1 Transfection Reagent with a 2:1 reagent-to-DNA ratio according to the manufacturer's instructions. Fluorescent images were taken 3 days post transfection. (B) cAMP induction measured via a luciferase reporter plasmid. Cells were transfected using *TransIT*[®]-LT1 and a CRE-luciferase reporter plasmid. After 18 hours the cAMP pathway was induced using 10 μ M isoproterenol for 6 hours. Luciferase activity was measured using the Promega Dual Glo[®] Luciferase Assay. Data is normalized to the control reporter.

Data courtesy of  Cellular Dynamics International
a FUJIFILM company

Delivery by



Broad Spectrum DNA Transfection

TransIT[®]-X2[®] Dynamic Delivery System



PRODUCT NO.	QUANTITY
MIR6003	0.3 ml
MIR6004	0.75 ml
MIR6000	1.5 ml
MIR6005	5 x 1 ml
MIR6006	10 x 1 ml

TransIT[®]-LT1 Transfection Reagent



MIR2300	1 ml
MIR2304	0.4 ml
MIR2305	5 x 1 ml
MIR2306	10 x 1 ml

TransIT[®]-2020 Transfection Reagent



MIR5400	1 ml
MIR5404	0.4 ml
MIR5405	5 x 1 ml
MIR5406	10 x 1 ml

mRNA Transfection

TransIT[®]-mRNA Transfection Kit



PRODUCT NO.	QUANTITY
MIR2250	1 ml
MIR2225	0.4 ml
MIR2255	5 x 1 ml
MIR2256	10 x 1 ml

Electroporation

Ingenio[®] Electroporation Kit



Compatible with Amaxa[®] Nucleofactor Device (solution, 0.2 cm cuvettes and cell droppers)

PRODUCT NO.	QUANTITY
MIR50112	25 reactions
MIR50115	50 reactions
MIR50118	100 reactions

Ingenio[®] Electroporation Kit



Compatible with Bio-Rad[®] and Harvard-BTX[®] electroporation systems (solution, 0.4 cm cuvettes and cell droppers)

MIR50113	25 reactions
MIR50116	50 reactions
MIR50119	100 reactions

Ingenio[®] Electroporation Solution



MIR50111	25 reactions
MIR50114	50 reactions
MIR50117	100 reactions

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