ATCC® | Credible leads to Incredible™

Featured Product

Transfection Reagents for Nucleic Acid Transfer into ATCC Cells

ATCC cells have been a key component of genetic research applications for decades. Many of these applications were developed using various chemical, viral, and mechanical methods for nucleic acid delivery. However, cationic lipids have become the tool of choice for many researchers.

Cationic lipid transfection is a fast, simple, and reproducible process for introducing DNA, RNA, or other oligonucleotides into eukaryotic cells. Cationic lipids offer highly efficient transfection for a broad range of cell types, including adherent and suspension cell lines, as well as many primary cultures and stem cells.

ATCC offers a new line of transfection reagents tailored for effective nucleic acid transfer into a wide variety of cells for a multitude of applications, including:

- Gene expression
- Gene silencing
- Pathway analysis
- Functional screening
- Virus production
- Protein production
- Generation of stable cell lines
- Stem cell reprogramming
- Genome editing with CRISPR/Cas9
- Cell differentiation
- Mutational analysis
- Subcellular localization

Consider the nucleic acid needed in your application, and then use our transfection guide and protocol listings to select the appropriate reagent for your cells of choice. These resources may be found online at www.atcc.org/transfection.

How cationic lipids work

Cationic lipids facilitate nucleic acid delivery into eukaryotic cells. Their basic structure is comprised of a positively charged head group and one or two hydrocarbon chains. The charged head group mediates the interaction between the lipid and the negatively charged phosphate backbone of the nucleic acid. It is hypothesized that these interactions cause the formation of a nucleic acid-liposomal complex, which may subsequently interface with the plasma membrane of the target cell and be drawn in by endocytosis. Alternatively, the nucleic acid-liposomal complex may fuse and mix with the plasma membrane, depositing the nucleic acid into the cytoplasm.

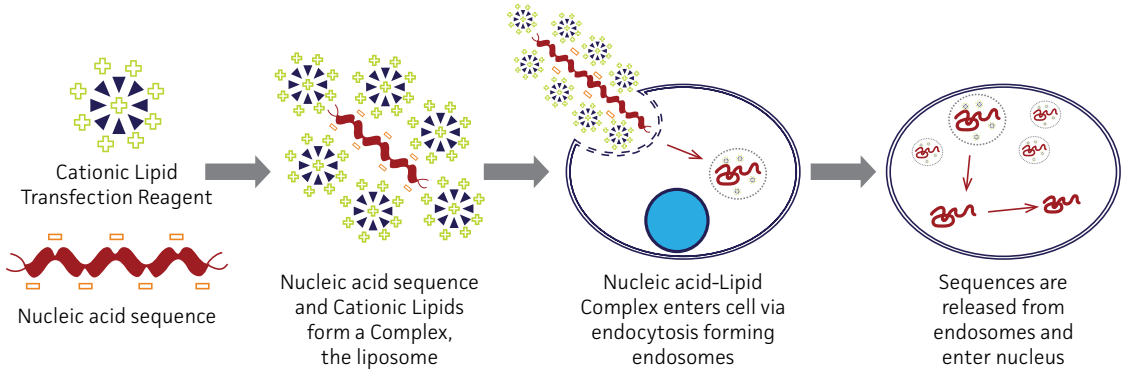

Figure 1. After being transported into the cell, the DNA must diffuse through the cytoplasm and enter the nucleus for the desired genetic manipulation to occur. miRNA constructs exert their effect in the cytoplasm.

Choose ATCC® genexplus transfection reagent for suspension cells

The ATCC® GeneXPlus Transfection Reagent (ATCC® No. ACS-4004) is designed to efficiently transfect a broad spectrum of cell types. GeneXPlus displays high transfection efficiency with low cytotoxicity in suspension cells such as HEK-293T/SF, THP-1, as well as difficult-to-transfect cell lines such as RAW 264.7 and SH-SY5Y.

Table 1. List of ATCC® cell lines with protocols optimized for GeneXPlus.

ATCC® No.	Name	Transfection efficiency (%)
CCL-171 ™	MRC-5	64
CRL-2266™	SH-SY5Y	40
CRL-4025™	TIME (hTERT immortalized dermal microvascular endothelial cells)	34
CRL-4052™	TeloHAEC (hTERT immortalized aortic endothelial cells)	45
PCS-100-010	HUVEC	70
PCS-110-010	DMVEC	53
PCS-201-012	Dermal Fibroblast Cells	80
PCS-500-012	Bone Marrow-derived MSC	77
TIB-71™	Raw 264.7	30
TIB-202™	THP-1	38

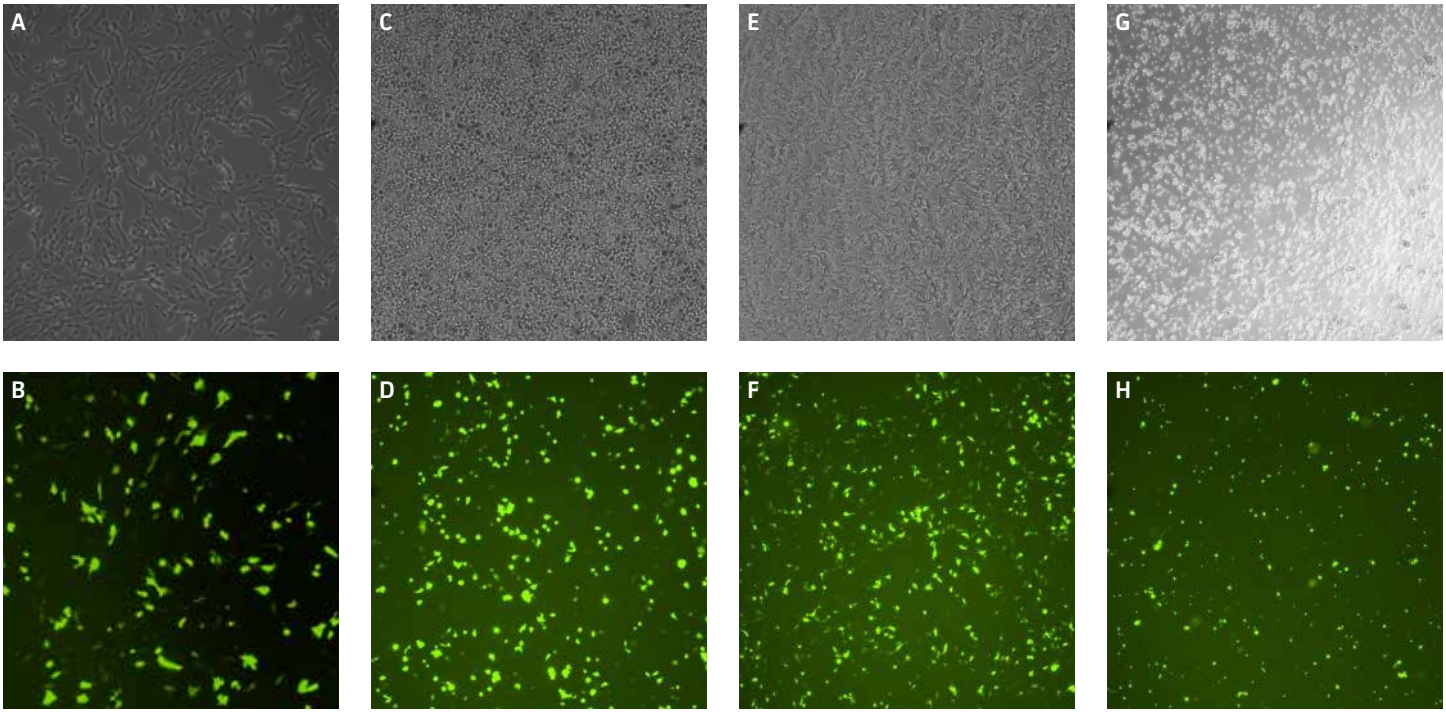

Figure 2. GeneX Plus has been used to transfect enhanced GFP constructs into continuous cell lines such as (A and B) BJ-5ta, (C and D) RAW 264.7, (E and F) SH-SY5Y, and (G and H) THP.

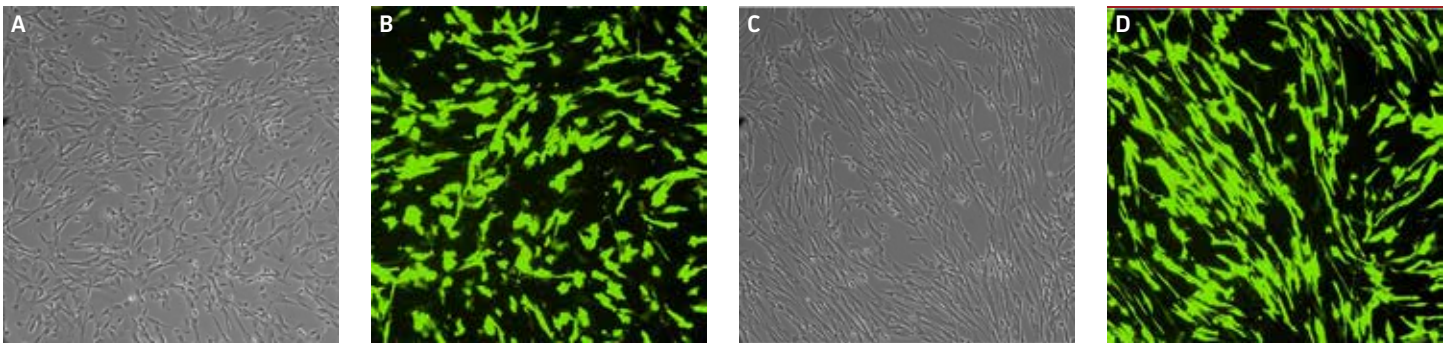

Figure 3. GeneX Plus has been used to transfect enhanced GFP constructs into human primary cells such as (A and B) Uterine Fibroblasts and (C and D) Uterine Smooth Muscle Cells (SMCs).

Rely on transfex™ transfection reagent for your dna transfection needs

The ATCC® TransfeX™ Transfection Reagent (ATCC® No. ACS-4005) has been optimized for use on a wide range of cell types, including hard-to-transfect continuous cell lines, hTERT immortalized cell lines, primary cells, and stem cells. TransfeX allows for the genetic manipulation of cells via transient or stable transfection, and is ideal for protein production applications. And like other ATCC transfection reagents, it has been thoroughly tested to ensure high transfection efficiency, low cytotoxicity, and universal reliability.

List of ATCC® cell lines with protocols optimized for TransfeX™

ATCC® No.	Name	Transfection efficiency (%)
ACS-1012™	iPSC	90
ACS-1018™	BT142 mu/- Cancer stem cell	40
CCL-2™	HeLa	80
CCL-61™	CHO-K1	80
CCL-185™	A549	64
CL-173™	3T3-L1	40
CRL-1573™	HEK-293	85
CRL-1658™	NIH/3T3	80
CRL-1740™	LNCap	95
CRL-1772™	C2C12	90
CRL-4001™	BJ-5ta (hTERT immortalized dermal fibroblast)	73
CRL-4010™	hTERT-HME1 (hTERT immortalized mammary epithelial cells)	96
CRL-4011™	NuLi-1 (hTERT immoratalized bronchial epithelial cells)	73
CRL-4025™	TIME (hTERT immortalized dermal microvascular endothelial cells)	53
CRL-4031™	RPTEC/TERT1 (hTERT immortalized renal proximal tubule epithelial cells)	29
CRL-11268™	HEK293T/17	99
HB-8065™	HepG2	95
HTB-22™	MCF-7	50
HTB-26™	MDA-MB-23	90
HTB-37™	CaCo2	64
PCS-100-010	HUVEC	71
PCS-110-010	DMVEC	75
PCS 130-010, PCS 130-011, PCS-460-011	Smooth Muscle Cells (Lung, bronchial/tracheal, uterine)	70
PCS-201-012	Dermal Fibroblast Cells	70
PCS-300-010	Bronchial Tracheal Epithelial cells	61
PCS-400-010	Renal Proximal Tubule Epithelial Cells	64
PCS-500-012	Bone Marrow-derived MSC	60
PCS-600-010	Mammary Epithelial cells	56

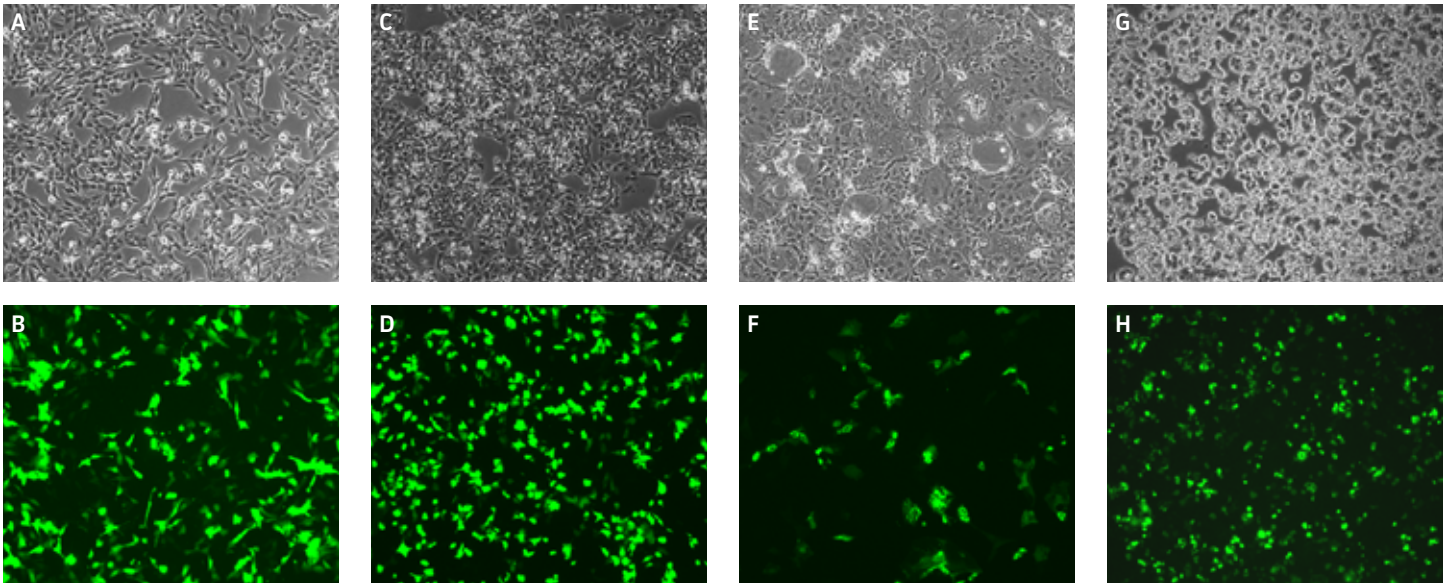

Figure 4. TransfeX™ has been used to transfect enhanced GFP constructs into numerous continuous cell lines, including (A and B) HepG2, (C and D) C2C12, (E and F) Caco-2, and (G and H) MCF7

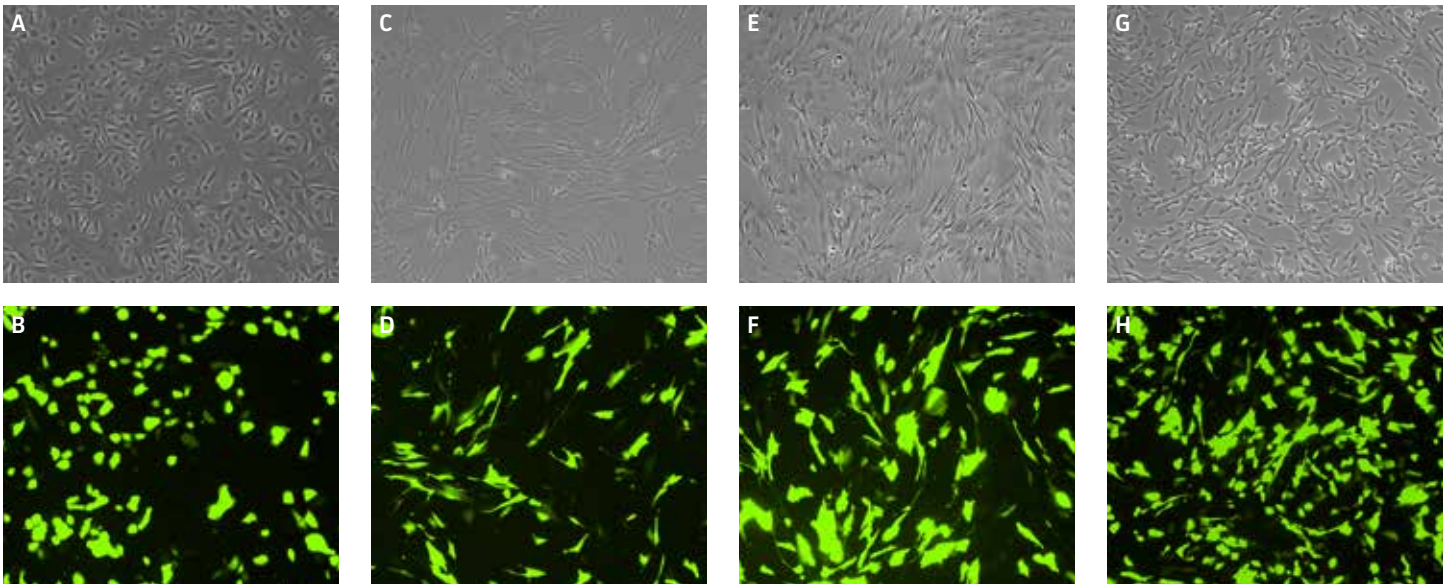

Figure 5. TransfeX™ has been used to transfect enhanced GFP constructs into primary cell lines with high efficiency, such as (A and B) Primary Bronchial/Tracheal Epithelial Cells, (C and D) Airway SMCs, (E and F) Bronchial/Tracheal SMCs, and (G and H) Uterine Fibroblasts.

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