
OZ BIOSCIENCES
The art of delivery systems
CATALOG
Transfection Reagents
Transduction Tools
In Vivo Delivery
3D Transfection
Protein Delivery
Gene & Protein Tools

CONTENTS

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163 Avenue de Luminy - Case 922
13288 Marseille cedex 09. France

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> **Account Owner:** OZ Biosciences
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Bank details:
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490 av du Prado
13008 Marseille. France

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OZ BIOSCIENCES

TECHNOLOGY DESCRIPTION

TECHNOLOGY DESCRIPTION

Magnetofection™ technology
***In Vivo* Magnetofection™**
Lipofection technology
3D Transfection
i-MICST™ Technology

MAGNETOFECTION™ TECHNOLOGY

Invented by Dr. Christian Plank, co-founder of OZ Biosciences, Magnetofection™ is a novel, simple and highly efficient transfection method.
Inspired by the validated and recognized magnetic drug targeting technology, this original method is a revolution for transfection and infection.
In essence, the idea was to unite the advantages of the popular biochemical (cationic lipids or polymers) and physical (electroporation, gene gun) transfection methods in one system while excluding their inconveniences (low efficiency, toxicity, difficulty to handle). It is the unique technology suitable for viral and non viral gene delivery applications.

Principle

Magnetofection™ principle is to associate nucleic acids, transfection reagents or virus with specific cationic magnetic nanoparticles.
The resulting molecular complexes are then concentrated and transported into cells supported by an appropriate magnetic field.
In this way, the exploitation of a magnetic force exerted upon gene vectors allows a very rapid concentration of the entire applied vector dose on cells, so that 100% of the cells get in contact with a significant vector dose, and promotes cellular uptake.

How does it work?

The magnetic nanoparticles are made of iron oxyde, which is fully biodegradable, coated with specific proprietary cationic molecules varying upon applications. Their association with the gene vectors (DNA, siRNA, ODN, virus, etc.) is achieved by salt-induced colloidal aggregation and electrostatic interaction.
The magnetic particles are then concentrated on cells by the influence of an external magnetic field generated by a specific magnetic plate. The cellular uptake of the genetic material is accomplished by endocytosis and pinocytosis, two natural biological processes. Consequently, membrane architecture & structure stay intact in contrast to other physical transfection methods that damage, create hole or electroshock the cell membranes. The nucleic acids are then released into the cytoplasm by different mechanisms depending upon the formulation used.
First is the proton sponge effect caused by cationic polymers coated on the nanoparticles that promotes endosome osmotic swelling, disruption of the endosomal membrane and intracellular release of DNA.
Second is the destabilization of the endosome by cationic lipids coated on the particles that release the nucleic acid into cells by flip-flop of cell negative lipids and charged neutralization.
Third one is the usual viral mechanism when virus is used.

Biodistribution of magnetic nanoparticles

The biodegradable cationic magnetic nanoparticles are not toxic at the recommended doses and even higher. Gene vectors / magnetic nanoparticles complexes are internalized into cells after 10-15 minutes i.e. much faster than any other transfection method.
After 24, 48 or 72 hours, most of the particles are localized in the cytoplasm, in vacuoles (membranes surrounded structure into cells) and occasionally in the nucleus. In addition, magnetic nanoparticles do not influence cell function.

What are the applications?

Magnetofection™ is the only versatile and universal technology adapted to all types of nucleic acids (DNA, siRNA, dsRNA, shRNA, mRNA, ODN...), non viral transfection systems (transfection reagents) and viruses. Consequently, several optimized reagents have been designed according to defined applications:

--> **PolyMag / PolyMag Neo:** for all nucleic acids transfection
--> **NeuroMag:** for neurons transfection
--> **CombiMag:** for enhancing all transfection reagents efficiency (cf Magnetofectamine)
--> **SilenceMag:** for siRNA applications
--> **ViroMag:** for enhancing viral transduction efficiency
--> **ViroMag R/L:** for Lentivirus and Retrovirus transduction
--> **AdenoMag:** for Adenovirus and AAV transduction
--> **FluoMag:** Fluorescent Magnetofection Reagents
--> **SelfMag:** for creating your own magnetic delivery system

Magnetofection™ has been successfully tested on a broad range of cell lines, hard-to-transfect and primary cells. It is perfect for non-dividing or slowly dividing cells, meaning that the genetic materials can go to the nucleus without cell division. We have shown that combining magnetic nanoparticles to gene vectors of any kind results in a dramatic increase of uptake of these vectors and high transfection efficiency. It is the only technology suitable for viruses and non-viral nucleic acid delivery applications.

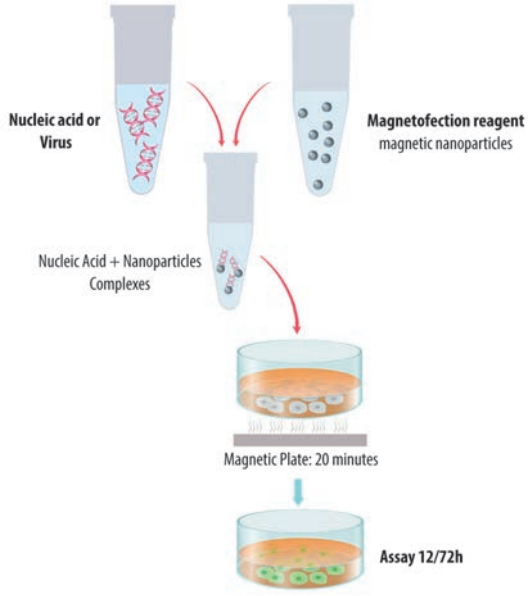
- For non viral nucleic acid delivery, it is perfect for primary and hard-to-transfect adherent cells.
- For viral applications, it is ideal for any cells including primary cells (adherent and suspension).

Please consult the technical appendix pages 56-60 for the list of cells successfully tested or contact directly our technical support team at: **tech@ozbiosciences.com**

How do I use Magnetofection™ reagents?

The protocol is a very straightforward and easy procedure:

1. Dilute nucleic acids or vectors in serum free medium or buffer and add Magnetofection™ reagent.
2. Incubate 20-30 minutes.
3. Add these complexes directly to cells.
4. Apply the magnetic field (place the culture plate on the magnetic plate).
5. Incubate 5-20 minutes, remove the magnetic plate and cultivate cells until assay.



Do I need specific equipments?

The only requirement for Magnetofection™ is a magnetic plate specifically designed for this application.

The magnetic plate is a one-time buy and completely reusable, so you do not need expensive equipment contrary to approaches such as electroporation or gene gun. Basically, the magnetic field required is produced by specific magnets. Three magnetic plates are available: Super Magnetic Plate, Magnetic Plate with 96 individuals magnets and Mega Magnetic Plate. Their design allows producing a heterogeneous magnetic field that magnetizes the nanoparticles in solution, forms a very strong gradient to attract the nanoparticles and covers all the surface of the plate. The plate can be washed with ethanol 70% and used within incubators or robots.

MAGNETIC PLATES & STARTING KITS

Magnetofection™ technology requires appropriate magnetic fields that magnetize nanoparticles in solution, forms a very strong gradient to attract the nanoparticles and covers all the surface of the plate. To perform efficient transfection or infection, suitable magnetic nanoparticles formulations and magnetic field, are the only necessity. Therefore, three optimized magnetic plates with improved properties have been especially designed for Magnetofection™. Their special geometry and organization produce a strong magnetic field that is suitable for all cell culture dishes and supports.
All Magnetofection™ starting kits from OZ Biosciences contain a magnetic plate and the reagents appropriate to your needs; it gives you a convenient solution to start your study.

MAGNETIC PLATES

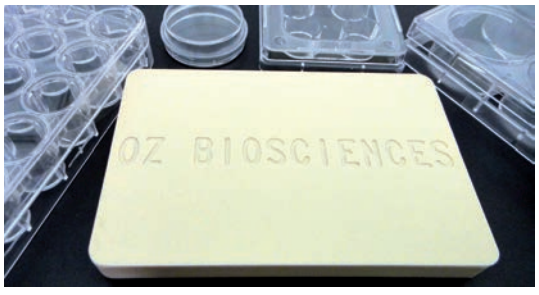
Applications

--> Suitable for all Magnetofection™ reagents.
--> Suitable for all cell culture dishes and supports

Main Features

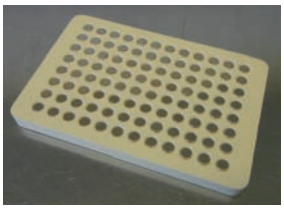
--> The super Magnetic Plate is suitable for all cell culture support including:
384-, 96-, 48, 24, 12, 6-well plates
35, 60, 90 & 100 mm dishes
T-25, T-75 and any other flasks
Any other cell culture support (slide, chamber slide, array, roller, etc.)
--> The Magnetic Plate with 96-magnets is especially adapted to 96-well culture plates
--> The Mega Magnetic Plate can accommodate 4 culture dishes or plates at the same time
--> Can be easily cleaned and decontaminated with 70% ethanol
--> Can be used within incubators and with robots
--> Can be used at room temperature, 37°C, +4°C, etc.
--> Compatible with culture plates from most common suppliers
--> Magnetic properties, distance between magnets and cells and incubation time have been optimized to efficiently concentrate nucleic acids or virus onto cells and to promote their internalization.
--> Solid, completely reusable, it is a one-time buy

Super Magnetic Plate



Convenient for all cell culture support
Catalog number #MF10000

Magnetic plate with 96 magnets



Adapted to 96-well plates
Catalog number #MF10096

Mega Magnetic Plate

To hold 4 culture dishes at one time
#MF14000

IN VIVO MAGNETOFECTION™

The unique solution for *in vivo* targeted gene delivery

The main problems currently associated with systemic gene vector administration (gene therapy) include biodistribution of gene vector throughout the body, the lack of specificity towards a pathological site (bioavailability at the target site), the necessity of a large dose to achieve high local concentration, non-specific toxicity, inactivation of vectors due to undesired interactions with components of the *in vivo* milieu and other side effects due to high vector doses. Magnetofection™ resolves the problems related to diffusion limited process and to restricted bioavailability at the target site.

Principle

In vivo Magnetofection™ has been designed for *in vivo* targeted transfection and infection.
This original system combines magnetic nanoparticles and nucleic acid vectors that will be retained after injection at the magnetically targeted site. In this way, targeted delivery minimizes systemic distribution and reduces toxicity. Furthermore, the magnetic force will enhance the uptake of magnetic nanoparticles by the target tissue, and thus improve the efficiency of transfection/transduction. This allows reducing the required nucleic acid or virus doses and the process time of delivery which is crucial for improvement of *in vivo* nucleic acid delivery.

What are the applications?

Three optimized *In vivo* Magnetofection reagents *(see more p.34)* have been designed according to defined applications:

• Non viral applications:
***In vivo* PolyMag,** a cationic polymer-based magnetic nanoparticles formulation, and ***In vivo* DogtorMag**, a cationic lipid-based magnetic nanoparticles formulation, have been designed for *in vivo* targeted transfection of various types of nucleic acids such as DNA, RNA and oligonucleotides.

• Viral applications:
***In vivo* ViroMag** is an optimized nanoparticles formulation dedicated to viral vectors that allows reduction of titer virus. It is particularly suitable for Lentiviral/Retroviral, Adenoviral and Adeno-Associated Viral (AAV) vectors.

How do I use *In vivo* Magnetofection™ reagents?

Gene vectors /nanoparticles complexes can be easily administrated through various injection routes such as:
- **Systemic administration** (intravenous, intra-artery) or **local administration** (intratumoral, intracerebroventricular, intraperitoneal, intramuscular, subcutaneous).

Successful administration routes

Target tissue	Route of injection	Site of injection	Kind of magnet	Magnet position
Tumor	Intravenous, Intratumoral	Tail vein Tumor	All kind	**External** (subcutaneous tumor, brain tumor, well localized tumor) **Internal** (interne organ tumor)
Endothelial cells	Intravenous Intra-arterial	Vessel of interest Ear artery Femoral artery	All kind	**Internal** (deep vessels) **External** (ear artery)
Heart	Intravenous, Intra-arterial	Tail vein Carotid artery	Cylinder	**Internal** (in the chest) **External** (on the chest)
Liver	Intravenous, Intra-arterial	Tail vein Carotid artery	Cylinder, Square	**External** (on the right flank) **Internal** (for focalized gene transfer)
Lung	Intravenous	Tail vein	Square	**External**
Intestine	Ileum lumen	Intestine	Cylinder, Square	**Internal**
Brain	Intraventricular	Brain ventricle	Small Cylinder	**External**

Magnet can be positioned:
- Externally for large organs or isolated organs (liver, brain, muscle, subcutaneous tumor)
- Internally for deep organs or focalized gene transfer

The only requirement for *In vivo* Magnetofection™ is a small magnet specifically designed for this application. Several kinds of magnets are provided depending of your application.

1 extra small cylinder (ø 2 mm), 1 small cylinder (ø 5 mm), 1 cylinder (ø 10 mm) 1 square (18x18 mm)

LIPOFECTION TECHNOLOGY

Principle

Lipofection is a lipid-based transfection technology which belongs to biochemical methods including also polymers, DEAE dextran and calcium phosphate. Lipofection principle is to associate nucleic acids with cationic lipid formulation. The resulting molecular complexes, known as lipoplexes, are then taken up by the cells. The main advantages of lipofection are its high efficiency, its ability to transfect all types of nucleic acids in a wide range of cell types, its ease of use, reproducibility and low toxicity. In addition this method is suitable for all transfection applications (transient, stable, co-transfection, reverse, sequential or multiple transfections...), high throughput screening assay and has also shown good efficiency in some in vivo models.

How does it work?

DNA TRANSFECTION MECHANISMS

The lipid-based reagents used for lipofection are generally composed of synthetic cationic lipids that are often mixed with helper lipids such as DOPE (L-a-dioleoyl phosphatidyl-ethanolamine) or cholesterol. These lipids mixture assembles in liposomes or micelles with an overall positive charge at physiological pH and are able to form complexes (lipoplexes) with negatively charged nucleic acids through electrostatics interactions. The association of the lipid-based transfection reagent with nucleic acids results in a tight compaction and protection of the nucleic acids and these cationic complexes are mainly internalized by endocytosis. Once inside the cells two mechanisms leading to the nucleic acids release into the cytoplasm have been described. One relies on the endosomes buffering capacity of the polycationic residues (called "proton sponge effect"). The other describes the ability of cellular negatively charged lipids to neutralize the cationic residues of the transfection reagent leading to destabilization of endosomal membranes. Finally, the cellular and molecular events leading to the nuclear uptake of DNA (not required for siRNA) following by gene expression remain highly speculative. However, the significance of cell division on transfection efficiency favours the assumption that nuclear membrane disruption during the mitosis process promote DNA nuclear uptake. Nonetheless, transfections of primary cells (non-dividing) and in vivo are also achievable with lipofection demonstrating that DNA can make its way to the nucleus where gene expression takes place.

TEE-TECHNOLOGY

The cationic lipids (lipoplexes) and polymers (polyplexes) are the most employed non-viral gene delivery systems. The Tee-Technology (Triggered Endosomal Escape) combines and exploits the properties of both entities to achieve extremely efficient nucleic acids delivery into cells. Indeed, this new generation of lipopolyamines contains a lipophilic part, such as lipids, and a charged polyamine moiety, such as cationic polymers. These moieties act in synergy to ensure a tight nucleic acids compaction and protection and a very efficient destabilization of the endosomal membrane which allows the release of large nucleic acids amounts in the cytosol and DNA nuclear uptake. A particular focus on the synthesis of fully biodegradable entities was integrated. In this way, the transfection reagents do not interfere with cellular mechanisms, high cell viability is maintained in every experiment and any potential secondary effects are avoided.

What are the applications?

Transfection efficiency combined with high transgene expression level or high gene silencing and minimized cytotoxicity depends on multiple critical parameters. Those factors include cell type, plasmid DNA characteristics (size, promoter, reporter gene) & purity, siRNA sequence & purity, cell culture conditions (medium with or without serum, cell number, absence of contaminations...), amount of nucleic acids and reagents, transgene assays to name a few. Consequently, transfection reagents need to be specifically designed according to the nucleic acids to be delivered (DNA, siRNA, mRNA, ODN, shRNA etc.) and the cell types used in order to achieve optimal efficiency. In this context, OZ Biosciences has developed several outstanding transfection reagents:

--> DreamFect™ Gold: for all nucleic acids, achieving superior transgene expression level
--> DreamFect™: for all nucleic acids, for all cells including suspension cell lines
--> Lullaby™: for siRNA application
--> VeroFect™: for Vero cells transfection
--> FlyFectin™: for insect cell transfection
--> EcoTransfect™: for popular cell lines and routine transfection at low cost

Lipofection method is especially suitable for immortalized cells.

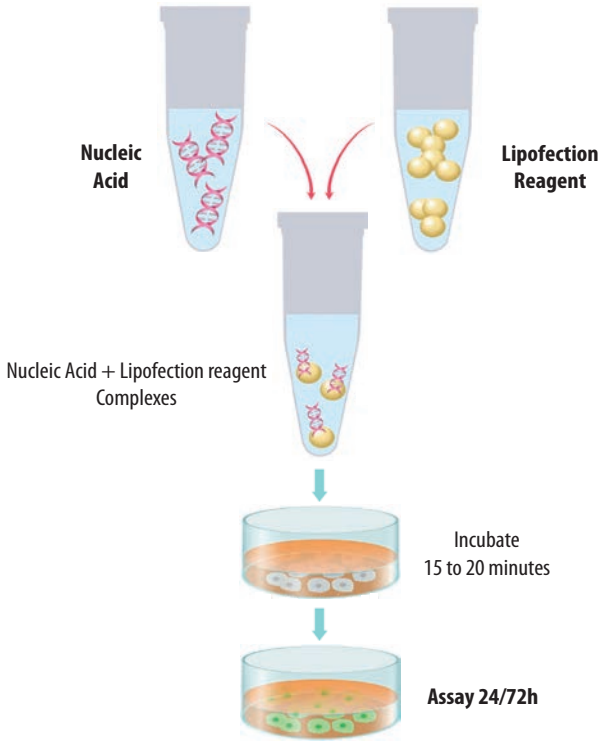
Please consult the technical appendix page 61 for the list of cells successfully tested or contact directly our technical support team at: tech@ozbiosciences.com

The major Tee-Technology advantages are:
--> Compaction of DNA in nanoparticles efficiently internalized by cells
--> Protection of nucleic acids against nucleases degradation
--> Efficient membrane destabilization and DNA delivery
--> Highly efficient even with low amounts of nucleic acids
--> Biodegradability

How do I use Lipofection reagents?

The protocol is a very straightforward and easy procedure:

1. Prepare the DNA and the Reagent solutions.
2. Mix them together and incubate 20 min.
3. Add to your cells.



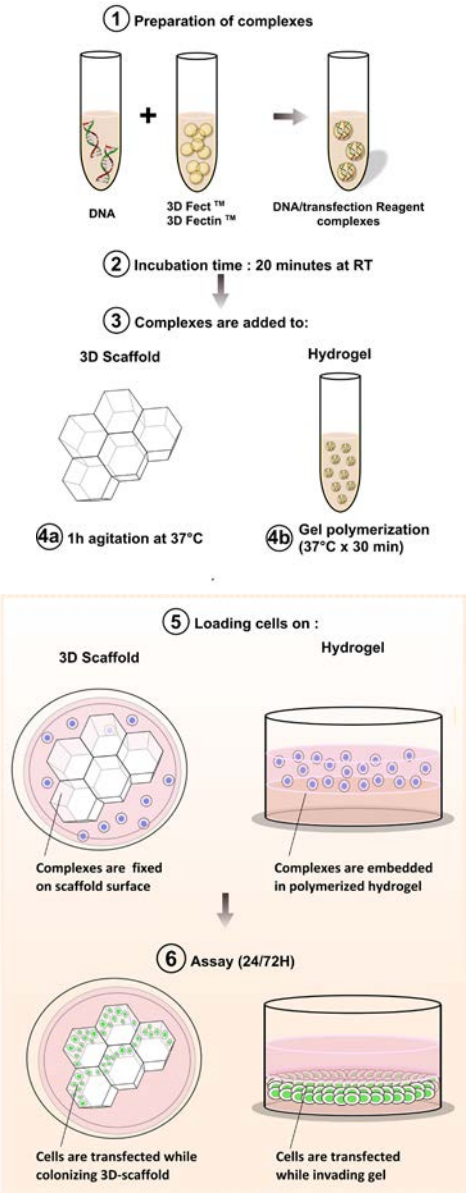
TRANSFECTION IN 3D CELL CULTURE

Principle

Three-dimensional (3D) matrices, such as 3D-scaffolds and 3D-hydrogels, work as mechanical platforms for cell attachment and growth. Biomaterials, having a viscoelastic support in constant adaptation to external constraints and responding to numerous physiological stimuli, have been designed to mimic the organic milieu for cells [1].

3D matrices allow cultivating cells *in vitro* in a more natural way. Therefore, 3-D cell cultures assist the cell physiology analysis under conditions that more closely resemble to an in vivo-like environment compared to conventional 2-D culture. Since last decade, it has been proposed that genetically modified cells growing on-, or embedded in 3D matrices could be used as a drug controlled release system [2]. Biomaterials for controlled delivery of plasmid DNA or siRNA can thus provide a fundamental tool to target transgene expression (over express or block) or can offer new perspectives for gene (or cell) therapy.

3D matrices can be composed by numerous materials (collagen, atelocollagen, polymers, hyaluronic acid, fibrin...) which are adapted to specific cell types. Consequently, to transfect cells on a variety of support, OZ Biosciences has developed specific reagents.



How does it work?

Based on a new technology, the 3D transfection reagents allow to genetically modify cells directly cultured in 3D environment with high efficiency. 3D Transfection allows for a long term transgene expression (intracellular or secreted) or gene silencing. First, the nucleic acids (DNA, siRNA) are mixed with the 3D transfection reagent to form complexes. Then, those complexes are combined with the appropriate 3D matrices. Finally, the modified 3D matrices are colonized by cells to be transfected.

What are the applications and studies?

Tissue engineering, tissue regeneration, tumor invasion, neural differentiation, cellular polarization, tissue formation, colonization, neurite growth, angiogenesis, tube and acini formation...
3D matrices are routinely used in basic research and therapeutic applications. The 3D transfection reagents allow genetic modification of cells directly into or onto the matrices and thus in a more natural environment.

3D-Fect™ for 3D-Scaffolds

The 3D-Fect™ transfection reagent was specifically designed to bind and cover any kind of 3D scaffold. It is suitable for any nucleic acids such as DNA, shRNA, siRNA and leads to high transfection efficiency.

3D-FectIN™ for Hydrogels

3D-FectIN™ transfection reagent is compatible with any hydrogel and allows transfecting cells directly cultured onto/into a hydrogel with a high efficiency. It does not alter gelation or polymerization. It is also versatile (suitable for all nucleic acids) and universal (adapted to all cell culture conditions).

1. Schmeichel KL, Bissell MJ. Modeling tissue-specific signaling and organ function in three dimensions. J Cell Sci 2003; 116: 2377-2388.
2. Scherer F et al. Nonviral vector loaded collagen sponges for sustained gene delivery in vitro and in vivo. J Gene Med 2002; 4: 634-643.

I-MICST™ TECHNOLOGY

Principle

i-MICST™ Technology (integrated Magnetic Immuno-Cell Sorting and Transfection/ Transduction) is a new platform that allows to genetically modify cells directly on magnetic cell purification columns. This technology combines cell isolation and genetic modification in one simple, efficient and reliable integrated system.
Designed for i-MICST™ Technology, the Viro-MICST™ reagent allows the efficient and specific transduction of target cells directly on magnetic cell-purification columns.

Why use Viro-MICST™?

Viro-MICST™ leads to an increase in the transduction efficiency with low-titer virus preparations compared to regular transduction methods and allows you to reduce cell manipulation steps and save time as well as vector material.

- Isolation and transduction of cells in one reliable integrated system
- High and increased transduction efficiency with low MOI
- Acceleration of the transduction process and synchronization of adsorption
- Ideal for sensitive cell types such as primary and stem cells.

How does it work?

i-MICST™ Technology requires:
- Magnetic cell separation systems (not provided by OZ Biosciences)
- The Viro-MICST™ reagent for capturing virus and infecting cells within the magnetic cell purification column.

Viro-MICST™ is a new specific magnetic nanoparticle formulation evolved from our Magnetofection™ Technology developed in association with MACS® technology* from Miltenyi Biotec.
Viro-MICST™ binds to viruses. As both magnetically labeled target cells and virus-Viro-MICST™ complexes are retained by the magnetic field into the column, the viruses can interact and infect target cells with high efficiency.

The i-MICST™ protocol is depicted as a two-steps process:

1- Pre-enrichment step of magnetically labeled cells on non-modified column(s).
2- Viro-MICST™ procedure. This step allows reaching high purity and simultaneously infecting the target cell population. (cf. fig.1)

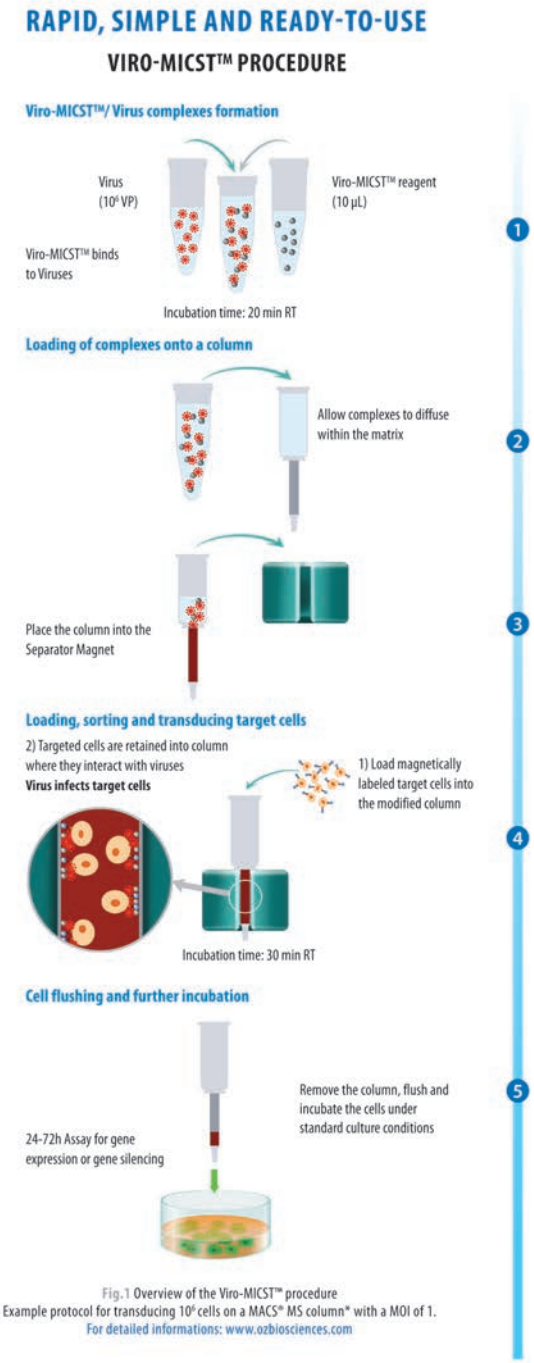
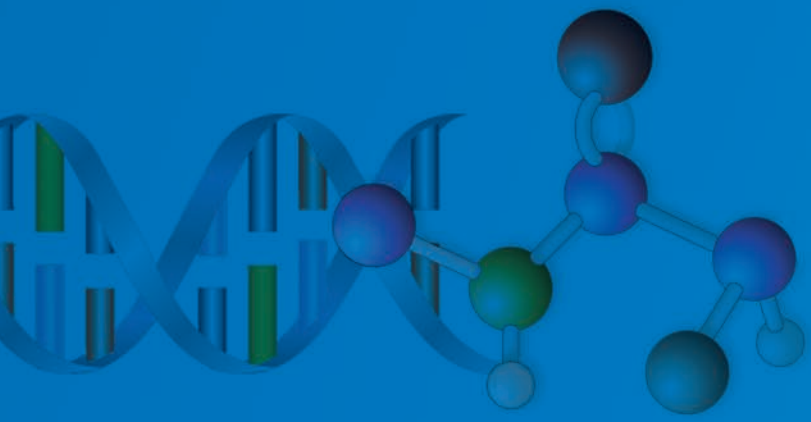


Fig.1 Overview of the Viro-MICST™ procedure
Example protocol for transducing 10^6 cells on a MACS® MS column* with a MOI of 1.
For detailed informations: www.ozbiosciences.com

*MACS® is a registered trademark owned by Miltenyi Biotec GmbH and the use of MACS® column is proprietary and patented technology. For any further licensed of MACS® system, please contact Miltenyi.

OZ BIOSCIENCES

DNA TRANSFECTION



Magnetofection™

Magnetofectamine ™: Lipofectamine™ 2000 + CombiMag
PolyMag Neo
PolyMag
NeuroMag
CombiMag

Lipofection

DreamFect ™ Gold
DreamFect ™
EcoTransfect ™
VeroFect ™
FlyFectin ™

Protein Production

HYPE-5 ™ Transfection Kit

Magnetofectamine™ - Lipofectamine™ 2000 selects CombiMag

Ideal to transfect primary and hard-to-transfect cells, Magnetofectamine™ is the association of Lipofectamine™ 2000 from Life Technologies Corporation with the CombiMag reagent from OZ Biosciences. This alliance leads to increased transfection efficiency, minimized toxicity and enhanced gene expression.
CombiMag, a magnetic formulation based on Magnetofection™ technology, binds to Lipofectamine™ 2000/DNA complexes and under the application of a magnetic field concentrates the genetic material onto cells and promotes cellular uptake. In this way, transfection efficiency is enhanced.

MAGNETOFECTION™

APPLICATIONS

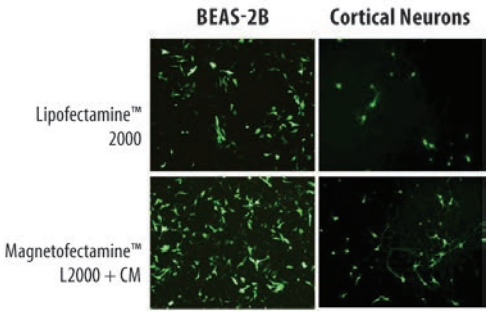
- **Suitable for various types of nucleic acids:** Plasmid DNA, siRNA, oligonucleotide, mRNA, shRNA etc...
- **All transfection applications:** Gene expression / gene silencing, transient and stable, co-transfection & reverse transfection etc...
- **Mammalian cells:** Cell lines, primary and hard-to-transfect cells

RECOMMENDED APPLICATIONS: Transfection of primary and hard-to-transfect cells.

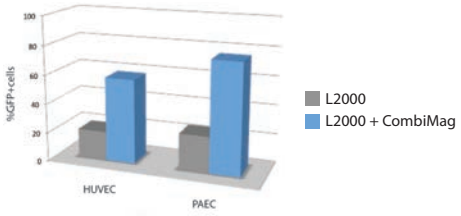
MAIN FEATURES

- **Ideal for primary cells:** Using Magnetofectamine™, up to 75 % transfection efficiency can be achieved into many primary cells, such as HUVEC, Chondrocytes, Endothelials, Epithelials, Fibroblats and Mesenchymal Stem Cells.
- **Maximizes transfection efficiency:** In the presence of CombiMag reagent, Lipofectamine™ 2000 delivers plasmid at higher efficiencies, from +30 to 500%.
- **Minimizes cytotoxicity:** Magnetofectamine™ enables using smaller amounts of nucleic acid and increasing the overall efficiency of your transfection. No need to increase the amount of plasmid DNA and reagent to increase transfection efficiency.
- **Serum compatible**
- **Simple, ready-to use and rapid**
- **No need to change** your standard Lipofectamine™ 2000 protocol

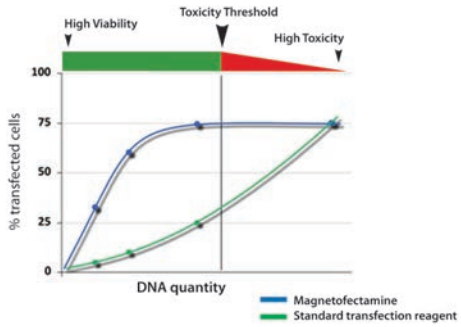
Enhanced Lipofectamine™ 2000 efficiency



Ideal for primary cells



Viability and Efficiency – Minimized toxicity



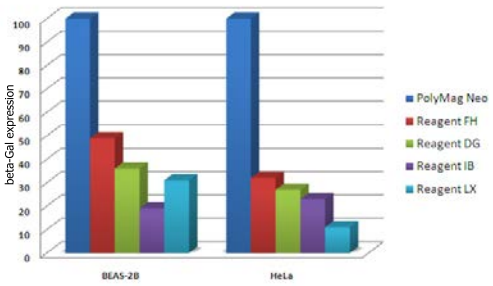
Cat. No.	Product	Description	Number of transfections per µg of DNA
MTX0750	Magnetofectamine Kit	250µL CombiMag + 750µL Lipofectamine 2000	250-375
MTX1000	Magnetofectamine Starting Kit	Contains 1 magnetic plate + 250µL CombiMag + 750µL Lipofectamine 2000	250-375

▸ Please consult the technical appendix page 57 for the list of cells successfully tested.

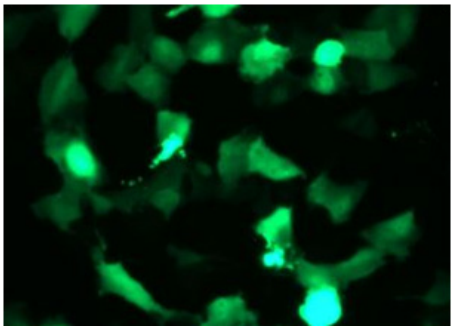
PolyMag Neo - The latest Magnetofection™ reagent for transfection

PolyMag Neo was specifically designed to achieve high transfection efficiency and with superior transgene expression level. PolyMag Neo represents the latest development in Magnetofection™ based transfection reagents and is the ideal way to transfect efficiently and without toxicity a wide variety of cells.

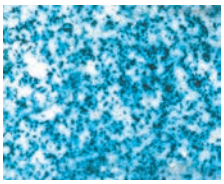
Protein expression comparison



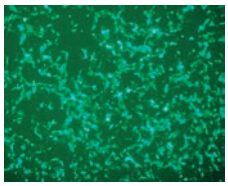
Primary endothelial cells transfection



β-gal & GFP expression in cell lines



MS-5



MDCK

APPLICATIONS

- **Universal nucleic acids delivery:** DNA, oligonucleotides, mRNA, siRNA, shRNA...
- **For high transgene expression experiments**
- **All transfections:** Transient, stable, gene silencing, with or without serum

RECOMMENDED APPLICATIONS: Transfection of primary and hard-to-transfect adherent cells.

MAIN FEATURES

- **Ideal for primary cells:** Epithelial, Fibroblast, Chondrocyte, Endothelial (HUVEC, PAEC...), Stem cells etc...
- **High transgene expression**
- **Good transfection efficiency**
- **Multipurpose** (various type of nucleic acids)
- **Universal** (primary cells and cell lines)
- **Compatible** with and without serum-containing culture media
- **Simple and rapid**
- **Non toxic**

Please consult the technical appendix page 59 for the list of cells successfully tested.

Cat. No.	Product	Number of transfections with 1 µg of DNA
PG60100	PolyMag Neo 100 µL	100
PG60200	PolyMag Neo 200 µL	200
PG61000	PolyMag Neo 1 mL	1000
KC30200	PolyMag Neo Starting Kit	Contains 1 magnetic plate + 200 µL PolyMag Neo

PolyMag - Highly efficient transfection reagent

The universal and powerful PolyMag formulation allows you to achieve very high transfection efficiency. It is composed of magnetic nanoparticles coated with cationic molecules. PolyMag has been designed to transfect all types of nucleic acids. It has been successfully tested on a large range of primary cells, hard to transfect cells and cell lines. Over 120 cells tested! Its efficiency has been reported in many publications.

MAGNETOFECTION™

APPLICATIONS

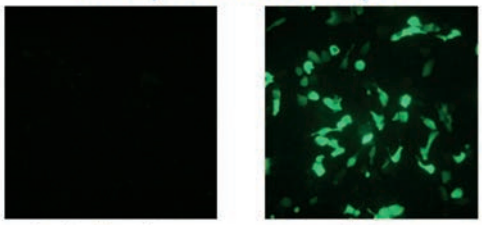
- **Nucleic acid delivery:** DNA, oligonucleotides, mRNA, siRNA, shRNA...
- **Mammalian cells:** Cell lines, primary and hard to transfect cells.
- **All transfections:** Transient or stable, gene silencing, with or without serum...

RECOMMENDED APPLICATIONS: Transfection of primary and hard-to-transfect adherent cells.

MAIN FEATURES

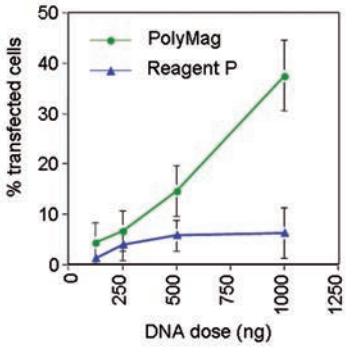
- **Ideal for primary cells:** Chondrocyte, Endothelial cells, Epithelial cells, Fibroblast, Keratinocyte, Smooth Muscle cells...
- **Powerful for hard to transfect cells:** 3Y1, AR42J, CT-26, Embryonic Stem cells (D3ES), F9, FaDu, H441, HaCaT, HEp2, HMEC-1, HT1080, HUVEC, MDCK, PC-12, RIE-1, STC-1...
- **Highly efficient for cell lines:** 293T, 3T6, B16-F10, BEAS-2B, BHK-21, CHO-K1, COS-7, HEK293, HeLa, N2A, NIH-3T3, U87...
- **Applicable to all nucleic acids.**
- **Simple and rapid.**
- **Non Toxic.**

Primary Human Keratinocytes

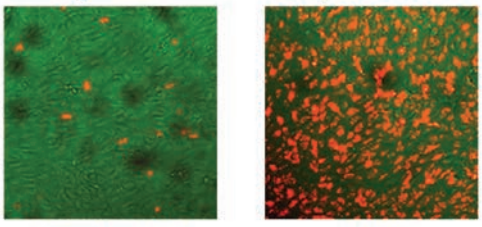


Standard Transfection | PolyMag

Primary Aortic Endothelial Cells (PAEC) transfection



Oligonucleotides delivery in HUVEC



Standard Transfection | PolyMag

Please consult the technical appendix page 59 for the list of cells successfully tested.

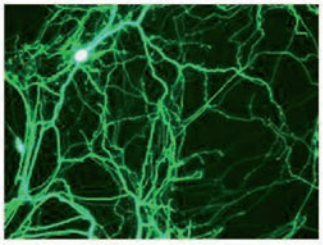
This product is also available fluorescently-labelled with TRITC: FluoMag-P (#FP10100)

Cat. No.	Product	Number of transfections with 1 µg of DNA
PN60100	PolyMag 100 µL	100
PN60200	PolyMag 200 µL	200
PN61000	PolyMag 1 mL	1000
KC30200	PolyMag Starting Kit	Contains 1 magnetic plate + 200 µL PolyMag

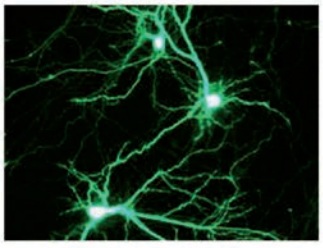
NeuroMag - The Solution for Neurons Transfection

NeuroMag is the first dedicated Magnetofection™ transfection reagent for neurons. It is perfect for primary neurons and can also be used with neuronal and glial cell lines. The transfection can be performed with neurons from 1 DIV to 21 DIV. Due to its unique properties, this reagent allows following the maturation of transfected neurons during several days after the transfection experiment. NeuroMag is a ready-to-use reagent. It is fully biodegradable, non toxic and does not interfere with cellular mechanisms.

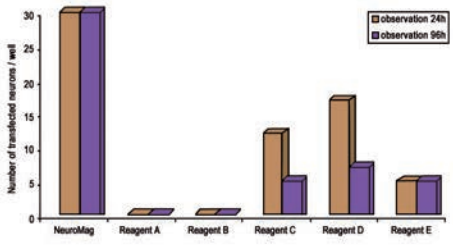
Primary rat hippocampal neurons 2 days after transfection with NeuroMag



Primary rat hippocampal neurons 6 days after transfection with NeuroMag



Transfection efficiency vs. other reagents Primary rat hippocampal neurons



APPLICATIONS

- **Suitable for all types of nucleic acids:** DNA, RNA, oligonucleotides, siRNA, mRNA, shRNA...
- **Perfect for primary neurons:** hippocampal, cortical, embryonic DRG, cerebellar granules, motorneurons, Neural Stem Cells...
- **Highly efficient for a variety of neuronal cell lines** such as A172, B65, C6, KS-1, N2A, PC12, SH-SY5Y, SKN-BE2, T98G, U251, U87, YH-13...

RECOMMENDED APPLICATIONS: Transfection of primary neurons.

MAIN FEATURES

- **Great efficiency**, ideal for primary neurons.
- High transfected neurons viability.
- **Efficient** from 6 DIV to 21 DIV.
- Long transgene expression (up to 7 days).
- Non toxic and completely biodegradable.
- Ready-to-use, straightforward and rapid.

▸ Please consult the technical appendix page 56 for the list of cells successfully tested.

Cat. No.	Product	Number of transfections with 1 µg of DNA
NM50200	NeuroMag 200 µL	Up to 65
NM50500	NeuroMag 500 µL	Up to 165
NM51000	NeuroMag 1 mL	Up to 330
KC30800	NeuroMag Starting Kit	Contains 1 magnetic plate + 200 µL NeuroMag

CombiMag - Boost all transfection reagents efficiency

CombiMag reagent must be employed in association with a transfection reagent (lipid- or polymer-based) in order to improve their efficiency. It is the only existing method suitable for such application. It can be used with all types of nucleic acids and any working transfection reagents. All cells, even hard-to-transfect and primary, can be transfected with high efficiency using this particular reagent.

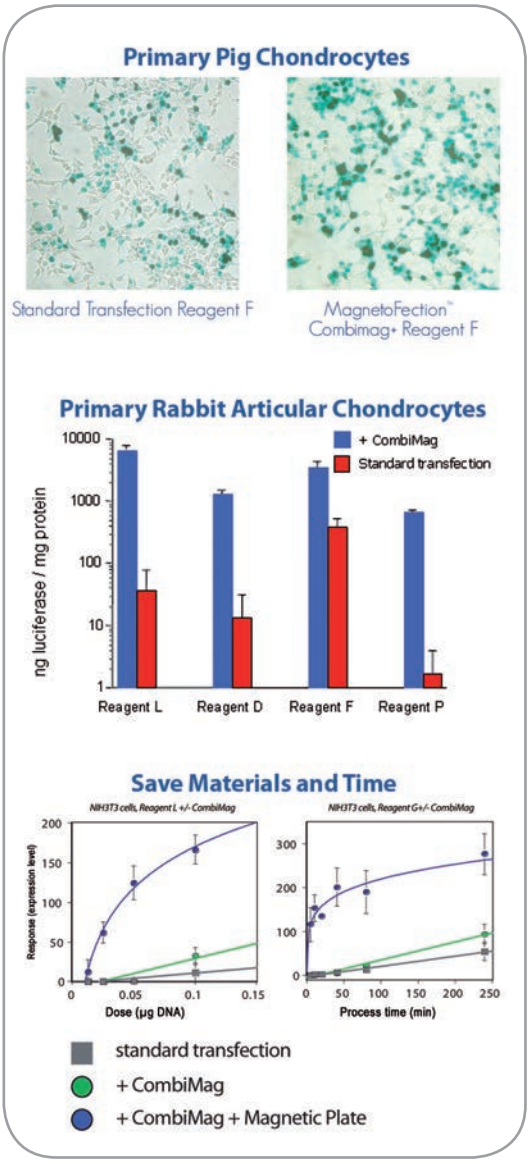
APPLICATIONS

- **Boost all commercial transfection reagents.**
- **Mammalian cells:** Cell lines, primary & hard to transfect cells.
- **All transfections:** Transient, stable, gene silencing, with or without serum...
- **Suitable for all nucleic acids:** DNA, oligonucleotides, mRNA, siRNA, shRNA...

RECOMMENDED APPLICATIONS: To enhance any transfection reagent efficiency without changing your protocol - Transfection of primary and hard-to-transfect adherent cells.

MAIN FEATURES

- **Increase transfection** efficiency of any transfection reagent
  Up to 1000 fold improvement in gene expression level.
  From 30 to 500 % transfection efficiency increase.
  Minimize potential toxicity problem while increase efficiency.
  Optimal in association with DreamFect Gold transfection reagent.
- **Save materials and time**
  Adapted to any protocol, no need to change your current protocol
  Allow using less transfection reagent and nucleic acid.
  Few minutes of incubation are sufficient to get high efficiency.
- **Ideal solutions for primary and hard to transfect cell types**
  Primary: Cardiomyocyte, Chondrocyte, Endothelial, Epithelial, Fibroblast, Gastric Gland, Glial cells, Hepatocyte, Keratinocyte, Myoblast, Neuron, Retinal Ganglion cells, Smooth Muscle...
  Hard-to-Transfect: B95a, C2C12, Caco-2, H295R, HepG2, HNSCC, HuH-7, HUVEC, M1, MCF-7, MDCK, MEF, PC12, SaOS-2, SH-SY5Y...
- **Highly efficient for cell lines:** 3T6, A549, B16-F10, BEAS-2B, BHK-21, CHO, COS-7, CV-1, HEK293, HeLa, L929, LoVo, N2A, NIH-3T3, U87, Vero...
- **Simple, rapid and non toxic**



▸ Please consult the technical appendix page 59 for the list of cells successfully tested.

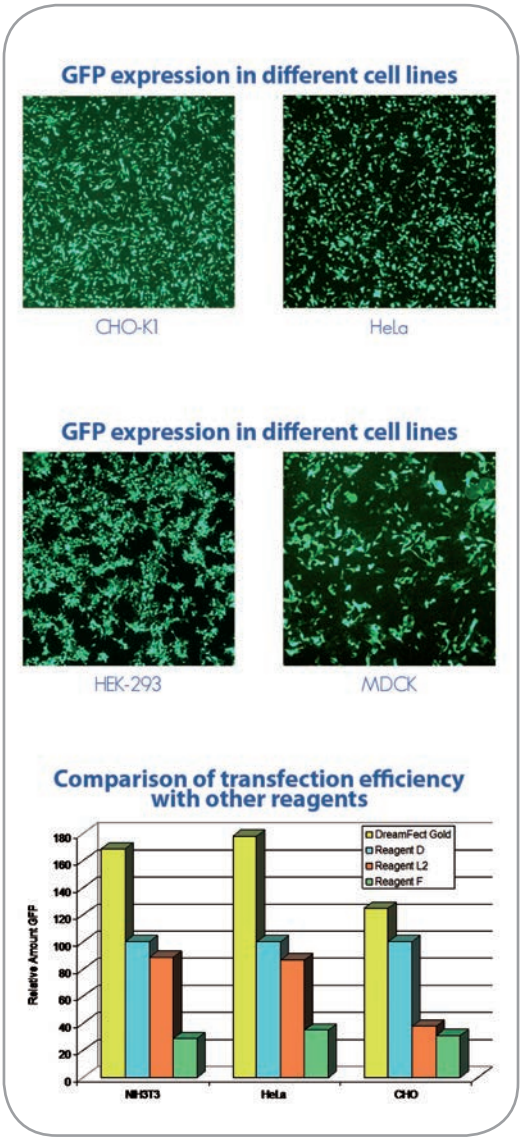
This product is also available fluorescently-labelled with TRITC: FluoMag-C (#FC10100)

Cat. No.	Product	Number of assays with 1 µg of DNA
CM20100	CombiMag 100 µL	100
CM20200	CombiMag 200 µL	200
CM21000	CombiMag 1 mL	1000
KC30200	CombiMag Starting Kit	Contains 1 magnetic plate + 100 µL CombiMag

This product is also available with DreamFect Gold (p18): Lipo/Mag Kit

DreamFect™Gold - A treasure for transfection & protein expression

DreamFect™ Gold is our latest generation of lipid-based transfection reagent. It allows transfecting all types of nucleic acids with a very high efficiency. Due to its formulation, this reagent delivers a large quantity of nucleic acids leading to higher protein expression compared to other transfection reagents. It is fully biodegradable and does not interfere with cellular mechanisms. Consequently, high cell viability is maintained in every experiment and any potential secondary effect is avoided.



APPLICATIONS

- **Suitable for all nucleic acids:** DNA, oligonucleotides, mRNA, siRNA, shRNA...
- **Perfect for all transfection applications:**
  Co-transfection & reverse transfection
  Sequential, multiple & repetitive transfections
  Production of pseudo-virus
  High-Throughput Screening
- **Mammalian cells**

RECOMMENDED APPLICATIONS: Transfection of cell lines with superior transgene expression level.

MAIN FEATURES

- **Superior protein expression level:** Ideal for protein production, biochemistry studies, cellular biology assays, viral production, western blot analysis, immunocytochemistry, microscopy...
- **Great and reproducible transfection efficiency** surpasses all competitor's products for transfection efficiency, transgene expression level and non toxicity.
- **Biodegradable - Avoid secondary effects:** Due to its innovative and critical feature, high cell viability is maintained in every experiment.
- **Highly efficient for a broad range of cells:** Up to 95-99% transfection efficiency combined with high protein expression level: 3T6, A549, B16-F10, BEAS-2B, BHK-21, CHO-K1, Colo205, COS-7, CRFK, CV-1, HaCaT, HBL-100, HCT116, HEK293, HeLa, Hep3B, HepG2, HT-22, Jurkat, K562, N2A, NIH-3T3, OLN-93, PT-11, SaOS-2, SH-SY5Y, U87...
- **Adapted to all culture conditions:** Antibiotics and serum compatible, it works over a broad range of cell confluencies (between 20 to 90%)
- **Simple, rapid and easy-to-use**

▸ Please consult the technical appendix page 61 for the list of cells successfully tested.

Cat. No.	Product	Number of transfections with 1 µg of DNA
DG80500	DreamFect Gold 500 µL	125-250
DG81000	DreamFect Gold 1 mL	250-500
DG85000	DreamFect Gold 5x1 mL	1250-2500

This product is also available with CombiMag (p 17): LipoMag Kit

DreamFect™ - All dreams come true

DreamFect™ is a very economical & efficient reagent for routine experiments, based on an innovative biochemical method. It contains both a lipophilic part and a cationic polyamine moiety allowing the association of nucleic acids and their delivery inside cells. Due to its unique properties, this reagent releases large DNA amounts in the cytosol increasing DNA nuclear delivery. It is highly efficient at very low doses of nucleic acids including siRNA.

APPLICATIONS

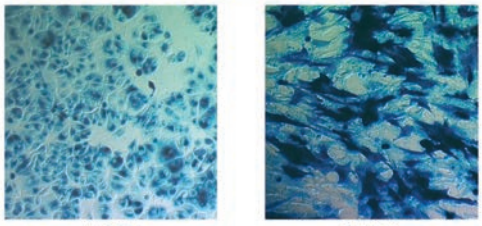
- **Nucleic acid delivery:** DNA, oligonucleotides, mRNA, siRNA.
- **Mammalian cells**
- **All transfections:** Transient or stable, gene silencing, with or without serum...

RECOMMENDED APPLICATIONS: Transfection of cell lines including suspension cells.

MAIN FEATURES

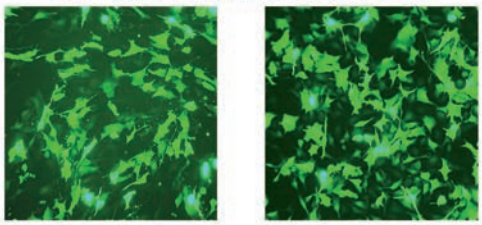
- **Universal and multipurpose:** All transfection applications, suitable for High Throughput Screening
- **Great efficiency for a large spectrum of cells:** 293T, A549, BHK-21, CHO-K1, COS-7, CRFK, CS-1, CV-1, EMC, H4IIE, HDF, HEK293, HeLa, Hep3B, HepG2, HT-22 L8, MCF-7, MDA-MB-231, MEF, NIH-3T3, NS20Y, PC-12, PT-11, SaOS-2, SW-480, U87...
- **Powerful for siRNA and DNA delivery in suspension cells:** Jurkat, K562, Pre-B, Sp2/0, THP-1...
- **Compatible with serum containing media**
- **Robust and reproducible**
- **Simple and rapid**

β-Galactosidase expression in transfected cells



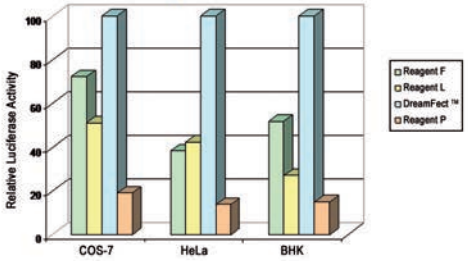
MCF-7 BHK-21

GFP expression in transfected cells



NIH-3T3 B16-F10

Luciferase expression in various cells

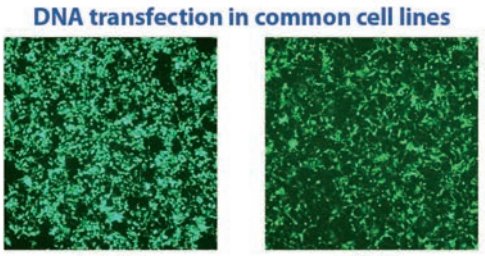


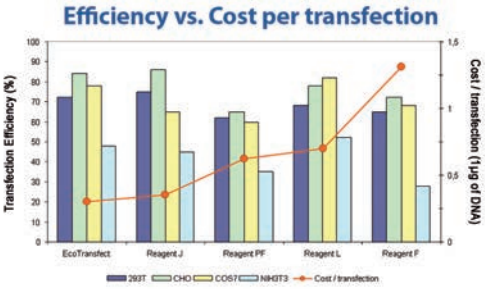
Please consult the technical appendix page 61 for the list of cells successfully tested.

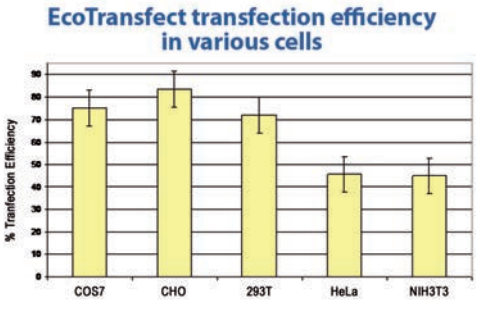
Cat. No.	Product	Number of transfections with 1 µg of DNA
DF40500	DreamFect 500 µL	125-250
DF41000	DreamFect 1 mL	250-500
DF45000	DreamFect 5x1 mL	1250-2500

EcoTransfect™ - Economical transfection reagent for routine experiments

EcoTransfect is an economical reagent dedicated to the transfection of popular cell lines. This reagent is the perfect solution to quickly analyze the biological activity of your nucleic acids, to perform routine transfection assays at low cost and to accomplish High Throughput Screening.







APPLICATIONS

- **Nucleic acid delivery:** DNA, oligonucleotides, RNA...
- **Mammalian cells:** Popular cell lines
- **All transfections:** Transient or stable, with or without serum...

RECOMMENDED APPLICATIONS: Transfection of easy-to-transfect cell lines.

MAIN FEATURES

- **The best quality / price ratio reagent:** Provides identical performance than major reagents in most common cell lines at a very low cost.
- **Ideal for everyday experiments:** Ultimate solution to simply check biological activity of DNA constructs, insert (new clones), transcriptionally activated PCR fragments, mRNA or antisense oligonucleotides as well as producing stable transfection.
- **Perfect for common cell lines:** 293, 293T, A293, CHO-K1, COS-1, COS-7, CV-1, HEK293, HeLa, NIH-3T3...
- **Simple, ready-to-use and rapid**
- **Biodegradable and non toxic**
- **Serum compatible**
- **Economical**

▸ Please consult the technical appendix page 61 for the list of cells successfully tested.

Cat. No.	Product	Number of transfections with 1 µg of DNA
ET10500	EcoTransfect 500 µL	250
ET11000	EcoTransfect 1 mL	500
ET13000	EcoTransfect 3x1 mL	1500

VeroFect™ - Cell specific transfection reagent for Vero Cells

VeroFect is a powerful reagent dedicated to the transfection of Vero cells. It is specifically designed to obtain highly efficient and reproducible transfection of Vero Cells. This reagent can be used for many applications such as stable and transient transfection, protein and viral production...

APPLICATIONS

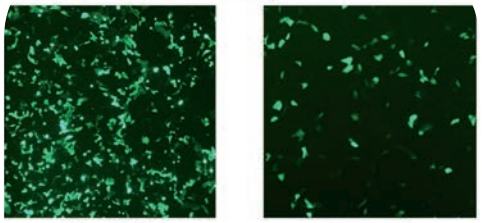
- **Nucleic acid delivery:** Plasmid DNA
- **Mammalian cells:** Vero & other immortalized related kidney cells
- **All transfections:** Transient or stable, with or without serum...

RECOMMENDED APPLICATIONS: DNA transfection of Vero cells.

MAIN FEATURES

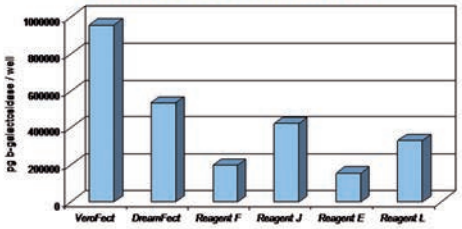
- **Highly efficient and reproducible:** The complexes formed by DNA and VeroFect™ reagent have an exceptional capacity in destabilizing cell membranes, allowing the delivery of important DNA amounts into cells. It was specifically designed to obtain highly efficient and reproducible transfection of Vero cells.
- **Versatile:** It can be used for many applications: stable and transient transfection, High Throughput Screening, protein & viral production... Developed specifically for Vero cells it is also convenient with other cell types especially kidney cells.
- **Compatible with serum-containing or serum-free media**
- **Robust and reproducible**
- **Simple and rapid**
- **Non Toxic**

VeroFect™ efficiency on Vero cells

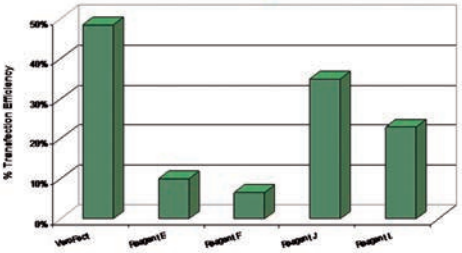


VeroFect™ Reagent T

VeroFect™ outperforms competitors in transgene expression level



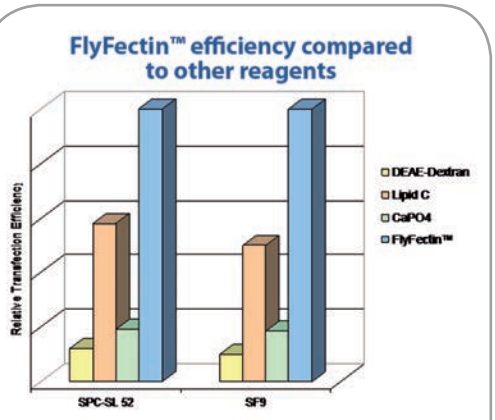
VeroFect™ top competitors in transfection efficiency

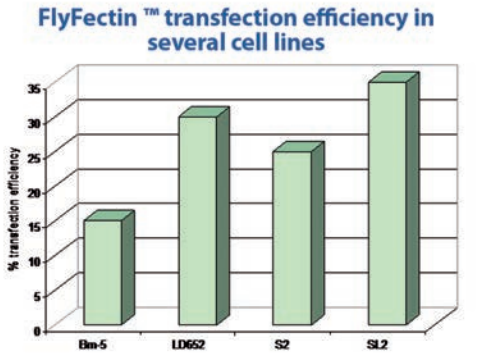


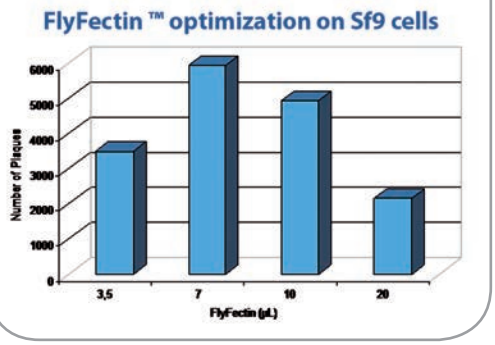
Cat. No.	Product	Number of transfections with 1 µg of DNA
VF60250	VeroFect 250 µL	125
VF60500	VeroFect 500 µL	250
VF61000	VeroFect 1 mL	500
VF65000	VeroFect 5x1 mL	2500

FlyFectin™ - The Solution for Insect cells

FlyFectin is a powerful reagent specifically designed to obtain highly efficient and reproducible transfection of insect cells. It is adapted to the delivery of all types of nucleic acids and can be used for many applications including for the production of recombinant protein using Baculovirus expression system.







APPLICATIONS

- **Nucleic acid delivery:** DNA, oligonucleotides, RNA...
- **Insect cells**
- **All transfections:** Transient or stable, with or without serum...

MAIN FEATURES

- **Very efficient with excellent reproducibility**
  The complexes formed by DNA and FlyFectin™ have an exceptional capacity to destabilize cells membrane, allowing very efficient and highly reproducible transfection even with very low amounts of nucleic acids.
- **Universal and multipurpose**
  Can be used for all applications: stable and transient transfection, co-transfection, High Throughput Screening...
  Perfect reagent for production of recombinant protein using Baculovirus Expression System by improving your protein production yield.
- **Specific for insect cell lines**
  Successfully tested on various insect cells : Ag55, Anso, As43, Bm5, Cl8, Cpp512, High5, IPBL-SF21, Kc167, Ld652, Mos20, S2, Sf9, SL-2, SL-3, SPC-SL52...
- **Non toxic and Serum compatible**
  Due to its biochemical and biophysical properties, FlyFectin™ is highly efficient at low doses and the potential secondary effects are avoided.
- **Simple, rapid & ready-to-use**

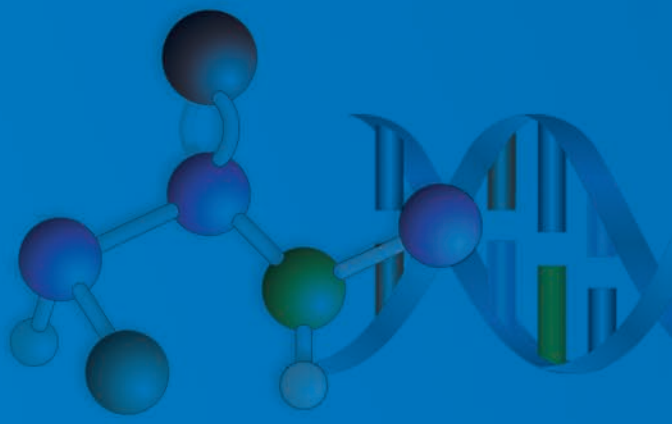
▸ Please consult the technical appendix page 62 for the list of cells successfully tested.

Cat. No.	Product	Number of transfections with 1 µg of DNA
FF50500	FlyFectin 500 µL	125
FF51000	FlyFectin 1 mL	250
FF55000	FlyFectin 5x1 mL	500

OZ BIOSCIENCES

PROTEIN PRODUCTION

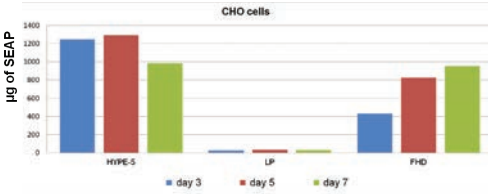
HYPE-5™ Transfection Kit



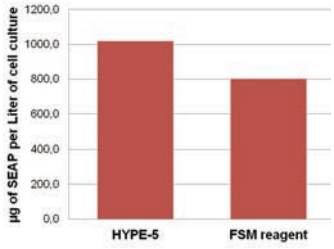
HYPE-5™ Transfection Kit - For High Yield Protein Production

Transient transfection of suspension-growing cells represents an attractive alternative to costly, time-consuming and labour intensive stable transfection.
The HYPE-5 transfection Kit consists of a HYPE-5™ Transfection Reagent and HYPE-Blast Reagent (improves gene expression) specifically developed for protein production and is dedicated to achieve High Yield Protein Expression in mammalian cells.

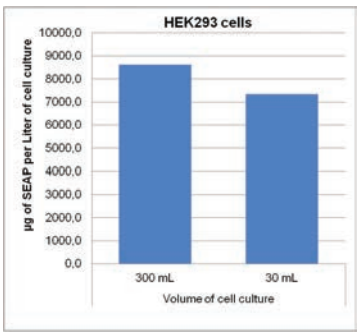
Designed to achieve High Yield Protein Expression in CHO suspension-growing cells



Outperforms competitor



Easy and efficient scale-up



APPLICATIONS

- Protein Production
- **Large scale transient transfection:** Ideal for bioreactor, spinner or flasks
- **Mammalian cells:** HEK293 and CHO cells growing in suspension

RECOMMENDED APPLICATIONS: Bioproduction and biopharmaceutical manufacturing.

MAIN FEATURES

- High yield recombinant protein production
- **Suitable** for both HEK293 and CHO cells growing in suspension
- Reproducible results
- **Compatible** with any synthetic or regular media used for protein production
- Completely animal origin free
- **Suitable** for secreted and intracellular expressed protein.
- Rapid and simple to scale-up.

Cat. No.	Product	Suitable for
HY01500	HYPE-5 Starter Kit 1.5mL	0.5-1 Liter of cell culture
HY03000	HYPE-5 Kit 3 mL	1-2 Liter of cell culture
HY15000	HYPE-5 Kit 15 mL	5-10 Liter of cell culture
HY30000	HYPE-5 Kit 30 mL	10-20 Liter of cell culture

OZ BIOSCIENCES

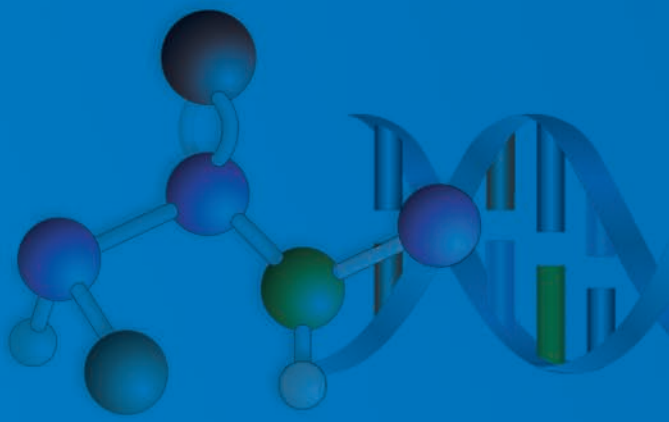
siRNA TRANSFECTION

Magnetofection™

SilenceMag

Lipofection

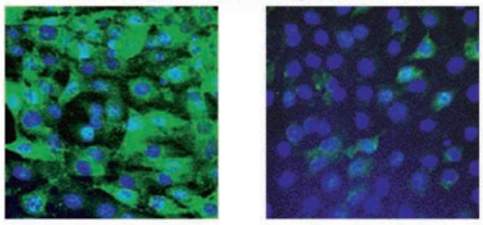
Lullaby®



SilenceMag - The bright idea for siRNA delivery

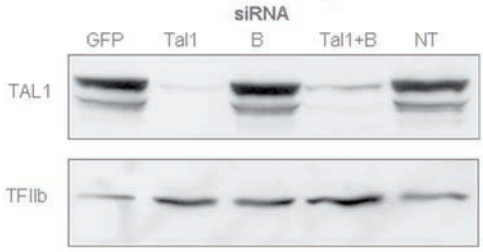
SilenceMag has been developed specifically for siRNA delivery. These magnetic nanoparticles are coated with a unique cationic lipids formulation providing the most efficient siRNA delivery system available. It allows studying gene silencing at very low doses of siRNA thanks to the magnetic field mediated concentration of siRNA onto cells. This reagent is suitable for all siRNA applications and gives reliable and high gene knockdown in numerous cell types.

GADPH gene silencing in NIH-3T3

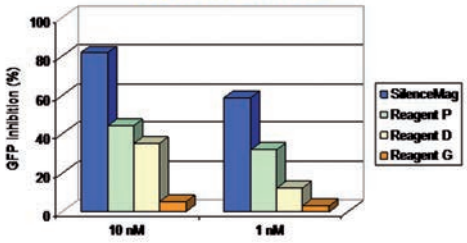


Control SilenceMag 50nM

Tal1 inhibition in primary HUVEC



Comparison of various siRNA transfection reagents on HeLa



APPLICATIONS

- **Gene Silencing:** siRNA, dsRNA, shRNA (not DNA)
- **Mammalian cells:** Cell lines, primary and hard to transfect cells
- **siRNA transfections:** Sequential & simultaneous transfections and endogenous gene silencing

RECOMMENDED APPLICATIONS: siRNA transfection of primary and hard-to-transfect adherent cells.

MAIN FEATURES

- **High gene silencing efficiency**
  Concentrates and introduces large quantities of siRNA duplexes into cells leading to exceptional knockdown effects
- **Use 10 to 100 times less siRNA**
  Gene silencing can be observed at 0.1 nM and efficiency is optimal at 5 to 10 nM
- **One reagent validated for all siRNA applications**
  Effective for endogenous applications as well as co-transfection. Serum compatible & non toxic.
- **Ideal for cell lines and primary cells**
  Primary cells: Airway epithelial, Chondrocyte, Endothelial (PAEC, HUVEC...), Fibroblast, Gastric gland, Epithelial, Keratinocyte, Myofibroblast...
  Immortalized cells: 3T6, A549, BEAS-2B, BHK-21, CHO, COS-7, CV-1, H441, HEK293, HeLa, Hep2, Hep3B, HMEC-1, MCF-7, MDCK, N2A, NIH-3T3, U87, Vero...
- **Simple and ready-to-use**
- **Many targeted genes:** GAPDH, GFP, IGFBP, LacZ Lamin, Luciferase, Transcription factors, ROCK...

▸ Please consult the technical appendix page 59 for the list of cells successfully tested.

This product is also available fluorescently-labelled with TRITC: FluoMag-S (#FS10100)

Cat. No.	Product	Number of assays in 96-well plate with 10nM siRNA
SM10200	SilenceMag 200 µL	> 400 assays
SM10500	SilenceMag 500 µL	> 1000 assays
SM11000	SilenceMag 1 mL	> 2000 assays
SM13000	SilenceMag 3x1 mL	> 6000 assays
KC30300	SilenceMag Starting Kit	Contains 1 magnetic plate + 200 µL SilenceMag

Lullaby ® - A sweet song for gene silencing

Lullaby is the ideal siRNA transfection reagent for gene silencing. It has been successfully tested on numerous cell lines, reaching up to 90% gene silencing. Due to its properties, it is a very efficient reagent leading to exceptional knockdown effects with low doses of siRNA. It protects siRNA from extracellular degradation and has an outstanding ability to destabilize cell membranes. It allows reproducible delivery of important siRNA amounts into the cytosol and high cell viability is maintained in each experiment.

APPLICATIONS

- **Gene Silencing:** siRNA, shRNA, miRNA, dsRNA
- **Mammalian cells:** Cell lines, hard-to-transfect & primary cells

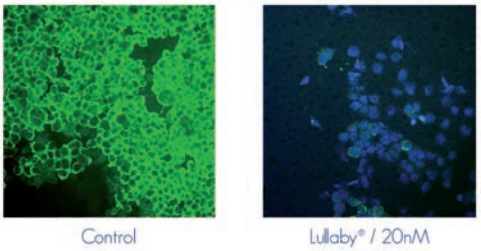
RECOMMENDED APPLICATIONS: siRNA transfection of cell lines. Perfect for High-Throughput Screening.

MAIN FEATURES

- **High reliable and reproducible gene silencing**
- **Effective at multiple siRNA concentrations - Minimize off-target effect**
  Lullaby is efficient starting from 0.1nM of siRNA and optimal at 5 to 10nM, avoiding non-specific effects.
- **Powerful for all cell types. Up to 95% gene silencing**: 293T, 3T6, A549, B16-F0, BHK-21, CHO, COS-7, CV-1, H441, HEK293, HeLa, M1, MCF-7, MDCK, MIA PaCa-2, N2A, NIH-3T3, PC-12, SH-SY5Y, U87, Vero...
- **Flexible and adapted** to all culture conditions
  Lullaby is antibiotics and serum compatible and works over a broad range of cell confluencies (between 20 to 90%).
- **Versatile and convenient** for all siRNA applications
  Tested on various RNAi targets (GAPDH, GFP, Kinase, LacZ, Lamin, Luciferase...) and with synthetic siRNA & shRNA from different suppliers. Suitable for all siRNA applications including endogenous targeting and co-transfections.
- **Rapid & easy procedure**
- **Biodegradable**

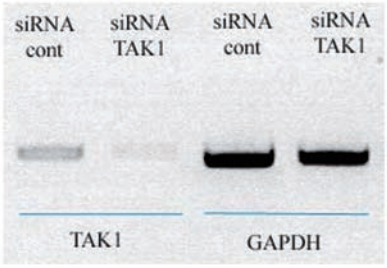
Please consult the technical appendix page 61 for the list of cells successfully tested.

Lullaby ® Efficiency to Target Endogenous Gene in HEK-293: GAPDH

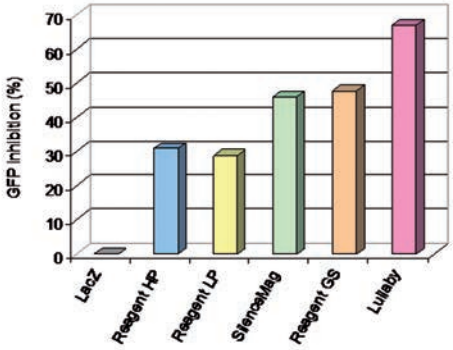


Control | Lullaby® / 20nM

TAK1 kinase inhibition in human pancreatic cells



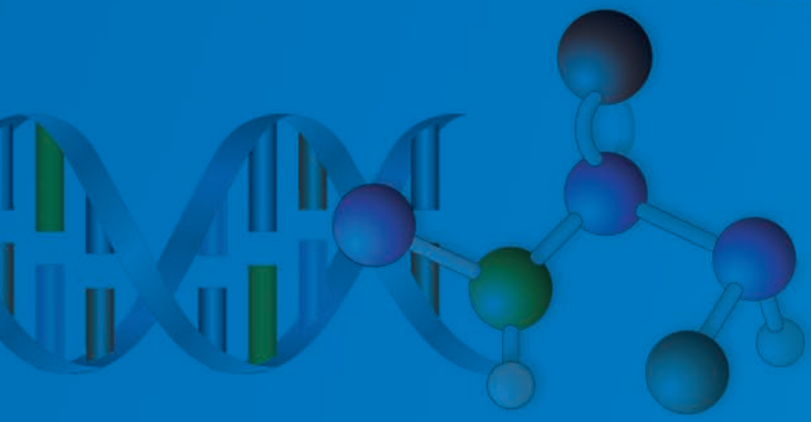
GFP knockdown compared with Competitors on HeLa



Cat. No.	Product	Number of assays
LL70500	Lullaby 500 µL	Up to 1000
LL71000	Lullaby 1 mL	Up to 2000
LL73000	Lullaby 3x1 mL	Up to 6000

OZ BIOSCIENCES

VIRAL APPLICATIONS



Magnetofection™

ViroMag
ViroMag R/L
AdenoMag

CaPO Transfection

CaPO Transfection Kit

i-MICST ™ Technology

Viro-MICST™

ViroMag - Viral transduction enhancer

ViroMag is a versatile reagent offering a solution for many viral applications. ViroMag and virus to be transduced are mixed in a one-step procedure; no molecular biology processes or biochemical modifications are required. This reagent demonstrates an exceptionally high efficiency to promote, control and assist viral transductions. ViroMag is applicable to all viral vectors and presents unique properties due to a specific and optimized magnetic nanoparticles formulation.

APPLICATIONS

- **Suitable for all viral vectors:** Adenovirus, α-virus, Baculovirus, Herpes virus, Lentivirus, Retrovirus, Rhabdovirus, Paramyxovirus, Polyomavirus...
- **Mammalian cells:** Adherent and suspension primary cells, hard to transfect cells and cell lines.

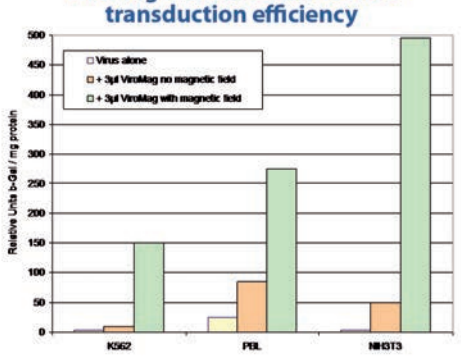
RECOMMENDED APPLICATIONS: To increase viral transduction efficiency without Polybrene.

MAIN FEATURES

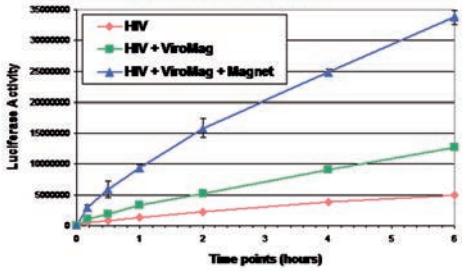
- **Increases viral transduction efficiency**
  Up to 500-fold gene expression enhancement compared to standard infection.
  Suitable for in vivo application.
  Transduction of suspension cells.
- **Improves viral infectious capacity**
  Promotes infection even with very low viral titers/doses
  From 5 to 100-fold infectivity improvement
- **Concentrates viral dose**, promotes and accelerates the infection process
  Increases virus concentration from culture supernatant by 1000 to 4000 fold.
  Increases viral dose concentration on cell surface and uptake by 70-100 fold.
  Accelerates infection.
  Restores transduction efficiency of PEGylated adenovirus by association.
- **Extends the host tropisms to non permissive cells**
  Association of certain viruses with ViroMag is sufficient to force infection of cells lacking viral receptor.
  Enhance ability to transduce in vitro target cells without modifying viruses.
- **Allows synchronization of transduction**
  Synchronize viral cell adsorption (uptake)
  Accurately monitor the kinetics of viral replication cycle
- **Can provide a magnetic targeting**
  Magnetic-field guided local transduction: High transduction can be achieved under magnetic influence and confined to specific area by the magnet shape and position.

Please consult the technical appendix page 59 for the list of cells successfully tested.

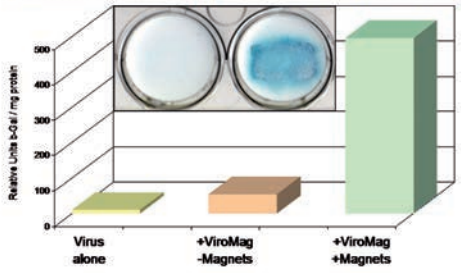
ViroMag increases Adenovirus transduction efficiency



ViroMag accelerates HIV infection process on U87-CD4+ cells



ViroMag allows and increases Adenovirus transduction in non permissive cells (NIH-3T3)



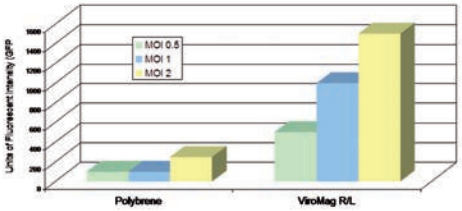
This product is also available fluorescently-labeled with TRITC: FluoMag-V

Cat. No.	Product	Number of assays
VM40100	ViroMag 100 µL	30-500 transductions in 96-well plate
VM40200	ViroMag 200 µL	60-1000 transductions in 96-well plate
VM41000	ViroMag 1 mL	300-5000 transductions in 96-well plate
KC30500	ViroMag Starting Kit	Contains 1 magnetic plate + 200 µL ViroMag

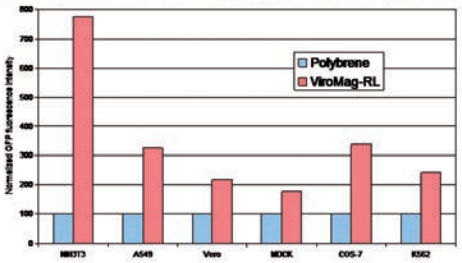
ViroMag R/L - For retroviral and lentiviral applications

ViroMag R/L is a specific reagent dedicated to retroviral and lentiviral applications. ViroMag R/L and virus to be transduced are mixed in a one-step procedure; no molecular biology processes or biochemical modifications are required. This reagent demonstrates an exceptional high efficiency to promote, control and assist viral transductions. ViroMag R/L is applicable to all retroviruses and lentiviruses and presents unique properties due to a specific and optimized magnetic nanoparticles formulation.

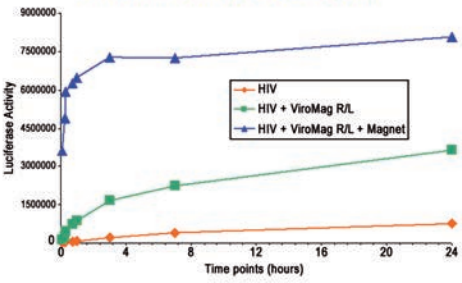
Enhancement of pseudo-SIV (VSV-G) infection with ViroMag R/L on HEK-293



Infection improvement of pseudo VSV-G lentivirus (GFP) with ViroMag R/L on various cells



ViroMag R/L accelerates pseudo VSV-G HIV infection on U87-CD4+ cells



APPLICATIONS

- **Suitable for all retroviral and lentiviral vectors** especially VSV-G pseudo viruses.
- **Mammalian cells:** Cell lines, primary cells, hard to transfect.

RECOMMENDED APPLICATIONS: VSV-G pseudo virus infection.

MAIN FEATURES

- **Increases viral transduction efficiency**
  Up to 100-fold gene expression enhancement.
  Increases percentage of transduced cells.
  Magnetic-field guided local transduction.
  Transduction of a variety of cells.
- **Improves viral infectious capacity**
  Significantly enhances virus infectivity even with very low viral doses.
  From 5 to 100-fold infectivity improvement.
- **Concentrates viral dose**
  Increases retroviral titer from culture supernantant by 1000 to 4000 fold.
  Increases virus concentration on cell surface and uptake by 70-100 fold.
- **Promotes and accelerates the infection process**
  Accelerates infection process.
- **Allows synchronization of transduction**
  Synchronize viral cell adsorption (uptake).
  Accurately monitor the kinetics of viral replication cycle.
- **Can provide a magnetic targeting**
  Magnetic-field guided local transduction: High transduction can be achieved under magnetic influence and confined to specific area by the magnet shape and position.
- **Straightforward and Non toxic**
  No molecular biology or biochemical processes required.

Please consult the technical appendix page 59 for the list of cells successfully tested.

Cat. No.	Product	Number of assays
RL40100	ViroMag R/L 100 µL	30-500 transductions in 96-well plate
RL40200	ViroMag R/L 200 µL	60-1000 transductions in 96-well plate
RL41000	ViroMag R/L 1 mL	300-5000 transductions in 96-well plate
KC30700	ViroMag R/L Starting Kit	Contains 1 magnetic plate + 200 µL ViroMag

AdenoMag - Adenovirus & AAV infection enhancer

AdenoMag is a magnetic nanoparticles based reagent dedicated to enhance Adenovirus and Adeno Associated Virus (AAV) infection. It allows to concentrate rapidly all viral particles onto cells. AdenoMag permits to improve significantly virus infectivity with extremely low vector doses. Due to its specific properties, AdenoMag is ideal to infect non permissive cells. No molecular biology processes or biochemical modifications are required.

MAGNETOFECTION™

APPLICATIONS

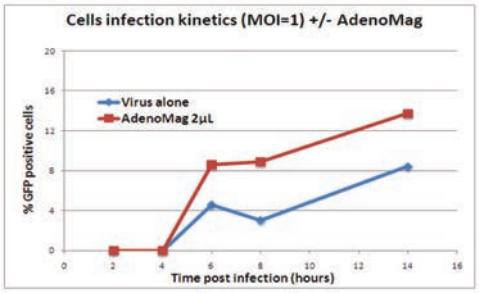
- Suitable for all adenoviral and AAV vectors
- **Mammalian cells:** cell lines, primary cells, hard-to-transfect & non-permissive cells

RECOMMENDED APPLICATIONS: Adenovirus and adeno-associated-virus transductions in vivo & in vitro

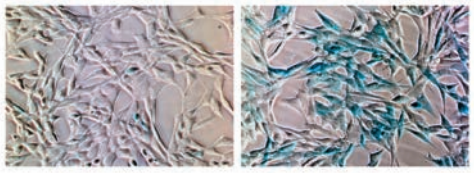
MAIN FEATURES

- **Increases transduction efficiency:** the combination of superparamagnetic nanoparticles with adenovirus has shown up to 500-fold enhancement of gene expression compared with standard infection.
- **Concentrates viral dose**, promotes and accelerates the infection process. Improves viral infectious capacity.
- **Significant enhancement** of adenovirus infectivity can be achieved with the use of magnetic nanoparticles.
- **Extends the host tropisms** of viral vectors to non-permissive cells. The association of viral vectors with magnetic nanoparticles is sufficient to permit infection of non-permissive cells.
- **Provides a magnetic targeting**: high transduction efficiency can be achieved under magnetic influence and a specific targeting to define area can be done. Indeed, magnetic targeting localized to specific area linked to the magnet size and shape has been demonstrated for adenovirus and AAV.

Concentrate viral dose and accelerate infection in HEK-293 cells

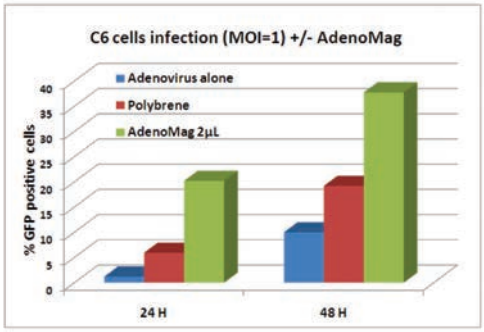


Comparison of NIH-3T3 infection with or without AdenoMag



Virus alone | Virus + AdenoMag

AdenoMag increases infection at MOI:1



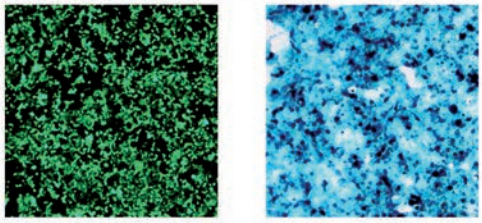
Cat. No.	Product	Number of assays*
AM70100	AdenoMag 100 µL	500-1000 transductions in 96-well plate
AM70200	AdenoMag 200 µL	1000-2000 transductions in 96-well plate
AM71000	AdenoMag 1 mL	5000-10000 transductions in 96-well plate
KC30900	AdenoMag Starting Kit	Contains 1 magnetic plate + 200 µL AdenoMag

*Based on MOI of 1 for 10^4 cells/well

Calcium Phosphate Transfection Kit - Ideal Method for virus production

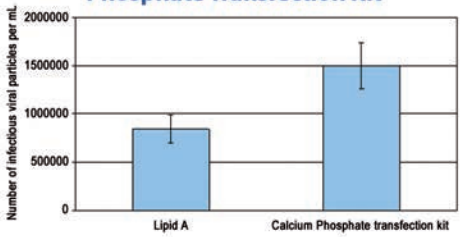
Calcium Phosphate Transfection Kit is perfect to transfect HEK 293 cells. This transfection method, first described by Graham and Van Der Ebb in 1973, has been optimized in order to reach higher transfection efficiency. The CaPO transfection kit is simple and easy to use. It allows reaching between 95 and 100% of HEK 293 transfected cells and a very high titer for virus production.

HEK-293 cells transfected with the Calcium Phosphate Transfection Kit

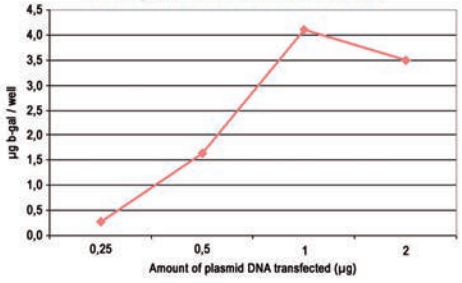


GFP ß-galactosidase

Virus production with the Calcium Phosphate Transfection Kit



Protein production with the Calcium Phosphate Transfection Kit



APPLICATIONS

- **The ideal method** for HEK 293 cells transfection: Calcium Phosphate Transfection Kit is optimized for the transfection of HEK 293 cells with plasmid DNA.
  CaPO Transfection Kit is also appropriate for a variety of immortalized cell lines such as CHO and COS.

RECOMMENDED APPLICATIONS: Production of viral vectors and proteins.

MAIN FEATURES

- Ideal for virus production.
- High HEK 293 cells transfection efficiency.
- Suitable for producing recombinant proteins.
- Serum compatible.
- Simple, Ready-to-use and Rapid:
  1. Plate the cells in DMEM and incubate overnight
  2. Change tissue culture medium 1-2h before transfection
  3. Prepare the DNA solution in 1X HBS
  4. Add the Calcium Chloride solution, mix and incubate 30 min
  5. Add the complexes drop wise to your cells
- Principal Calcium Phosphate Transfection Kit advantages:
  Compaction of DNA in nanoparticles efficiently internalized by cells. Protection of nucleic acids against nucleases degradation. Modified and optimized to reach higher transfection level. Ready to use.

Cat. No.	Product	Number of assays
CP90000	CaPO Transfection Kit	100 in 100mm culture dishes with 1µg of DNA

CaPO TRANSFECTION

Viro-MICST™ - Efficient and specific target cells transduction

i-MICST™ Technology (integrated Magnetic Immuno-Cell Sorting and Transfection/ Transduction) is a new platform that allows to genetically modify cells directly on magnetic cell purification columns. This technology combines cell isolation and genetic modification in one simple, efficient and reliable integrated system.
Designed for i-MICST™ Technology, the Viro-MICST™ reagent allows efficient and specific transduction of target cells directly on magnetic cell-purification columns. (*For more information see p.11*)
Ideal for sensitive cell types such as primary and stem cells, Viro-MICST™ leads to an increase in the transduction efficiency with low-titer virus preparations compared to regular transduction methods.

APPLICATIONS

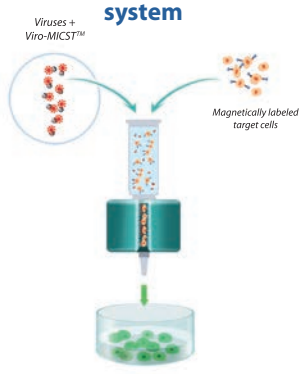
- **Suitable for all viruses:** including AAV, Adenovirus, Lentivirus and Retrovirus
- **Mammalian cells:** Adherent and suspension cells, primary and hard-to-transfect cells, cell lines, sensitive cells.

RECOMMENDED APPLICATIONS: Transduction/ Infection of cells during magnetic cell purification

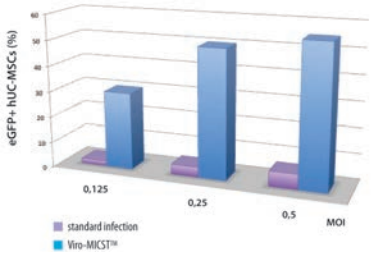
MAIN FEATURES

- **Isolation and transduction of cells** in one reliable integrated system
  Reduce cell manipulation steps, minimize cell stress and save time.
  Ideal for sensitive cell types such as primary and stem cells.
- **High and increased transduction efficiency**
  Benefit from high transduction efficiency with low Multiplicity of Infection (MOI) during magnetic cell separation.
  Save vector material.
- **Acceleration of the transduction process** and synchronization of adsorption
- **Cell phenotype maintained**
  Cells maintain their differentiation potential after using Viro-MICST procedure.

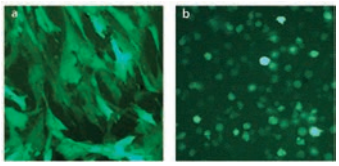
Integrated Magnetic Immuno-Cell Sorting and Transduction in one single system



hUC-MSC lentiviral transduction improved by Viro-MICST



Various cells infected with the Viro-MICST procedure

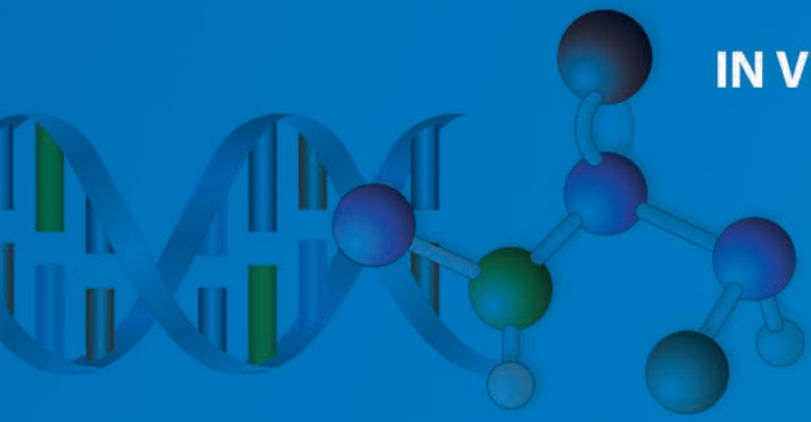


a: Mesenchymal Stem Cells - b: Jurkat cells

Cat. No.	Product	Number of transductions per small column*
VMX250	Viro-MICST 250µL	25-50
VMX500	Viro-MICST 500 µL	50-100
VMX1000	Viro-MICST 1000 µL	100-200

*Based on MOI of 1 for 10^6 labeled-cells/column

OZ BIOSCIENCES



IN VIVO DELIVERY

In Vivo Magnetofection™

In Vivo Transfection
In Vivo Infection

In vivo Transfection - *In vivo* targeted gene delivery

In vivo Magnetofection™ has been designed for *in vivo* targeted transfection of various types of nucleic acids. This original system combines magnetic nanoparticles and nucleic acid vectors that will be retained after injection at the magnetically targeted site

Two types of ready-to-use *In vivo* Magnetofection™ reagents are offered:

- In vivo PolyMag is a cationic polymer-based magnetic nanoparticles formulation.
- In vivo DogtorMag, a cationic lipid-based magnetic nanoparticles formulation. It associates Dogtor, a specific cationic lipid, and CombiMag magnetic nanoparticles.

APPLICATIONS

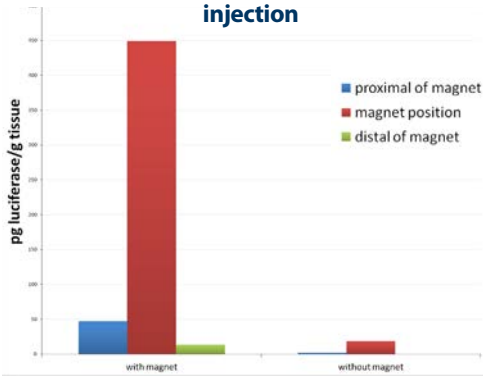
- **Suitable for various types of nucleic acids:** Plasmid DNA, siRNA, oligonucleotide, mRNA, shRNA etc...
- **Several routes of administration:**
  - Systemic administration (intravenous, intra-artery)
  - Local administration (intratumoral, intracerebroventricular, intraperitoneal, intramuscular, subcutaneous).

RECOMMENDED APPLICATIONS: *In vivo* targeted transfection

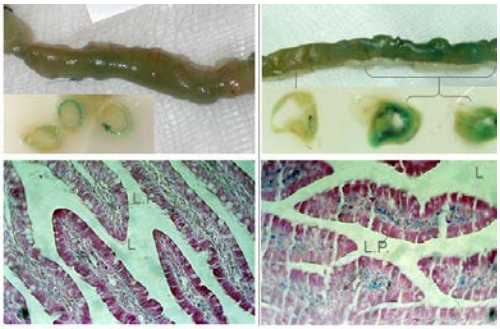
MAIN FEATURES

- **Increased transfection efficiency**
  The magnetic forces enhance the uptake of magnetic nanoparticles by the target tissue and thus improve the efficiency of transfection.
- **Magnetically targeted transfection** to specific area
- **Reduction of the systemic dissemination** of vectors during injection
  Targeted delivery minimizes systemic distribution, decreases gene vectors inactivation and reduces toxicity.
- **Universal - Suitable for all nucleic acids**
  Gene delivery / ODN delivery / Gene silencing
- **Non toxic**
  In vivo Magnetofection magnetic nanoparticles are non-toxic, biodegradable and totally biocompatible.

High efficiency of In vivo PolyMag for targeted gene delivery after IV injection



High efficiency for DNA delivery in hard-to-transfect tissue



Transfection with in vivo PolyMag in rat intestine

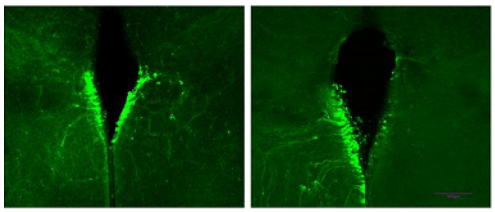
Cat. No.	Product	Number of injections
IV-PN30500	In vivo PolyMag 500µL	5-50
IV-PN31000	In vivo PolyMag 1000 µL	10-100
IV-KC30210	In vivo PolyMag Starting Kit	Contains 1 Magnets set + 500µL In vivo PolyMag
IV-DM30500	In vivo DogtorMag 500µL	5-50
IV-DM31000	In vivo DogtorMag 1000 µL	10-100
IV-KC30220	In vivo DogtorMag Starting Kit	Magnets set + 500µL In vivo Dogtor & in vivo CombiMag

Magnet set contains 1 extra small cylinder (ø 2 mm), 1 small cylinder (ø 5 mm), 1 cylinder (ø 10 mm) and 1 square (18x18 mm) magnets

In vivo Infection - *In vivo* targeted infection

In vivo ViroMag has been designed to improve and target *in vivo* viral infection. This reagent is an optimized nanoparticles formulation dedicated to viral vectors.
This original system combines magnetic nanoparticles and viral vectors that will be confined at the magnetically targeted site after injection.

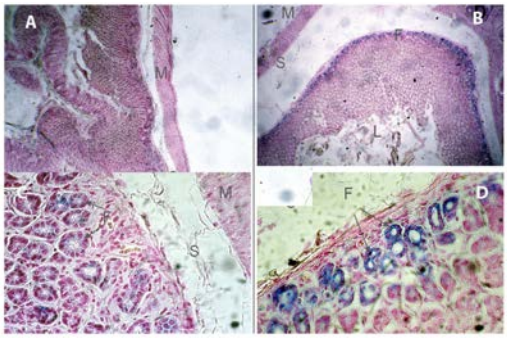
High efficiency of In vivo ViroMag for targeted delivery of viral vector after icv injection.



Without in vivo AdenoMag | With in vivo AdenoMag

In vivo ViroMag enhances adenovirus transduction.
Infection is confined and directed towards the magnetic field.

High infection efficiency in mouse stomach with In vivo ViroMag



In the absence of a magnetic field, gene delivery occurred in only a few transfected cells (A,C), while exposure to a magnet for 20 min produces strong and widespread transgene expression (X-gal staining) in the crypts of the fundic glands 4 days after gene delivery (B,D)

APPLICATIONS

- **Suitable for all types of virus:** It is particularly suitable for Lentiviral/Retroviral, Adenoviral and Adeno-Associated Viral (AAV) vectors.
- **Several routes of administration:**
  - Systemic administration (intravenous, intra-artery)
  - Local administration (intratumoral, intracerebroventricular, intraperitoneal, intramuscular, subcutaneous).

RECOMMENDED APPLICATIONS: *In vivo* targeted infection

MAIN FEATURES

- **Increased transduction /infection efficiency**
  The magnetic forces enhance the uptake of magnetic nanoparticles by the target tissue and thus improve the efficiency of infection.
- **Magnetically targeted transfection to specific area**
- **Reduction of virus titer and systemic dissemination**
  Targeted delivery minimizes systemic distribution, allows reduction of the vector doses and reduces toxicity.
- **Non toxic**
  In vivo ViroMag is non-toxic, biodegradable and totally biocompatible.

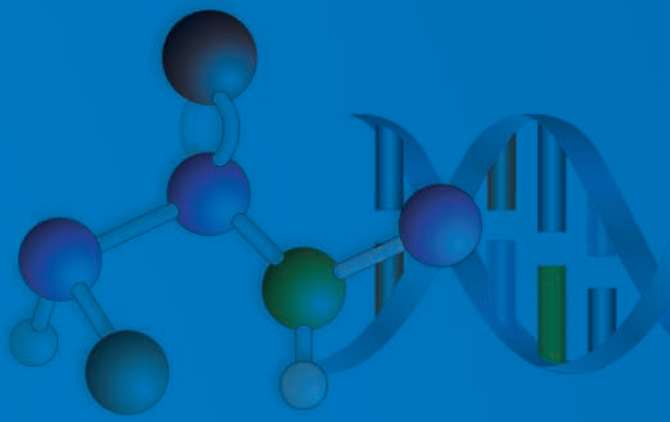
Cat. No.	Product	Number of injections
IV-VM30250	In vivo ViroMag 250µL	10-25
IV-VM30500	In vivo ViroMag 500 µL	20-50
IV-KC30230	In vivo ViroMag Starting Kit	Contains 1 Magnets set + 250µL In vivo ViroMag

Magnet set contains 1 extra small cylinder (ø 2 mm), 1 small cylinder (ø 5 mm), 1 cylinder (ø 10 mm) and 1 square (18x18 mm) magnets

OZ BIOSCIENCES

3D-TRANSFECTION

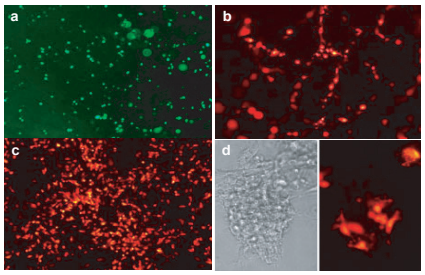
3D-Fect™
3D-FectIN™



3D-FectIN™ - A novel perspective for your cells!

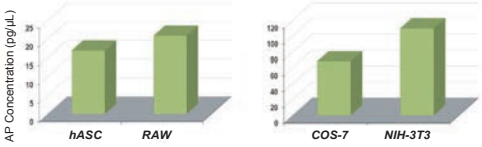
3D-FectIN™ is a new transfection technology specially engineered to directly transfect cells cultured in 3D hydrogel. 3D-FectIN™ adds a third dimension to cell culture!
3D matrices allow cells to grow in a micro-environment that more closely mimics the 3D environment encountered by cells in vivo. Thus, hydrogel-based 3D matrices combined with 3D-FectIN/DNA complexes allow cells to be directly transfected in more natural surroundings.

Cells transfected in hydrogels

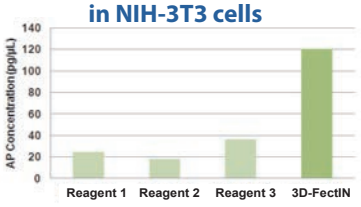


a. Raw 264.7 - b. HMEC-1 - c. HEK-293T - d. Neural Stem

High expression of secreted alkaline phosphatase



Transfection efficiency comparison in NIH-3T3 cells



APPLICATIONS

- **Angiogenesis, tube and acini formation**, colonization, neurite growth, tissue engineering, tissue regeneration, tumor invasion, neural differentiation, cellular polarization, tissue formation....

MAIN FEATURES

- **Great efficiency on a variety of cells:**
  3D-FectIN™ is highly efficient and suitable for immortalized and primary cells. Transgene expression is high and long-lasting.

- **Versatile and universal:**
  It is adapted to all culture conditions and suitable for all nucleic acids (DNA, shRNA, siRNA...).

- **Specific for any hydrogel supporting 3D culture:**
  Examples of 3D-Hydrogels successfully tested:

Collagen-Based Hydrogels
Collagen-Derived Hydrogels
Hyaluronic Acid
Extracellular Matrix (ECM)
Fibrin / Fibronectin
Fibrinogen
Laminin
Matrigel ™ (BD Biosciences)
PEGylated hydrogels

- **Non toxic and serum compatible:**
  3D-FectIN™ is biodegradable. It does not affect cell growth and is compatible with serum and any culture medium.

Cat. No.	Product	Number of transfections with 1 µg of DNA
TN30250	3D-FectIN 250 µL	Up to 65
TN30500	3D-FectIN 500 µL	Up to 125
TN31000	3D-FectIN 1000 µL	Up to 250

3D-Fect™ - A new outlook for your cells!

3D-Fect™ is a novel reagent, based on an innovative technology, specifically developed to directly transfect cells cultured in 3D scaffold.
3D matrices not only add a third dimension to cells environment, they also allow creating significant differences in cellular characteristics and behavior. In this way, scaffold-based 3D matrices combined with 3D-Fect/DNA complexes are colonized by cells to be transfected in a more natural environment.

APPLICATIONS

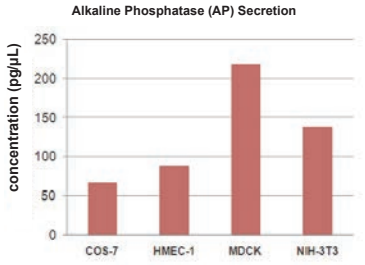
- **Tissue engineering,** tissue regeneration, tumor invasion, neural differentiation, cellular polarization, tissue formation, colonization, neurite growth....

MAIN FEATURES

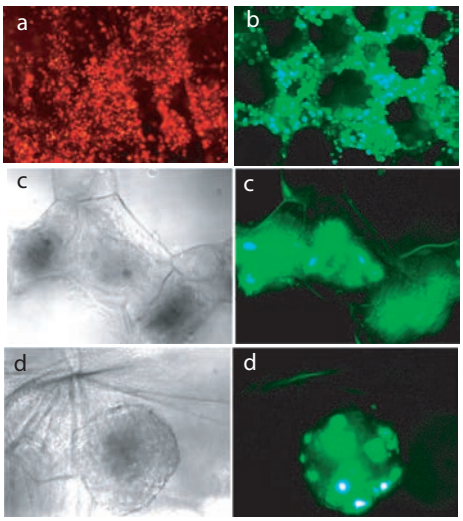
- **Highly efficient on cell lines & primary cells:**
  3D-Fect™ has been tested on a wide range of cells and achieves high transfection efficiencies. It is suitable for all culture conditions and does not affect matrix colonization and cell growth.
- **Suitable for all nucleic acids:**
  This reagent is applicable for DNA, shRNA and siRNA transfection.
- **Gentle to cells:**
  3D-Fect™ is biodegradable and allows high cell viability. It is serum compatible, thus no medium change is required.
- **Long term protein expression:**
  3D-Fect™ allows 3D trangene expression studies in *in vivo* like conditions over a long time period.
- **Specific for 3D-Scaffolds**
  Examples of 3D-Scaffolds successfully tested:

Collagen-based Scaffolds
Collagen-derived Scaffolds
Hyaluronic Acid
Millicell™ (PTFE) (Millipore)
Polycaprolactone
Poly(Ethylene Glycol)
Poly(lactic-co-glycolic acid)
Poly(Styrene)
Poly(Urethane)

Cells transfected in a collagen-based 3D-Scaffold

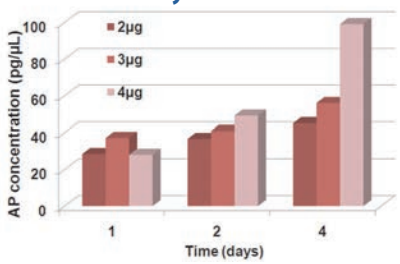


Cells transfected on various 3D-Scaffold



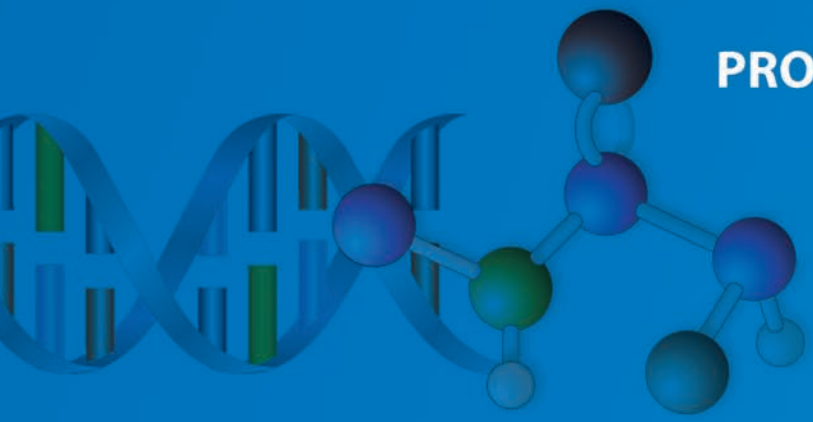
a. HEK-293T - b. HeLa - c. MEF - d. Neural Stem Cells

Alkaline Phosphatase (AP) Secretion by HMEC



Cat. No.	Product	Number of transfections with 1 µg of DNA
TF20250	3D-Fect 250µL	Up to 65
TF20500	3D-Fect 500 µL	Up to 125
TF21000	3D-Fect 1000 µL	Up to 250

OZ BIOSCIENCES



PROTEIN DELIVERY

Lipofection

Pro-DeliverIN™
Ab-DeliverIN™

Pro-DeliverIN™ - Protein delivery reagent

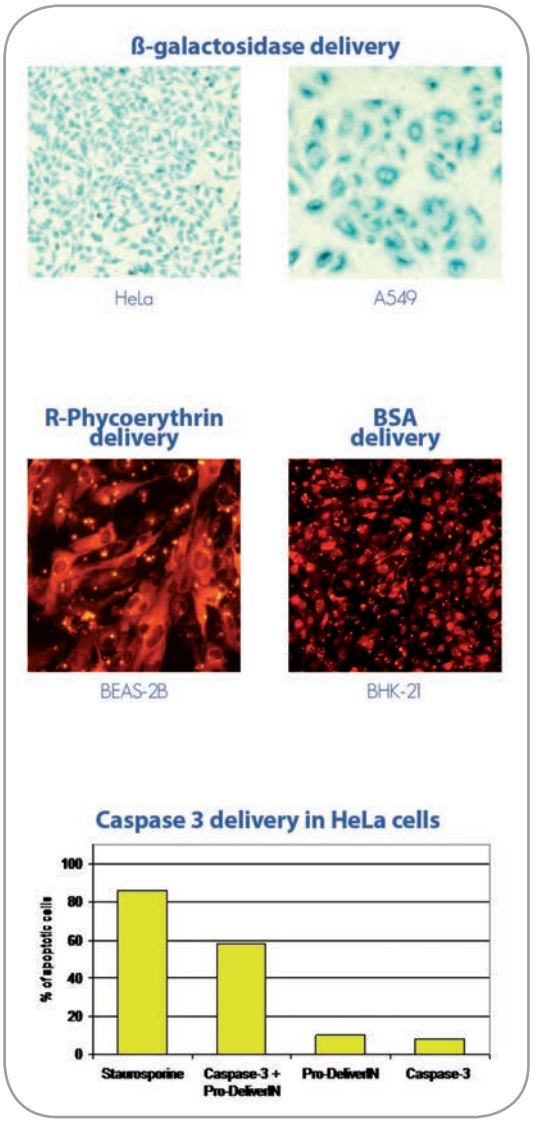
Pro-DeliverIN™ is an innovative reagent allowing intracellular delivery of biologically active proteins. This lipid-based formulation is the first serum compatible reagent to deliver functional proteins into living cells. The proteins delivered inside cells retain their structure and function.

APPLICATIONS

Due to its specific properties, it is able to capture proteins through electrostatic and hydrophobic interactions. Consequently, there are no needs of covalent linking (chemical or genetic). Pro-DeliverIN™ allows studying specific protein function, protein localization, protein-protein interactions, enlightening new molecular mechanisms...

MAIN FEATURES

- **Functionally active protein delivery:** Permits the delivery of a functional protein, making possible the study of complex molecular mechanisms such as apoptosis, cell division...
- **Highly efficient in many primary cells and cell lines:** Proteins are efficiently delivered in the cytoplasm of a large number of living cells including primary cells (non dividing cells). For example, 3T6, A549, COS-1, HaCat, HeLa, Jurkat, L929, MDCK, N2A, U87...
- **Serum compatible:** It is compatible with serum containing culture media. You can obtain a significant amount of protein transported with no medium change which is less stressful for your cells.
- **Fast delivery:** The proteins are transported inside cells in 3 to 4 hours.
- **Biodegradable and high cell viability.** This reagent is fully biodegradable and does not interfere with cellular mechanisms.
- **Easy, straightforward protocol and ready-to-use.**

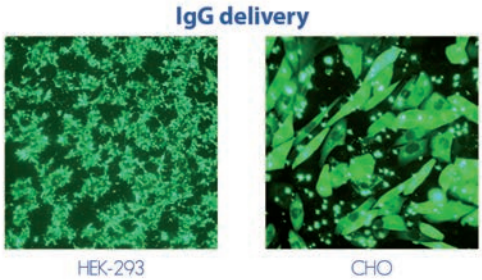


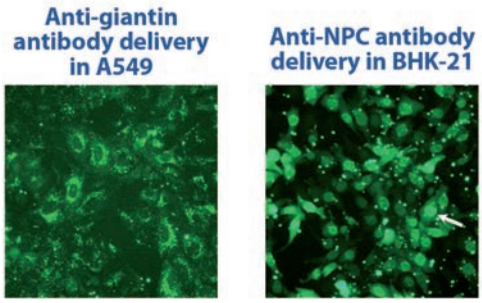
Please consult the technical appendix page 61 for the list of cells successfully tested.

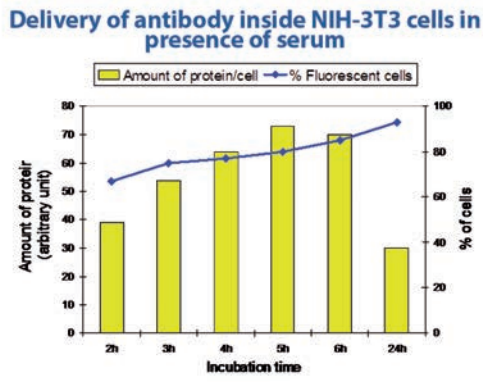
Cat. No.	Product	Number of assays
PI10100	Pro-DeliverIN 100 µL	50-100
PI10250	Pro-DeliverIN 250 µL	125-250
PI10500	Pro-DeliverIN 500 µL	250-500
PI11000	Pro-DeliverIN 1mL	500-1000

Ab-DeliverIN™ - Antibody Delivery System

Ab-DeliverIN™ is the first dedicated intracellular antibody delivery reagent. This lipid-based formulation is the sole serum compatible reagent allowing the delivery of functional antibodies into living cells. The antibodies transported in cells are functional and can reach their intracellular target.







APPLICATIONS

Due to its unique properties, Ab-DeliverIN™ forms non-covalent complexes with antibodies through electrostatic and hydrophobic interactions. Chemical or genetic couplings are not necessary. In addition, delivered antibodies retain their structure and function. This feature makes Ab-DeliverIN™ an exclusive reagent allowing the antibody to reach its intracellular target.
Ab-DeliverIN™ opens new fields of investigation in proteomics to elucidate complex molecular mechanisms or to design new potential therapies.

MAIN FEATURES

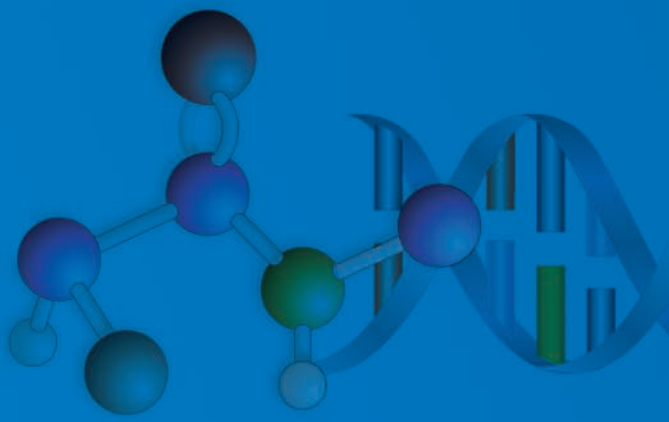
- **Functionally active antibody delivery:** Permits the delivery of a functional antibody, making possible intracellular staining and protein localization studies.
- **Highly efficient in many primary cells and cell lines:** permits the delivery of antibodies in a large number of immortalized and primary cells including 3T6, NIH3T3, primary neurons and glial cells....
- **Suitable for all antibodies**
- **Serum compatible and fast:** It is compatible with serum containing culture media. You can obtain a significant amount of antibody transported with no medium change which is less stressful for your cells. In vitro and in vivo experiments can be directly and quickly accomplished. Highest efficiencies can be achieved in less than 5 hours.
- **Biodegradable and no cytotoxicity:** Ab-DeliverIN™ does not interfere with cellular mechanisms.
- **Easy:** Straightforward protocol and ready-to-use.

Please consult the technical appendix page 61 for the list of cells successfully tested.

Cat. No.	Product	Number of assays
AI20100	Ab-DeliverIN 100 µL	50-100
AI20250	Ab-DeliverIN 250 µL	125-250
AI20500	Ab-DeliverIN 500 µL	250-500
AI21000	Ab-DeliverIN 1mL	500-1000

OZ BIOSCIENCES

GENE & PROTEIN TOOLS

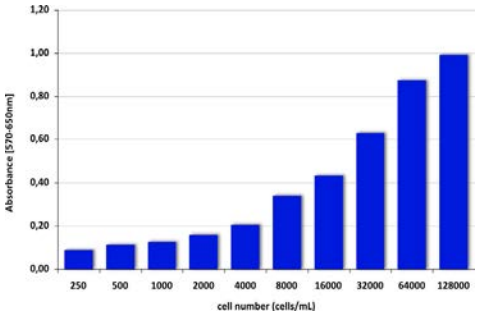


MTT Cell Proliferation Kit
Bradford Pak
β-gal Assays
X-gal Staining
Gene Blaster ™
DNA Marker
siRNA
Plasmids
D-Luciferin
X-Gal Substrate
G418 Sulfate
Design your own magnetic delivery system: SelfMag

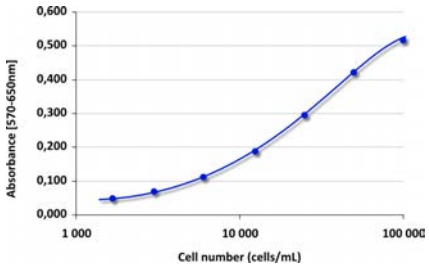
MTT Cell Proliferation Kit

The MTT Cell Proliferation Kit is designed for spectrophotometric quantification of cell growth, viability and proliferation and can be used as a direct indicator of cytotoxicity and apoptosis.

Assay Sensitivity – Adherent cells

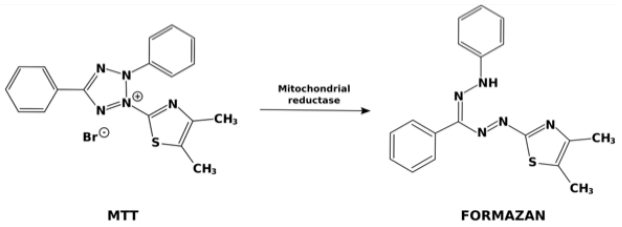


Assay Sensitivity – Suspension cells



APPLICATIONS

- **The MTT Cell Proliferation Kit is a colorimetric assay** for measuring the mitochondrial reductases activities in living cells. It is based on the conversion of membrane-permeable yellow tetrazolium salt MTT to blue/purple formazan crystals by metabolically active cells.



- **Spectrophotometric measurement** of MTT-formazan at 570 nm.
- **Accurate measurement of cell viability.**

RECOMMENDED APPLICATIONS: Direct indicator of cytotoxicity and cell viability.

MAIN FEATURES

- **Easy and Ready to use**: no additional reagents are required to prepare the solubilization solution and no need to prepare the MTT stock solution.
- **Accurate**: The absorbance signal produced correlates with the cell number
- **Convenient packaging** for easier storage and to avoid repeated freeze/thaw cycles. (10 aliquots of 1 mL)
- **Economical**

Cat. No.	Product
MT01000	MTT Cell Proliferation Kit (Up to 1000 assays in 96-well plate format)

Bradford Pak - Bradford Protein Assay Kit

The Bradford Protein assay kit (B-Pak) is a straightforward and rapid procedure for determining the concentration of protein in solution. The B-Pak is based on the binding of Coomassie Brilliant Blue G-250 dye to the proteins and particularly to basic and aromatic amino acids residues. The dye exists in three forms: cationic (red), neutral (green) and anionic (blue).

APPLICATIONS

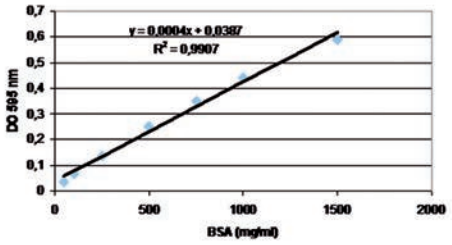
- **Under acidic conditions**, the dye is predominantly in the protonated cationic form (red, λmax = 470nm). When the dye binds to proteins, it is converted to a stable unprotonated form (blue, λmax = 595nm). It is this blue unprotonated form that is detected at 595 nm to quantify the concentration of proteins.

RECOMMENDED APPLICATIONS: Perfect for measuring protein concentration in solution or cell lysates.

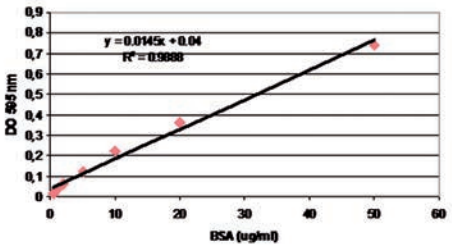
MAIN FEATURES

- **Accurate determination of protein concentration:** kit allows an accurate determination of protein concentration, even in the presence of detergent (0.1%). It is possible to determine total protein concentration in cell lysate or recombinant proteins stored in the presence of detergent. This Bradford Pak permits the determination of protein concentration ranging from 0.5 to 1500 µg/mL with a very high accuracy.
- **Protocols adapted for all assays (micro and macro).**
- **Improved 1X Bradford reagent.**
- **Ready-to-use prediluted standard protein:** This ready-to-use kit is provided with 1X reagent & prediluted standard (2 sets of bovine serum albumin) which means that no dilution, no filtration or calculation are required. Simply process your assay in a few minutes.
- **Very economical.**
- **Convenient packaging** for easier storage.

Standard curve for high protein amount



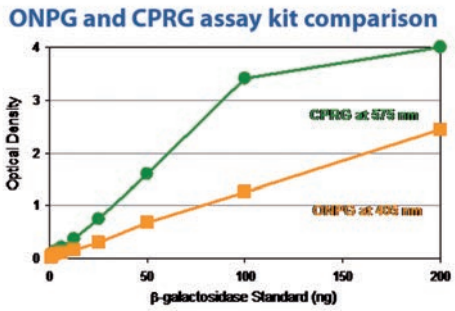
Standard curve for low protein amount



Cat. No.	Product
BA00100	B-Pak, Bradford-Protein Assay Kit
BA00050	Bradford Reagent (3570 to 5000 assays)
BA00070	BSA standard (2 sets)

β-gal Assays - ONPG and CPRG β-Galactosidase assays

Lac Z is one of the most frequently reporter gene used in transfection experiments because of the gene product specific properties. Indeed, the Lac Z encoded protein, Beta-galactosidase (β-gal), which hydrolyses galactoside sugars such as lactose, is very stable, resistant to proteolytic degradation and easily tested.



CPRG β-galactosidase assay kit

Simple, rapid and easy-to-use

Economical

Optimized with stable buffer

APPLICATIONS

- **All the necessary reagents** are provided in these assay kits and offer rapid, simple and sensitive method to quantify spectrophotometrically the enzyme expression level in transfected cells.
  OZ Biosciences has developed two optimized kits based on the use of ONPG or CPRG substrates.

RECOMMENDED APPLICATIONS: Monitoring the enzyme expression level in any cell and tissue.

MAIN FEATURES

- **Convenient for all transfection assays.**
- **Suitable for cultured cells and tissues.**

DIFFERENCE BETWEEN ONPG AND CPRG SUBSTRATES

- **ONPG β-galactosidase assay kit:** Ideal for quantitatively measurung high expression level of β-gal. The level of active β-gal expression can be quickly measured by its catalytic hydrolysis of ONPG (o-nitrophenyl-β-D-galactopyranoside)substrate to a bright yellow product. (Absorbance at 405-420nm).
- **CPRG β-galactosidase assay kit:** Ideal for quantitatively measuring low expression level of β-gal. The level of active β-gal expression can be quickly measured by its catalytic hydrolysis of CPRG (Chlorophenol red-β-D-galactopyranoside) substrate to a dark red product. The high sensitivity of this substrate improves the measurement of β-gal activity when the reporter gene expression is low. (Absorbance at 570-595 nm).
- **Each kit is provided with sufficient reagents** to perform 500 micro assays in 96-well plate.

Cat. No.	Product
GO10001	β-galactosidase assay kit with ONPG (500 assays)
GC10002	β-galactosidase assay kit with CPRG (500 assays)

X-Gal Staining Kit - Lac Z Staining reagent

Lac Z is one of the most frequently reporter gene used in transfection experiments because of the gene product specific properties. Indeed, the Lac Z encoded protein, β-galactosidase (β-gal), which hydrolyses galactoside sugars such as lactose, is very stable, resistant to proteolytic degradation and easily tested. This X-gal Staining Kit allows you to visualize histochemically β-gal expression, though hydrolysis of X-gal (5-bromo-4-chloro-3-indoyl-β-D-galactopyranoside) which yields a blue precipitate.

APPLICATIONS

- **All the necessary reagents are provided in this assay kit** and offer a rapid, simple and sensitive method to determine the percentage of Lac Z transfected cells.

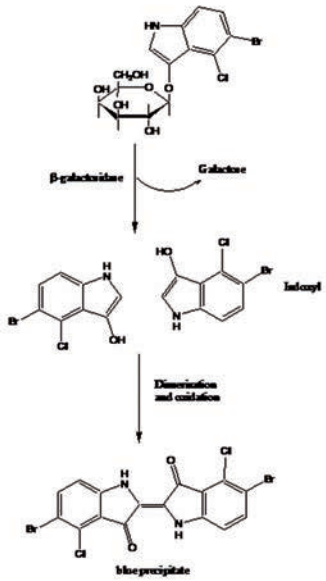
  Consequently, cells transfected with β-gal expressing plasmid appear blue following fixation and incubation with X-Gal substrate. Blue cells can be visualized by microscopy.

RECOMMENDED APPLICATIONS: Determination of Lac Z transfected cells in vitro and in vivo (tissue/organ).

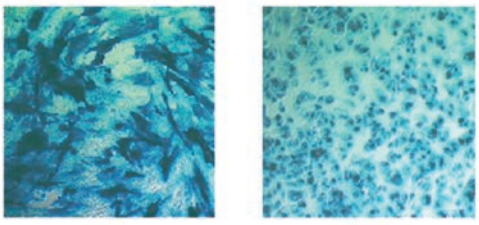
MAIN FEATURES

- Convenient for all transfection assays.
- Suitable for cultured cells and tissues.
- Simple, rapid and easy-to-use.
- Economical.
- Optimized with stable buffer.

Action of β-galactosidase on X-Gal
(5-bromo-4-chloro-3-indoyl-ß-D-Galactopyranoside) substrate



X-gal staining in cells transfected with Lac Z

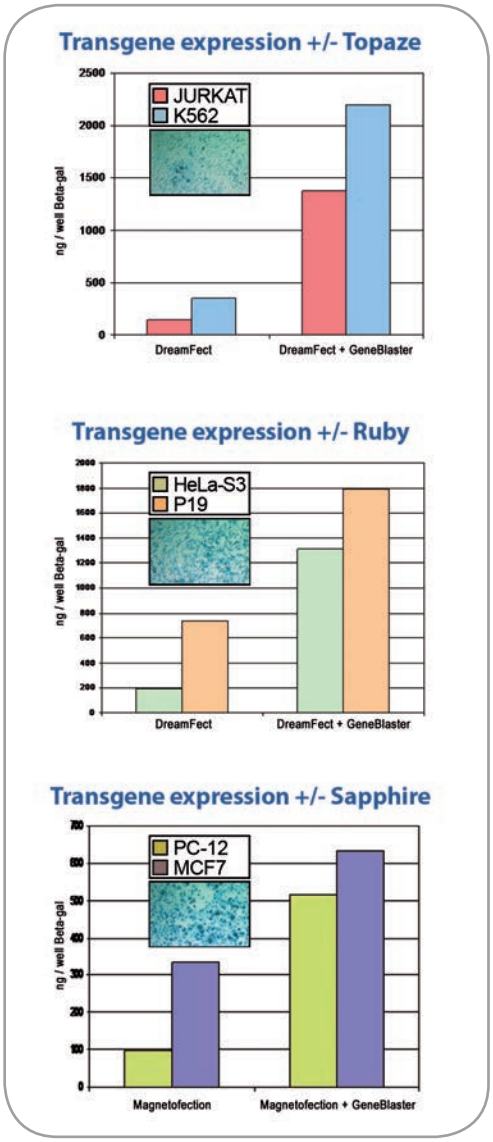


BHK MCF-7

Cat. No.	Product
GX10003	X-gal staining kit (50 assays)

Gene Blaster™ - Improve your transgene expression

To optimize your transfection experiments, OZ Biosciences has created GeneBlaster™: an innovative and efficient solution to improve gene expression levels. GeneBlaster™ kits are a set of chemicals designed to get higher and longer transgene expression levels. Since the application of the GeneBlaster™ kits is cell type and promoter dependent, four complementary formulations have been developed accordingly.



APPLICATIONS

These reagents offer solutions adapted to your scientific needs and cell sensibilities:

- GeneBlaster™ Ruby: developed for adherent cells.
- GeneBlaster™ Sapphire: developed for adherent cells, complementing the Ruby.
- GeneBlaster™ Topaz: developed for suspension cells, especially hematopoietic and suspension cells.
- GeneBlaster™ Emerald: developed to improve transfection efficiency in Neurons.

RECOMMENDED APPLICATIONS: Improve and lengthen gene expression level in adherent and suspension cells.

MAIN FEATURES

- Highest gene expression in many cells.
- Convenient for a large panel of adherent and suspension cells.
- Prolong in vitro gene expression: Allows you to achieve higher (x2 to x15) and durable gene expression levels. The quantities of available materials promote further analysis required to pursue your research studies in a comfortable manner: purification, dosage, activity measures, and stability studies.
- Successful with all vectors.
- Simple, rapid and easy-to-use: Add the appropriate GeneBlaster™ reagent to your culture medium 4 hours post-transfection.
- Economical: Can be used with all commercially available transfection reagents.

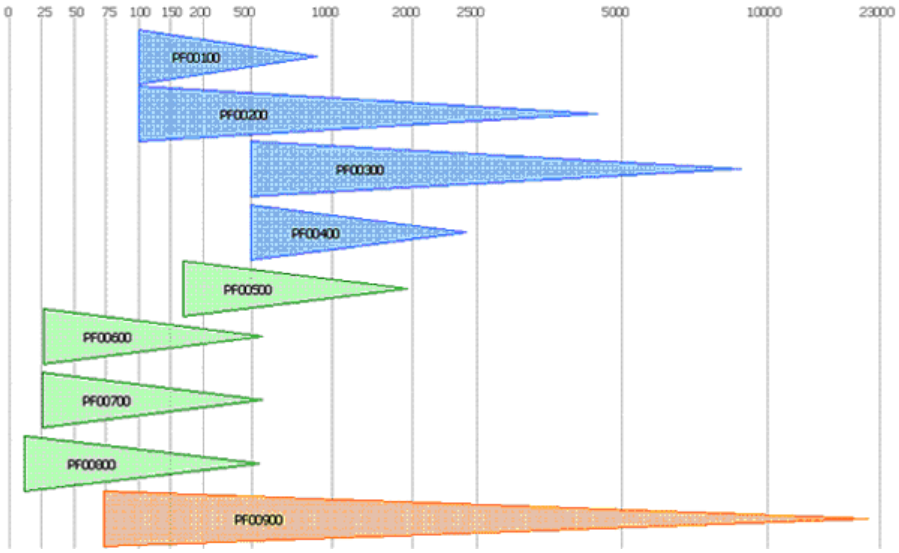
Cat. No.	Product	Kit contain
GB20010	Selection Kit	1.5 mL vial of each reagent
GB20011	GeneBlaster Ruby	3 x 1.5 mL, 450 assays
GB20012	GeneBlaster Sapphire	3 x 1.5 mL, 450 assays
GB20013	GeneBlaster Topaz	3 x 1.5 mL, 450 assays
GB20014	GeneBlaster Emerald	3 x 1.5 mL, 225 assays

For an updated list of product citations, please visit: www.ozbiosciences.com

DNA Markers - Plasmid DNA Markers

All markers are produced from certified high quality plasmid DNA employing nuclease-poor host bacteria. In addition the DNA fragments are further purified by de-proteination and desalting before being aliquoted and lyophilized. Their concentration is adjusted, so that each vial contains 50µg of DNA.

SIZE RANGE OF DNA MARKERS

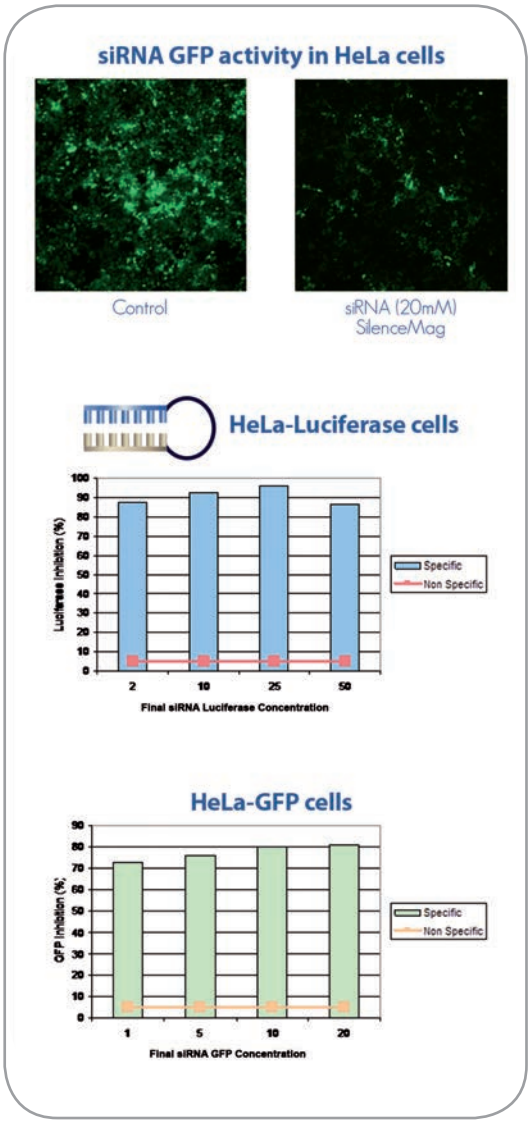


- **100bp DNA ladder (100 - 1000 bp)**
  Fragments: 1000 - 900 - 800 - 700 - 600 - 500 (2x) - 400 - 300 - 200 - 150 - 100 bp
- **100bp DNA ladder PLUS (100 - 5000 bp)**
  Fragments: 5000 - 4000 - 3000 - 2500 - 2000 - 1500 - 1000 - 900 - 800 - 700 - 600 - 500 (2x) 400 - 300 - 200 - 150 - 100 bp
- **1kbp DNA ladder (500 - 10000 bp)**
  Fragments: 10000 - 8000 - 6000 - 5000 - 4000 - 3000 - 2500 - 2000 - 1500 - 1000 - 500 bp
- **ShortRun DNA Marker (500 - 2500 bp)**
  Fragments: 2500 - 2000 - 1500 (2x) - 1000 - 500 bp
- **pBR328 Hinf / Bgl I (154 - 2176 bp)**
  Fragments: 2176 - 1766 - 1230 - 1033 - 653 - 517 - 453 - 394 - 298 - 234 - 220 - 154 bp
- **pUC18 Hpa II (26 - 501 bp)**
  Fragments: 501 - 489 - 404 - 353 - 242 - 190 - 147 - 110 - 89 - 67 - 34 - 26 bp
- **pUC19 Msp I (26 - 501 bp)**
  Fragments: 501 - 489 - 404 - 331 - 242 - 190 - 147 - 111 - 110 - 67 - 34 - 26 bp
- **pBR322 Hae III (8 - 587 bp)**
  Fragments: 587 - 540 - 502 - 458 - 434 - 267 - 234 - 213 - 192 - 184 - 124 - 123 - 104 - 89 - 80 - 64 - 57 - 51 - 21 - 18 - 11 - 8 bp
- **Lambda Hind III / phi-X 174 Hae III**
  Fragments: 23130 - 9416 - 6557 - 4361 - 2322 - 2027 - 1353 - 1078 - 872 - 603 - 564 - 310 - 281 - 271 - 234 - 194 - 125 - 118 - 72 bp

Cat. No.	Product	Contains
PF00100	100bp DNA ladder	
PF00200	100bp DNA ladder PLUS	
PF00300	1Kbp DNA ladder	
PF00400	ShortRun DNA Marker	
PF00500	pBR328 Hinf I / Bgl I	50µg Marker + 1 mL loading buffer
PF00600	pUC18 Hpa II	
PF00700	pUC19 MSp I	
PF00800	pBR322 Hae III	
PF00900	λ Hind III / phiX 174 Hae III	

siRNA - siRNA GFP and Luciferase

OZ Biosciences has developed original short hairpin RNA that induce gene silencing. These purified siRNA are biologically processed by fermentation of genetically modified yeast cells, fractionation, extraction and purification.



APPLICATIONS

- The siRNA provided are pure ribonucleic acids and are not plasmid DNA or viral vectors encoding for shRNA. They are ideal for gene silencing experiments. Thanks to the hairpin, these siRNA are very stable in comparison with standard siRNA (without hairpin).

We are proposing two kinds of siRNA:

- siRNA GFP.
- siRNA Luciferase.

RECOMMENDED APPLICATIONS: Ideal for gene silencing applications (reference and/or control).

MAIN FEATURES

- Validated sequences (specificity and efficiency): Ideal for developing and optimizing transfection conditions.
- Perfect as control in gene knockdown studies.
- High stability
- High purity (>98%)
- Unique homogeneity
- Avoid off-target effects
- Ready to use siRNA

Cat. No.	Product	Description
SH10001	shRNA GFP	Stable double strain (5nmol)
SH10002	shRNA Luciferase	Stable double strain (5nmol)
SH10012	shRNA GFP+ shRNA Luciferase	Stable double strain (2x5nmol)

pVectOZ - Plasmid DNA vectors

pVectOZ are DNA vectors engineered in an optimized plasmid backbone.
These plasmids encoding for the most popular reporter genes (LacZ, Luciferase, GFP, SEAP and CAT) are ideal for all transfections.

PVECTOZ

All pVectOZ plasmids contain a modified human cytomegalovirus (CMV) promoter followed by specific intron, enhancer and terminator. The expression vectors are engineered in an optimized plasmid backbone to achieve the highest levels of transgene expression in mammalian cells and high copy number production in *Escherichia coli*.

RECOMMENDED APPLICATIONS: For all transfection applications (control, optimization...)

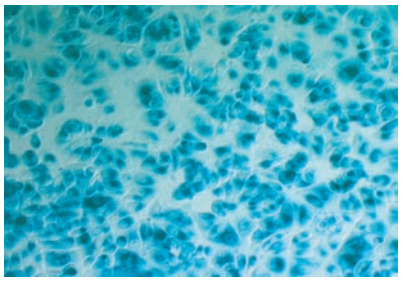
MAIN FEATURES

- **Highest levels of transgene expression** in mammalian cells and tissues
- **Suitable for all transfection applications**: *in vivo & in vitro*
- **High copy number production in Escherichia Coli**
- **Successful with all transfection reagents**
- **LPS-endotoxin free**, supercoiled and highly purified: transfection grade approved

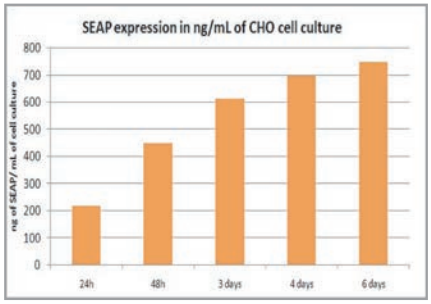
Two convenient packagings are available:
1. «Classical» 25µg
2. 100µg: ready to use as controls in transfection

Save time and money by avoiding transformation, production and purification

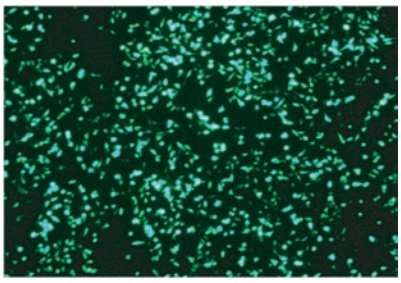
X-Gal expression in MCF-7



SEAP dose response in CHO cells



GFP expression in HeLa cells

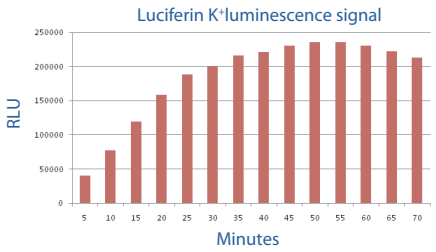


Cat.	Product	Contain
PL00010	pVectOZ CAT	25µg of plasmid encoding for chloramphenicol acetyltransferase
PL00110	pVectOZ CAT	100µg of plasmid encoding for chloramphenicol acetyltransferase
PL00020	pVectOZ GFP	25µg of plasmid encoding for green fluorescent protein
PL00120	pVectOZ GFP	100µg of plasmid encoding for green fluorescent protein
PL00030	pVectOZ LacZ	25µg of plasmid encoding for β-galactosidase
PL00130	pVectOZ LacZ	100µg of plasmid encoding for β-galactosidase
PL00040	pVectOZ Luc	25µg of plasmid encoding for luciferase
PL00140	pVectOZ Luc	100µg of plasmid encoding for luciferase
PL00050	pVectOZ SEAP	25µg of plasmid encoding for secreted alkaline phosphatase
PL00150	pVectOZ SEAP	100µg of plasmid encoding for secreted alkaline phosphatase

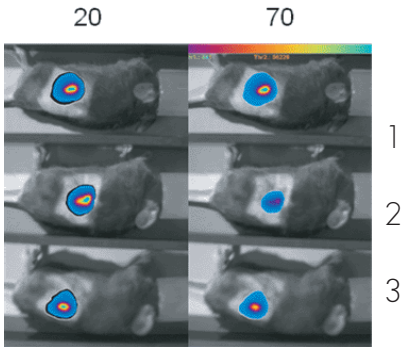
D-Luciferin Potassium & Sodium salt

D-Luciferin K^+ and Na^+ salts are dedicated to *in vitro* and *in vivo* bioluminescent assays.
The quality and purity of D-Luciferin are essential to obtain good and reproducible results.
OZ Biosciences is offering high quality of Endotoxin-Free D-Luciferin K^+ and Na^+ salts.

Time course of Luciferin



Transgene expression comparison between OZ Biosciences D-Luciferin and competitors



1 D-Luciferin Na^+ salt (OZ Bio.)
2 D-Luciferin Na^+ salt from P.
3 D-Luciferin Na^+ salt from C.

MAIN FEATURES

- High purity > 99.5%
- Good solubility and great sensitivity
- Reliable *in vivo* reporter for bioluminescent assays
- Endotoxin free (ideal for *in vivo* application)
- Quick and easy diffusion throughout the animal
- Suitable for *in vitro* experiments

RECOMMENDED APPLICATIONS: *In vivo & in vitro* bioluminescent assays.

APPLICATIONS

- **Bioluminescent assays** in living cells, tissues and animal models
- **Luciferase reporter gene assays**
- **Whole animal imaging** (*in vivo* reporter assay)
- **Appropriate read-out** for transfection/transduction with luciferase reporter gene and luciferase-fusion constructs
- **ATP assays** (Luciferase catalyzes conversion of ATP into AMP) and immunoassays
- **Pyrosequencing**, luciferase fragment complementation for sequential gene analysis experiments

LK10000	D-Luciferin potassium salt	1g
LN10000	D-Luciferin sodium salt	1g

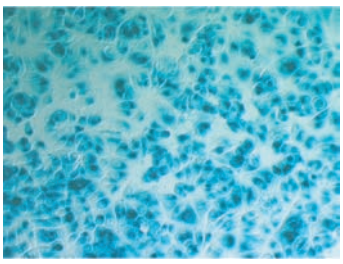
X-Gal substrate

The X-Gal substrate is metabolized by the β-galactosidase enzyme into an insoluble blue precipitate. It is ideal for staining transformed bacteria and LacZ transfected or infected cells, tissues and organisms. The quality and purity of the X-Gal substrate is essential to obtain high-quality and reliable results.

MAIN FEATURES

- High purity > 99%
- Good solubility and great sensitivity
- Perfect for cells, tissues and organisms staining
- Easy to use

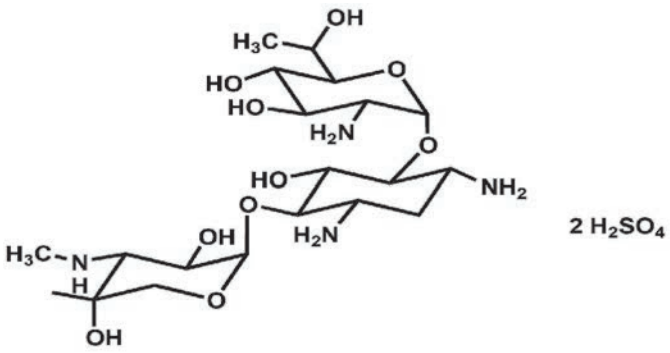
MCF-7 cells expressing β-Galactosidase enzyme



G-418 sulfate - selective antibiotic

The G418 sulfate is an aminoglycoside antibiotic identical to gentamicin B1 produced by *Micromonospora rhodorangea*.
It blocks polypeptide synthesis by inhibiting the elongation step in both prokaryotic and eukaryotic cells. It is used to select and maintain eukaryotic cells expressing the *neo* gene (neomycin). The quality and purity of the G-418 is essential to achieve good and consistent selection.

Molecular structure

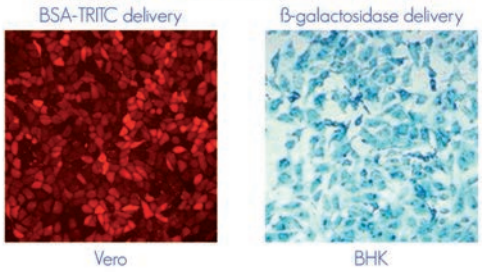


GX31000	X-Gal substrate	1g
GS21000	G-418, sulfate	1g

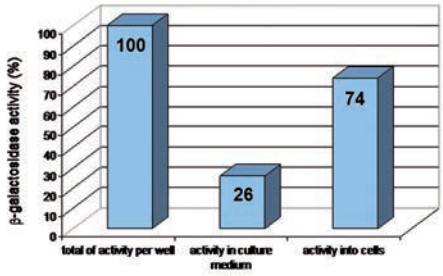
SelfMag - Innovative magnetic delivery system of molecules

SelfMag kits, based on Magnetofection™ Technology, allow creating your own magnetic delivery system. These kits have been designed to couple your molecules of interest onto magnetic nanoparticles and to deliver them into cells by magnetic targeting. They can be used either for transporting proteins, peptides, oligonucleotides, fluorophores, drugs, or any other molecules into living cells, or for targeting specific cells.

SelfMag Carboxy Kit



Quantity of β-galactosidase delivered inside NIH-3T3 cells

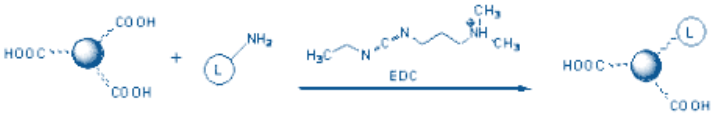


MagID device

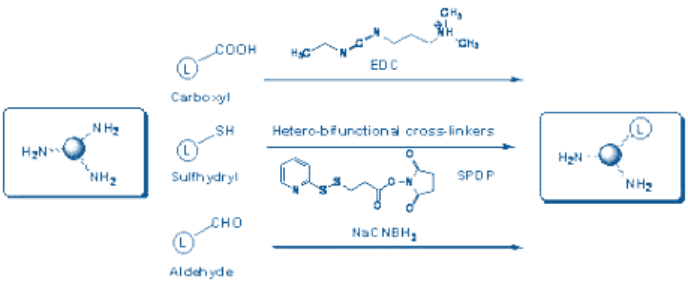
APPLICATIONS

- The molecule of interest is covalently coupled to the surface reactive COOH or NH2 groups of the magnetic nanoparticles. The resulting nanoparticles are delivered intracellularly with a unique MagFectin reagent.
  Two kits are proposed:

-SelfMag Carboxy Kit which contains COOH reactive groups



-SelfMag Amino Kit which contains NH2 reactive groups



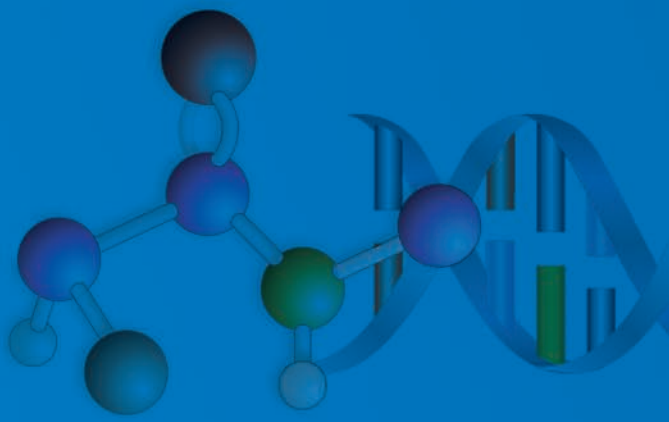
MAIN FEATURES

- **Suitable for the delivery of numerous molecules:** Efficient delivery of molecules coupled to nanoparticles into cells is achieved upon a proper magnetic field without any toxicity.
- **Mono dispersed and size-controlled magnetic nanoparticles.**
- **Ready to use coupling, washing and storage buffers.**
- **Highly efficient MagFectin delivery reagent.**
- **Easy handling and fast results.**
- **Comprehensive and detailed protocol.**

Cat. No.	Product	Description
SA10000	SelfMag Amino Kit	SA11000 + SA12000 + SF40000 + DM30000 + MF10000
SC20000	SelfMag Carboxy Kit	SC21000 + SC22000 + SF40000 + DM30000 + MF10000
SA11000	SelfMag Amino Beads 1 mL	Up to 50 coupling
SA12000	Buffer Kit A	Coupling buffer + Washing buffer + EDC
SC21000	SelfMag Carboxy Beads 1 mL	Up to 50 coupling
SC22000	Buffer Kit C	Coupling buffer + Washing buffer + EDC
SF40000	MagFectin 1 mL	Up to 1000 delivery assays
DM30000	MagID	SelfMag Magnetic Device
MF10000	Magnetic plate	Convenient for all cell culture suport

OZ BIOSCIENCES

TECHNICAL APPENDIX



NeuroMag list of cells
Magnetofectamine list of cells
Magnetofection list of cells
Lipofection list of cells
Transfection troubleshooting
Protocols: How to optimize?
Need-to-know information

NEUROMAG
List of cells successfully tested

Neurons specific transfection reagent (DNA, siRNA, LNA...)

Cell line	Type	Species
A172	Glioblastoma	Human
BT4C	Glioma	Rat
C6	Glioma	Rat
CLU301	Glial (oligodendrocytic)	Human
H295R	Adrenocortical	Human
HEK-293	Embryonic kidney	Human
HT22	Hippocampal	Mouse
KS-1	Glioblastoma	Human
N2A	Neuroblastoma	Mouse
NG10815	Glioma	Rat, Mouse
NS20Y	Neuroblastoma	Mouse
NSC19	Neuroblastoma	Mouse
NYGM	Glioblastoma	Human
PC12	Pheochromocytoma	Rat
SH-SY5Y	Neuroblastoma	Human
T98G	Glioblastoma	Human
U87	Glioblastoma	Human
U251	Glioblastoma	Human
U937	Lymphoma	Human
YH-13	Glioblastoma	Human
YK6-1	Glioblastoma	Human

Primary cell	Origin and type
Neurons	Rat / Mouse Hippocampal
Neurons	Rat Nodose ganglions
Neurons	Rat / Mouse Cortical
Neurons	Rat Cerebellar granule (CGN)
Neurons	Rat Dorsal Root Ganglion (DRG)
Neurons	Rat / Mouse Striatal
Neurons	Mouse Amygdal
Neurons	Mouse Motor neurons
Astrocytes	Rat Cerebral cortices
Mesencephalic Cells	Rat Cerebellum, Spinal cord, Myelencephalon
Neural Stem Cells	Mouse Subventricular zone
Oligodendrocyte Precursor cells	Rat Cerebral Cortex

For an updated list of cells successfully tested see our website at www.ozbiosciences.com or send an email at tech@ozbiosciences.com

MAGNETOFECTAMINE™

List of hard-to-transfect and primary cells successfully tested

CombiMag + Lipofectamine™ 2000

Cell Name	ORGANISM TYPE	TISSUE
1064SK	Human	Foreskin
3.L2	Mouse	Lymphocyte
3Y1	Rat	Fibroblast
4DE4	Mouse	Bone marrow
9HTE	Human	Trachael
A1.1	Mouse	Lymphocyte
A172	Human	Brain
A20	Mouse	Lymphocyte
A204	Human	Muscle
A549	Human	Lung carcinoma
A875	Human	Melanoma
ACHN	Human	Kidney
Adherent gastric	Human, Mouse	Epithelial
Aortic endothelial cells	Human	Aorta
B35	Rat	Neuroblastoma
b4.14	Primate	Kidney
B11	Human	Carcinoma
BAC	Cow	Adrenal Gland
BC3H1	Mouse	Brain
BeWo	Human	Uterus
BMS-Black Mexican Sweet protoplast	Plant	Plant
Bone marrow cells	Mouse	Bone marrow
Bone marrow derived stromal cells	Human	Bone marrow
Bovine Chromaffin cells	Cow	Adrenal Gland
C1R, HMy2.C1R	Human	Lymphocyte
CaCo-2	Human	Adenocarcinoma
Cal27	Human	Lung
Canine Gastric Parietal Cells	Dog	Stomach
Cardiomyocytes	Rat, Human	Heart
Carotid artery smooth muscle	Bovine	Muscle
CD34+ monocytes	Human	Monocyte
Cerebellar	Mouse	Brain
Chick embryo blastodermal cells	Chicken	Embryo
Chick embryo chondrocytes, fibroblasts	Chicken	Embryo
Chicken hepatocytes	Chicken	Liver
Chicken sperm	Chicken	Sperm
CHO - B53 JF7 K1	Hamster	Ovary
Chondrocytes	Porcine	Cartilage
CT26	Mouse	Colon
Cytotrophoblastic	Human, Mouse	Epithelial
DGZ	Plant	Other

Cell Name	ORGANISM TYPE	TISSUE
Dictyostelium	Amoeba	Other
Dorsal root ganglion (DRG)	Rat, Mouse	Brain
Drosophila KC	Insect	Embryo
Duck (In Vivo)	Duck	Other
E. histolytica	Amoeba	Other
E1-ts20	Human	Breast/Mammary
EF88	Mouse	Fibroblast
Embryonic stem cells	Mouse	Embryo
EMC - Epicardial Mesothelial	Rat	Mesothelial
Endothelial cells (aortic)	Pig	Aorta
Endothelial cells (mlEnd)	Mouse	Mesent. lymph node
Endothelial cells (pulmonary aorta)	Rat	Aorta
Epithelial cells (RTE)	Rat	Trachael
Epithelial cells	Human, Rat	Epithelial
Epithelial Lung	Human, Mouse	Epithelial
Fetal neurons	Rat	Brain
FGC-4	Rat	Liver
Fibroblasts	Chicken	Skin
Fibroblasts (cardiac, embryo)	Rat	Fibroblast
Fibroblasts (neonatal dermal)	Human	Skin
Fibroblasts (normal)	Human	Fibroblast
Fibrochondrocytes	Porcine	Meniscus
Foreskin Fibroblast	Human	Foreskin
FTO-2B (rat hepatoma) cells	Rat	Liver
Gastric gland	Human	Epithelial
Gastric myofibroblasts	Human	Muscles
GBM - Glioblastoma Brain Tumor	Human	Glioblastoma
GH4C1	Rat	Pituitary
Glioma cells	Human	Glioma
Glomeruli	Rat	Lung
GOTO	Human	Neuroblastoma
Granulosa cells	Mouse	Ovary
Guinea pig endometrial stromal cells	Guinea Pig	Ovary
H187, H441	Human	Lung
H295R	Human	Adrenocortical
H4IIE	Rat	Liver
H-500, Leydig tumor cell	Rat	Testes
HAECs	Human	Aorta
HAS-P	Mouse	Breast/Mammary
HDF	Human	Fibroblast
HEL	Human	Lymphocyte

Cell Name	ORGANISM TYPE	TISSUE
HeLa	Human	Cervix
Hepatic Stellate Cells	Rat	Liver
Hepatocytes	Mouse, Rat	Liver
Hep2	Human	Epithelium
HFFF2	Human	Foreskin
HITB5	Human	Muscle
HN12	Human	Carcinoma
HNSCCs	Rat	Carcinoma
HS68	Human	Foreskin
HT22	Mouse	Brain
HT4	Human	Testes
HTLA230	Human	Neuroblastoma
HTLM2	Mouse	Breast/Mammary
Huh-7	Human	Hepatic
Human skeletal muscle	Human	Muscle
HUVEC, HUAEC	Human	Umbilicus
Hybridoma	Mouse	Spleen
Immature HSC - Hematopoietic Stem Cells	Mouse	Blood
In Vivo Mouse	Mouse	Other
In vivo mouse brain	Mouse	Bone
In Vivo Pig	Pig	Other
In Vivo rabbit eye	Rabbit	Other
In Vivo Rat Brain	Rat	Brain
In Vivo Rat Liver	Rat	Liver
In Vivo rat lung	Rat	Lung
Keratinocytes	Human, Mouse	Keratinocyte
KS cells	Human	Skin
Lymphoid cell line	Rat	Lymphocyte
Macrophages	Human	Blood
Macrophages	Mouse	Peritoneum
Mc Ardle 7777	Rat	Liver
MCF-7	Human	Adenocarcinoma
Melenoma cells	Human	Melanoma
MN9D	Mouse	Dopaminergic N.
MOB cells - mouse osteoblasts	Mouse	Osteoblast
Monocytes	Human	Blood
Mouse Embryonic Fibroblasts (MEF)	Mouse	Fibroblast
MRC-5	Human	Lung
hMSC mesenchymal stem cell	Human	Bone Marrow
MT-2	Human	Lymphocyte
MTD-1A	Mouse	Epithelial
Myoblast	Mouse	Muscles
Myocytes (ventricular)	Rat	Heart
Nasal airway epithelium	Mouse	Neuroblastoma

Cell Name	ORGANISM TYPE	TISSUE
N2A	Mouse	Neuroblastoma
Neocortical neurons	Rat	Brain
Neural Stem Cells	Rat	Brain
Neuroblastoma	Human	Brain
Neurons (Dorsal root ganglions)	Rat	Brain
Neurons (astrocytes)	Rat	Brain
Neurons (cortical, hippocampal & septal)	Mouse/Rat	Brain
NHBE	Human	Lung
NHFF	Human	Foreskin
Nodose ganglion neurons	Rat	Brain
NRK	Rat	Fibroblast
OK, derived from Renal proximal tubules	Opossum	Kidney
Orbital fibroblast	Human	Fibroblast
OS3	Mouse	Astrocyte
Osteoblasts	Rat	Bone
Ovarian Surface Epithelial (OSE)	Human	Ovary
P19 cells	Mouse	Embryo
P3.653 X Ag8 murine myeloma cells	Mouse	Bone marrow
P388D1, P815, P825 mastocytoma cells	Mouse	Macrophage
PAEC - Porcine aortic endothelial cells	Porcine	Endothelial
Paju, Neural Crest-Derived Cells	Human	Brain
Pam212, mouse keratinocytes	Mouse	Keratinocyte
Pancreatic Islets	Rat	Pancreas
PARP-/- mouse embryonic fibroblasts	Mouse	Fibroblast
Quail Embryos	Quail	Embryo
R1 Embryonic Stem cell, ES	Mouse	Embryo
Pleural mesothelial	Rabbit	Lung
RAEC, rat aortic endothelial cells	Rat	Aorta
Rat 2, Rat-1, Rat-6, Rat Fibroblasts	Rat	Fibroblast
Rat adipocyte	Rat	Adipose
Rat C5, glioma cells	Rat	Glial
Rat Hepatic Ito Cells	Rat	Liver
RCME, coronary microvessel endothelial	Rabbit	Endothelial
RPE - Retinal pigment epithelium	Human	Epithelial
RW-4	Mouse	Embryo
S2-013	Human	Pancreas
SH-SY5Y	Human	Neuroblastoma
Smooth muscle cells (vascular)	Rabbit	Aorta
Smooth muscle cells (vascular, aortic)	Human, Rat	Muscle
Smooth muscle cells RASMc (A7-r5)	Rat	Aorta
Stem cells	Human	Bone marrow
SVEC	Mouse	Endothelial
TIG3	Human	Fibroblast
Vagal afferent neurons	Rat	Brain

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MAGNETOFECTION™ - LIST OF CELLS

Cell line		PolyMag P. Neo	CombiMag	SilenceMag	ViroMag & R/L AdenoMag
16HBE14o	Human epithelial airway	+	+		++
181RDB	Human adenocarcinoma		+		+
293, 293T	Human embryonic kidney	+	+	+	+
293EBNA	Human embryonic kidney	+	+	+	+
3T6	Mouse fibroblast	+	+	+	
3Y1	Rat Fibroblast	++			
804G	Rat bladder epithelium	++			
A-293	Transformed human	+	+	+	+
A172	Human glioblastoma	+	++		++
A431	Human carcinoma		+	+	+
A549	Human lung carcinoma	+	++	+	++
A7r5	Rat smooth muscle			++	
AMC6SC8	Porcine epithelial		+		+
AR42J	Rat tumor	++			
B11	Human carcinoma		++		
B6	Mouse fibroblasts	++	+	+	
B95a	Monkey B lymphoblastoid		++		+
BEAS-2B	Human epithelium	+	+	+	+
BeWo	Human choriocarcinoma	+		++	
BHK21	Hamster fibroblast	+	+	+	+
BIU-87	Human melanoma	+	+		
BT-20	Human breast carcinoma	+	++		+
BTK-143	Human osteosarcoma		+		
C2C12	Mouse myoblast cells		++	++	+
C6	Rat glioma	++	++	+	++
CaCo-2	Human adenocarcinoma		++		
Cal27	Human squamous carcinoma		++		
CEF	Chicken fibroblasts	++	+		
CEMx174	Human lymphocyte				++
CHO	Hamster ovary	++	++	+	+
CHO-K1	Hamster ovary	++	++	+	+
CL7.1	Mouse fibroblast	+	+		
Colo205	Human adenocarcinoma		+		+
COS1&7	Monkey kidney	++	+		++
CRFK	Feline kidney		+	+	+
CT26	Mouse colon carcinoma	+	+		+
CV1	Monkey fibroblast	+	+	+	+
D3ES	Mouse Embryonic Stem Cells	++			
DU145	Human prostate carcinoma		+		+
ECV-304	Human bladder carcinoma		+		+

Cell line		PolyMag P. Neo	CombiMag	SilenceMag	ViroMag & R/L AdenoMag
EJ28	Human bladder carcinoma				+
EPP85-181	Human pancreatic cells				++
F9	Mouse carcinoma	+			
FaDu	Human pharynx carcinoma	+			
GD25-beta1	Mouse embryonal fibroblast		+		+
H292	Human lung epithelium	++			
H295R	Human adrenocortical	+	++		+
H441	Human epithelial carcinoma	++	++	+	++
H9	Human T lymphocyte	+			++
HaCaT	Human keratinocyte	++	+	+	+
HBL100	Human adenocarcinoma		+	+	+
HCT15, 116	Human adenocarcinoma		+	+	+
HEK-293	Human embryonic kidney	++	++	+	++
HeLa	Human cervical carcinoma	++	++	++	++
Hep2	Human epithelium	+	++		+
Hep3B	Human liver carcinoma		+	+	+
HepG2	Human hepatoma	++	++	+	+
hKC	Human keratinocytes	+	++		
HMEC-1	Human endothelium	++	++	++	++
HN12	Human carcinoma	+	++		
HNSCCs	Rat carcinoma	+	++		
HOS	Human osteosarcoma				++
HSC39/43	Human gastric cancer cell	++	+		
HSG	Human epithelium	+	++		
HT1080	Human fibrosarcoma	+	+	+	+
HT22	Mouse hippocampal	+	+	+	+
HT29	Human adenocarcinoma		+	+	+
Huh-7	Human hepatic	+	++		
HUVEC	Human umbilical vein endothelial	++	++	++	++
Jurkat	Human acute lymphoma	++	++	++	+
K562	Human leukemia	++	++		++
Kelly	Neuroblastoma		+	++	
KPON	Human leukemia cell lines				++
KS-1	Human glioblastoma	+	++		++
LNCap	Human prostate cancer cells	++	+	+	
L929	Mouse fibrosarcoma	+	+	+	++
L-cells	Human Gastrointestinal tract		++		+
LLC-PK1	Porcine epithelium		+		
LoVo	Human adenocarcinoma		+		+
LS174T	Human adenocarcinoma		+		+
M-1	Murine renal cortical	+	++	+	

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Cell line		PolyMag Po. Neo	CombiMag	SilenceMag	ViroMag & R/L AdenoMag
MCF7	Human adenocarcinoma	++	++	+	+
MDCK	Kidney epithelial cells	++	++	+	+
MEF	Embryonic fibroblast	++	++		
MKN-45	Human gastric cancer cell line	++	+		
MN9D	Mouse dopaminergic neurons		++		
Molt-4	Human T cell leukemia		++	++	+
MRC-5	Human fibroblast	+	+		
N2A	Mouse neuroblastoma	+	++	+	+
NCH292, 82	Human lung carcinoma	++		+	+
NIH-3T3	Mouse embryonic fibroblast	++	++	++	++
NYGM	Human glioblastoma	+	++		++
OS3	Mouse astrocyte cell line		++		
OLN-93	Rat oligodendrocyte-oligodendroglia like		+		
Pam212	Mouse epithelium	++	+		
PC3	Human adenocarcinoma		+	+	++
PC12	Rat Pheochromocytoma	+	+	+	+
PT11	Bovine fibroblast		+	+	
RAW	Mouse macrophage	+	+		+
RAW264.7	Mouse monocyte macrophage		+		++
Rcho1	Rat carcinoma		+		+
RIE-1	Rat intestinal epithelium	++	+		
SaOS	Human osteosarcoma		+	+	+
SH-SY5Y	Human neuroblastoma	+	++	+	++
SK-MEL-28	Human melanoma		+		+
SKMES1	Human carcinoma	+			
SK-N-BE2	Human neuroblastoma	++			
SKOV3	Human adenocarcinoma		+		+
STC-1	Mouse endocrine	++	++		
SUPT1	Human lymphoblastoid				++
SUIT-2	Human pancreatic Adenocarcinoma	+	++		
SVEC	Mouse Endothelial		++		
SW480	Human adenocarcinoma		++		+
T98G	Human glioblastoma	+	++		++
THP-1	Human leukemia	++	+		+
TIG3	Human lung fibroblast		++		
TKD2	Human Hela derivative cells	++			
U251, U373 U87	Human glioblastoma		++		++
U937	Human lymphoma		+		++
Vero, E6	Monkey kidney	+	++		+
VSa13& 16	Fish chondrocyte	+	+		
Y79	Human retinoblastoma		+		+
YH-13	Human glioblastoma		++		++
YK6-1	Human glioblastoma		++		++

Primary cell	Origine	PolyMag P. Neo	CombiMag	SilenceMag	ViroMag & R/L AdenoMag
Adherent gastric cells	Human, Mouse		++		
Astrocytes	Rat	+	+	+	
Aortic Endothelial cells	Human, Porcine, Rat	++	++	+	+
Blood lymphocytes	Human, Mouse		++		++
Cardiomyocytes	Rat		++		
Carotid Artery Smooth Muscle	Bovine	+	+	+	+
Chondrocytes	Human, Rat, Rabbit	++	++	++	+
Colon cancer cells	Human		+		++
cPTC	Chicken	++			
Cytotrophoblastic	Human, Mouse		+		+
Dendritic cells	Human	++	+		
Embryonic stem cells (hESC)	Human	++	+		
Embryonic Fibroblast (MEF)	Mouse	+	++		+
Embryonic Stem Cells (D3mES)	Mouse	++	+		+
Endothelial cells (PAEC, CB)	Human	++	++	++	
Endothelial progenitor cells	Human		++		+
Epithelial cells	Mouse, Human	++	++	++	++
Fibroblasts	Human, Mouse	++	++	+	+
Gastric Gland	Human	+	++		
Gastric myofibroblast	Human		+	+	
Glial cells	Human, Mouse	+	++		++
Glioblastoma	Human	+	++		++
Hepatocytes	Rat, Mouse		+		++
Hematopoietic stem cells	Mouse, Human		++		++
HSPC (Bone marrow stem cells)	Mouse				++
HUC-MSC Mesenchymal stem cells	Human				++
HUVEC	Human, Rat	++	++	++	++
Immature hematopoietic stem cells	Mouse				++
Keratinocytes	Human, Mouse		+	+	
LSK	Mouse	++	++		++
Macrophages	Human			++	+
Mesencephalic Cells	Mouse				++
Myoblasts	Mouse		++		
Myofibroblasts	Human			++	
Neural Crest Cells	Chicken	++			
Neurons	Mouse, Rat, Wistar rats	+	++	++	+
PBL	Human, Mouse		+		++
PBMC	Macaque, Human	++	+		++
Parietal cells	Mouse				++
RPE (retinal pigment epithelium)	Human		++		
Synoviocytes	Human	++	++		
T lymphocytes	Macaque				++

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LIPOFECTION - LIST OF CELLS

Cell line		DreamFect	DreamFect Gold	EcoTransfect	Lullaby	Ab & Pro Deliver h
1207	Human carcinoma				+	
1321N1	Hamster astrocytoma	+				
143B	Human osteosarcoma	+	+			
15P-1	Germ sertoli cells	+				
293, 293T	Human embryonic kidney	++	++	+	+	+
32Dcl3	Mouse hematopoietic cell line	++	+			
3T3-L1	Mouse embryonic fibroblast-like	+	++			
3T6	Mouse fibroblast	+	+	+	+	+
A-293	Human embryonic	+	+	+	+	+
A431	Human epithelial carcinoma	+	+		++	
A549	Human lung carcinoma	++	+	+	++	+
AMC6SC8	Porcine epithelial	+				
B16-F10	Mouse melanoma	+	+	+	++	+
B16-OVA	Mouse Melanona				+	
B65	Rat Neurons					+
BEAS-2B	Human epithelial	+	+	+	+	+
BHK-21	Human fibroblast	++	+	+	+	+
BJAB	Human burkitt lymphoma	+	++			
C272	Human ovarian cell line	++	+			
C2C12	Mouse myoblast	+	++			
C33A	Human cacinoma	++	+			
C57MG	Mouse epithelial	++	+		+	
Cal-51	Human adenocarcinoma	++	+		+	
C6	Rat glioma	+	+			
CaCo2	Human Colon Carcinoma		+			
CHO, CHO-K1	Hamster ovary	++	++	+	++	+
CHO10	Hamster ovary	+				++
COS-1, COS-7	Monkey fibroblast	+	+	+	+	+
CRFK	Feline epithelial	+				
CS-1	Human Chrondrosarcoma	++				
CT26	Mouse carcinoma	+				
CV-1	Monkey fibroblast	+	+	+	+	+
DU-145	Human carcinoma	+	+		+	
ECV-304	Human uroeptilelium	+				
FRT	Rat Fisher thyroid			+		
GD25 b1	Mouse embryonic		+		+	
H441	Human carcinoma		+	+	+	+
H4IIE	Rat hepatoma	+				
HaCaT	Human keratinocytes	++	++			+
HBL100	Human adenocarcinoma	+				
HCT-116	Human carcinoma	+	+			
HEK293	Human embryonic	++	++	++	+	+
HeLa	Human adenocarcinoma	++	++	+	++	+
HeLa-tcrβ	Human adenocarcinoma	++				
Hep 3B	Human carcinoma	+	+			

Cell line		DreamFect	DreamFect Gold	EcoTransfect	Lullaby	Ab & Pro Deliver h
Hep2	Human carcinoma	+	+			+
Hepa 1-6	Mouse hapatocytes	++	+		+	
HepG2	Human carcinoma	++	+			
HMEC	Human Microvascular Endothelial		+			
HSG	Human epithelial	+				
HT1080	Human fibrosarcoma	+				
HT-22	Mouse hippocampal	+	+			
HT-29	Human adenocarcinoma	+				
HuH-7	Human hepatoma	+	+		++	
HUVEC	Human endothelial	+	+		+	+
IC21	Mouse Macrophage				+	
J774	Mouse Macrophage		+			
Jurkat	Human acute T lymphoma	++	++			+
K562	Human leukemia	+	++		++	+
KGN	Human carcinoma	++	+			
L8	Murine skeletal myoblasts	++				
L929	Mouse fibroblast	+	+			+
LLC-PK1	Porcine epithelium	+				
LM (tkTA)	Murine fibroblasts	++				
LNCaP	Human carcinoma	++				
LoVo	Human adenocarcinoma	+				
LS174T	Human adenocarcinoma		+			
M-1	Mouse epithelial		+	+	+	+
MCF-7	Human adenocarcinoma	++	+		+	+
MDA-MB231	Human breast cancer	++	+		+	
MDAMB435	Human Breast Cancer	++			+	
MDCK	Canine epithelial	++	++	+	+	++
MEF	Mouse Embryonic fibroblast	++	++		+	
Mitonchondrial xenocybrid	Mouse hybridoma	++				
MIA PaCa-2	Human carcinoma				+	
mICd12	Mouse Intestine	+				
MKN45	Human gastric adenocarcinoma	++			+	
MNNG/HOS	Human osteosarcoma	++	+		+	
MRC5	Human lung fibroblasts	+	++		++	
MSC	Human bone marrow derived mesenchymal stem cells		++			
N2A	Mouse neuroblastoma	+	+	+	+	+
NCI-H441	Human Lung adenocarcinoma	+	+		+	+
NIH-3T3	Mouse embryonic fibroblasts	++	+	+	+	+
OLN-93	Rat oligodendrocyte	+	+			
OV-90	Human ovarian carcinoma		++			
NRK	Rat kidney fibroblasts	+	+		++	
PC-12	Rat Pheochromocytoma	++	+		+	+
PC3	Human adenocarcinoma	+				
Pre-B	Mouse lymphoma	+			+	

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Cell line		DreamFect	DreamFect Gold	EcoTransfect	Lullaby	Ab & Pro Deliver h
PT11	Bovine fibroblast	+				
RAW	Mouse Macrophage		+			+
Raw264.7	Mouse monocytes/macrophages		+			++
Rcho-1	Rat carcinoma	+				
SaOS	Human osteosarcoma	++				
SaOS-2	Human osteosarcoma	++				
SHP-77	Human lung carcinoma	++	+			
SH-SY5Y	Human neuroblastoma	++	++		++	+
SK N-Be	Human adenocarcinoma	++				
SKOV-3	Human carcinoma	++	++			
SM10	Mouse trophoblast	+				
Sp2/0	Mouse B lymphoma	+				
SW-480	Human adenocarcinoma	+	+			
T98G	Human Glioma		+			
TM4	Mouse sertoli cells	++				
THP-1	Human promonocytic leukemia	++				
tsA201	Human epithelial	+	+			
U251, U118	Human Glioblastoma	++	+		++	
U2-OS	Human osteosarcoma	++	+		++	
U87	Human glioblastoma	++	+	+	++	+
U937	Human leukemic monocytes					+
Vero	Monkey epithelial	+	+	+	+	+
Vero E6,10A1	Monkey kidney	++	++		++	+
Y79	Human retinoblastoma	++				
LNT-229	Human Glioma		+			
N-Tera 2	Human Tartocarcinoma		+			
SMA-560	Mouse Glioma		+			
W138	Human Fibroblast	++	+			
Y79	Human retinoblastoma	++	+		+	

Primary cell	Origine	Dreamfect DreamFect Gold	EcoTransfect	Lullaby	Ab & Pro Deliver h
Biliary epithelium (BECs)	Mouse, Rat	++			+
Chondrocytes	Rabbit, Ovine	++			
Dermal Fibroblasts	Human	+		++	
Embryonic Fibroblast (MEF)	Mouse	++			+
Embryonic stem cells (hESC)	Human	+		++	
Epicardial mesothelial (EMC)	Rat	+			
Epithelial Cells (tongue)	Human				++
Glial Cells	Rat				+
Hepatocytes (RHC)	Rat	++			
Myoblasts (quadriceps muscle)	Rabbit/Human	++			
Nucleus pulposus	Human				++
Peripheral blood lymphocytes (PBL)	Human, Mouse	+			
Human Diploid Fibroblasts (pHDF)	Human	+			+
Neural Stem Cells	Mouse			++	
Satellite Cells	Mouse skeletal muscle myotube	++			
Smooth muscle (SMC)	Porcine	+			

Cell line	FlyFectin
Anopheles	
Ag55	+
Anso	+
As43	+
Bombyx	
Bm-5	+
Butterfly	
Pupae	+
Culex	
Cpp512	+
Drosophila	
Cl8	++
KC167	+
S2	++
Lymantria	
LD652	+
Mosquito	
Mos20	+
Spodoptera	
Sf9	++
Sf21	+
SL-3	+
SPC-SL52	+
IPBL-SF21	+
SL2	++
Trichoplusia	
High5	+

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TRANSFECTION TROUBLESHOOTING

Plasmid DNA, RNA, mRNA, PCR fragments, oligonucleotides..

Low transfection efficiency

Possible Origins	Recommended Solutions
Ratio of transfection reagent (µL) / DNA (µg)	Optimize the reagent/DNA by using a fixed amount of DNA (µg) and varying the volume of transfection reagent from 2 times less up to three times more than the suggested amount (µL) indicated in the instruction manual.
Amount of DNA (µg)	Use different quantity of DNA as suggested in the instruction manual with the recommended or optimized (above) transfection reagent / DNA ratio.
Cell density	A non-optimal cell density at the time of transfection can lead to insufficient uptake. The optimal confluency should range from 50 to 70%; preferably mid-log growth phase.
DNA quality	Nucleic acids should be as pure as possible. Free of contaminants (proteins, phenol, ethanol etc.) and endotoxins levels must be very low since they interfere with transfection efficiencies.
Type of plasmid DNA promoter	Ensure that DNA promoter can be recognized by the cells to be transfected. Another cells or viral-driven reporter gene expression can be used as control.
Cells conditions	• Cells that have been in culture for a long time (> 8 weeks) may become resistant to transfection. Use freshly thawed cells that have been passaged at least once before transfection. • Cells should be healthy and assayed during their exponential growth phase. The presence of contaminants (mycoplasma, fungi) alters considerably the transfection efficiency.
Medium used (preparation complexes)	It is critical that serum-free medium or buffer (HBS, PBS) is used during the preparation of the DNA/transfection reagent complexes. Indeed, serum components are known to interfere with vector assembly.
Cell culture medium composition	• For some cells, transfection efficiency can be increased without serum. These cells can be transfected in absence of serum during the first 4 hours of incubation, then complete culture medium is used until assay is performed. • Absence of antibiotics from the media may improve transfection efficiency (cell type dependent).
Incubation time and transfection volume	• The optimal time range between transfection and assay for gene activity varies with cells, promoter activity, expression product, etc. The transfection efficiency can be monitored after 24 - 96 hours by analyzing the gene product. Several reporter genes can be used to quantitatively monitored gene expression kinetics. • To increase transfection efficiency, transfection volume suggested can be reduced for the first 24 hours.
Old transfection reagent / DNA complexes	The transfection reagent/DNA complexes must be freshly prepared every time. Complexes prepared and store for longer than 1 hour can be aggregated.
Transfection reagent temperature / Storage	Reagents should have an ambient temperature and be vortexed prior to use. High temperature and/or excessive freeze/thaw cycles may cause a loss of reagent activity. Transfection reagents are very stable at the recommended storage temperature.
Transgene detection assay	Ensure that your post-transfection assay is properly set up and includes a positive control.

Cytotoxicity

Unhealthy cells	- Check cells for contamination - Use new batch of cells - Ensure correct culture medium condition (pH, type of medium used, contamination etc) - Cells are too confluent or cell density is too low - Verify equipments and materials (culture dish, incubator, hood...)
DNA quality	Use high quality nucleic acids as some impurities can lead to cell death.
Transgene product is toxic	Use suitable controls such as cells alone, transfection reagent alone or mock transfection with a DNA control.
Concentration of transfection reagent/DNA too high	Decrease the amount of DNA/reagent complexes added to the cells. Complexes aggregation can cause some toxicity; prepare them freshly and adjust the ratio as outlined previously.
Incubation time	Replace the transfection medium by fresh medium after 4h to 24h.

TRANSFECTION TROUBLESHOOTING

siRNA, shRNA, miRNA, dsRNA...

Low transfection efficiency

Possible Origins	Recommended Solutions
Ratio of transfection reagent (µL) / siRNA (nM)	Optimize the transfection reagent/siRNA ratio as described in the optimization protocol. Briefly, use a fixed amount of siRNA (10 or 20 nM) and vary the amount of reagent from 2 times less up to 3 times more than the suggested amount indicated in the protocol.
Amount of siRNA (nM)	Use different concentration of siRNA as suggested in the instruction manual with the recommended or optimized (above) transfection reagent / siRNA ratio.
siRNA quality	Use high quality siRNA (PAGE purified and desalted). Employ RNAse-free materials and check for siRNA integrity on acrylamide gel. Ensure siRNA is not denatured. 100mM NaCl, 50mM Tris pH7.5 RNAse-free buffer can be used for siRNA instead of water.
Cell culture conditions: density, cell health, culture medium composition	Same solutions as those described for DNA.
Medium used for preparing siRNA / transfection reagent complexes	It is critical that serum-free medium or buffer (HBS, PBS) is used during the preparation of the complexes. Indeed, serum components are known to interfere with vector assembly.

No or weak gene silencing

siRNA design	The design of an efficient siRNA is a crucial step. Ensure to use a validated siRNA sequence. If a validated siRNA cannot be used, assay your sequence in an easy to transfect cell line (if possible) in order to validate it.
siRNA concentration	Use higher amount of siRNA.
Incubation time	Perform a time-course experiment to set up the optimal incubation time since gene silencing is dependent on the gene expression and the protein turnover rate.
Old transfection reagent / siRNA complexe	The transfection reagent/siRNA complexes must be freshly prepared every time. Complexes prepared and store for longer than 1 hour can be aggregated.
Improper storage	Transfection reagents are very stable at the recommended storage temperature but high temperature and/or excessive freeze/thaw cycles may cause lost of reagent activity.
Transfection reagent temperature	Reagents should have an ambient temperature and be vortexed prior to use.

Cytotoxicity

Unhealthy cells	- Check cells for contamination - Use new batch of cells - Ensure correct culture medium condition (pH, type of medium used, contamination etc) - Cells are too confluent or cell density is too low - Verify equipments and materials (culture dish, incubator, hood...)
siRNA quality	Use high quality siRNA as some impurities can lead to cell death.
Key gene silencing	If the targeted gene is essential for cell survival or if a key gene is non-specifically silenced by the siRNA this can lead to cell death. Use suitable and validated siRNA controls.
Concentration of transfection reagent / siRNA too high	Decrease the amount of siRNA/ reagent complexes added to the cells by lowering the siRNA concentration or the transfection reagent amount. Complexes aggregation can cause some toxicity; prepare them freshly and adjust the ratio as outlined previously.
Incubation time	Some cells might be very sensitive to siRNA / reagent complexes. Thus, reduce the incubation time of complexes with the cells by replacing the transfection medium by fresh medium after 4h to 24h.

Low transfection efficiency

Possible Origins	Recommended Solutions
Presence of BSA in your antibody solution	Make sure that the antibody is highly pure and devoid of additives such as BSA.
Protein purity	Make sure that the recombinant protein is highly pure and devoid of additives such as BSA or detergents.
DeliverIN amount	Optimize the quantity of DeliverIN reagent.
DeliverIN/protein ratio	Optimize the DeliverIN / protein ratio within the range indicated in table 3 of the protocol.
Antibody/protein amount	Use different quantity of antibody/protein with the recommended or optimized DeliverIN/protein ratio.
Cell density	A non-optimal cell density at the time of antibody/protein delivery can lead to insufficient uptake. The optimal confluence should range from 50 to 70%.
Cell condition	1) Cells that have been in culture for a long time (> 8 weeks) may become resistant to the delivery. Use freshly thawed cells that have been passaged at least once. 2) Cells should be healthy and assayed during their exponential growth phase. The presence of contaminants (mycoplasma, fungi) alters considerably the delivery efficiency.
Cell culture medium composition	For some cells, antibody/protein delivery efficiency can be increased without serum or under reduced serum condition. Thus, assay these cells in serum-free medium during the first 4h of incubation.
Medium used for preparing DeliverIN / protein complexes	It is critical that PBS is used during the preparation of the antibody complexes. Do not use serum free medium, HBS or Tris buffer to prepare the complexes. Change the protein dilution buffer and/or the pH to improve the delivery. Highly basic proteins are difficult to deliver due to the presence of positive charges but this can be compensated by the protein hydrophobic property. The charge of the protein can be modified with the pH. Only use serum free medium to prepare the complexes.
Incubation time and transfection volume	1) The optimal time range between delivery and assay varies with cells, type of antibody/protein, type of targeted proteins, etc. The delivery efficiency can be monitored after 4 to 96h. Fluorescently labeled antibody or R-Phycoerythrin can be used to quantitatively monitored delivery kinetics. 2) To increase delivery efficiency, transfection volume suggested can be reduced for the first 4 to 24 hours.
Old DeliverIN / protein complexes	The DeliverIN reagent/protein complexes must be freshly prepared every time. Complexes prepared and stored for more than 1 hour can be aggregated. Depending on the protein, reduce this time to avoid the aggregation which may occur during the complex formation.
Positive control	Ensure that your experiment is properly set up and includes a positive control. The FITC-labeled IgG or R-Phycoerythrin provided in the kit can be used as positive control for delivery efficiency.
DeliverIN reagent temperature / Storage	Reagents should have an ambient temperature and be vortexed prior to use. Delivery efficiency can slowly decrease if DeliverIN reagent is kept more than one week at room temperature.

Cellular toxicity

Concentration of DeliverIN / protein too high	Decrease the amount of DeliverIN/protein complexes added to the cells by lowering the protein amount or the DeliverIN reagent. Complexes aggregation can cause some toxicity; prepare them freshly and adjust the ratio as outlined previously.
Unhealthy cells	1) Check cells for contamination, 2) Use new batch of cells, 3) Ensure correct culture medium condition (pH, type of medium used, contamination etc), 4) Cells are too confluent or cell density is too low, 5) Verify equipments and materials.
Protein is cytotoxic	Use suitable controls such as cells alone, DeliverIN reagent alone or mock delivery (with positive IgG-FITC or R-Phycoerythrin provided.
Incubation time	Reduce the incubation time of complexes with the cells. Delivery medium can be replaced by fresh medium after 3 to 24 h if necessary.
Antibody / Protein quality	Use high quality antibody/protein as impurities could lead to cell death.
Key protein targeted	If the targeted protein is essential for cell survival this can lead to cell death. For instance as demonstrated with an anti-nuclear pore complex monoclonal antibody. In this way, the cell death is induced by the binding of antibody to the nuclear pore complexes.
Key protein delivered	If the protein delivered impacts cell survival this can lead to cell death, for instance as demonstrated with the recombinant caspase-3. In this way, the cell death is induced by the proteases.

DreamFect™ Gold Optimization Protocole

This protocol is given for DreamFect™ Gold (DG) transfection reagent optimization in a 24-well plate culture format.
Cells are seeded 24H before transfection experiment in 400 µL of complete serum under standard culture conditions (50 000 cells/well).
Note 1: Allow reagents to reach RT before performing complexes (DG/DNA/DMEM).
Note 2: Prevent the DNA and DG solutions to come into contact with any plastic surface.
Note 3: DMEM **w/o complement** is used for complexes preparation. DNA and DG are diluted in 50 µL each resulting in 100 µL of final transfection volume. Prefer DMEM or PBS than any other medium.

Allow finding ideal DNA amount and DreamFect Gold to DNA ratio. Once fixed, DNA and ratio are easily scalable regarding culture size.

Suitable to test DreamFect Gold Ask for your free sample.

Before beginning, prepare DG dilutions in H_2O.
- Add 1 µL DG to 7 µL culture grade H_2O; note the tube (8X)
- Add 2 µL DG to 6 µL culture grade H_2O; note the tube (4X)
- Add 3 µL DG to 3 µL culture grade H_2O; note the tube (2X)

1) DNA preparation into 1.5 mL tube

0.125: Dilute 0.55 µg DNA into 220 µL DMEM w/o complement (0.125 µg/50 µL)
0.250: Dilute 1.10 µg DNA into 220 µL DMEM w/o complement (0,25 µg/50 µL)
0.500: Dilute 2.20 µg DNA into 220 µL DMEM w/o complement (0,5 µg/50 µL)
1.000: Dilute 4.40 µg DNA into 220 µL DMEM w/o complement (1 µg/50 µL).

2) DreamFect™ Gold preparation into a 96 well plate

In (4x4) wells of a 96-well plate add DMEM without complement according to the following matrix:

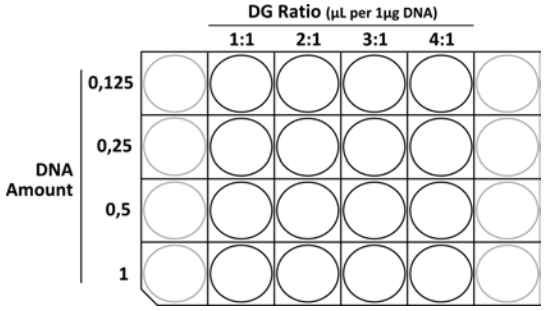
DG Ratio	1:1	2:1	3:1	4:1
0,125	49 µL	49 µL	48.5 µL	49 µL
0,25	49 µL	49 µL	48.5 µL	49 µL
0,5	49 µL	49 µL	48.5 µL	48 µL
1	49 µL	48 µL	47 µL	46 µL

In each well, add DG dilutions according to the following matrix:

DG Ratio (µL per 1µg DNA)	1:1	2:1	3:1	4:1
0,125	1 µL 8X	1 µL 4X	1.5 µL 4X	1 µL 4X
0,25	1 µL 4X	1 µL 2X	1.5 µL 2X	1 µL DG
0,5	1 µL 2X	1 µL DG	1.5 µL DG	2 µL DG
1	1 µL DG	2 µL DG	3 µL DG	4 µL DG

3) Complexes preparation (in 96w) and transfection (in 24w)

- Add 50 µL of each DNA solution to the corresponding DG dilutions wells
(ex: into the 4 wells corresponding to 0.125 µg, add 50 µL of the 0,125 µg solution).
- Incubate 20 min at RT.
- Add 100 each complex solution to the cell culture plate (24-well) according to the following layout:



4) Evaluation of transgene expression:

- Incubate cells at 37°C/5% CO2
- Monitor transfection efficiency 24 to 48 h after transfection.

POLYMAG NEO OPTIMIZATION PROTOCOLE

This protocol is given for PolyMag Neo (PG) transfection reagent optimization in a 24-well plate culture format.
Cells are seeded 24H before transfection experiment in 400 µL of complete medium under standard culture conditions (50 000 cells/well).

Note 1: Allow reagents to reach RT before performing complexes (PG/DNA/DMEM).
Note 2: Vortex PG solutions before beginning experiment to disperse nanoparticles.
Note 3: DMEM w/o complement is used for complexes preparation. DNA is diluted first and added to PG, resulting in 100 µL of final transfection volume. Prefer DMEM or PBS than any other medium.

Before beginning, prepare PG dilutions in H_2O.
- Add 1 µL PG to 15 µL culture grade H_2O; note the tube (16X)
- Add 2 µL PG to 15 µL culture grade H_2O; note the tube (8X)
- Add 3 µL PG to 9 µL culture grade H_2O; note the tube (4X)
- Add 5 µL PG to 5 µL culture grade H_2O; note the tube (2X).

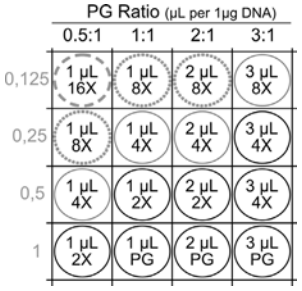
Undiluted solution of PolyMag Neo hereinafter referred to as (PG)

1) DNA preparation into 1.5 mL tube

0.125: Dilute 0.55 µg DNA into 440 µL DMEM w/o complement (0.125 µg/100 µL)
0.250: Dilute 1.10 µg DNA into 440 µL DMEM w/o complement (0,25 µg/100 µL)
0.500: Dilute 2.20 µg DNA into 440 µL DMEM w/o complement (0,5 µg/100 µL)
1.000: Dilute 4.40 µg DNA into 440 µL DMEM w/o complement (1 µg/100 µL).

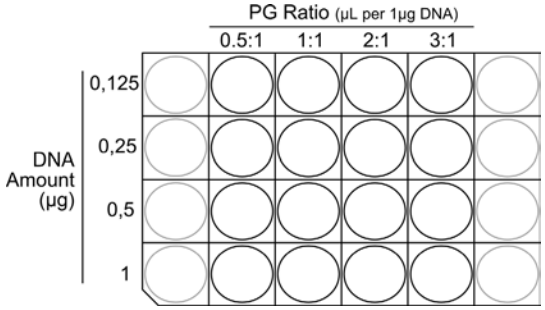
2) PolyMag Neo preparation into a 96 well plate

In (4x4) wells of a 96-well plate add PG dilutions according to the matrix.



3) Complexes preparation (in 96w) and transfection (in 24w)

- Add 100 µL of each DNA solution to the corresponding PG dilutions wells
(ex: into the 4 wells corresponding to 0.125 µg, add 100 µL of the 0,125 µg solution).
- Incubate 20 min at RT.
- Add each complex solution to the cell culture plate (24-well) according to the following layout:



4) Evaluation of transgene expression:

- Incubate cells at 37°C/5% CO2
- Monitor transfection efficiency 24 to 48 h after transfection.

Practical Advises

Life-saving tips

Well, perhaps they won't literally save your life. But they surely will help you to transfect your cells easier, faster and more efficiently!
Feel free to share your own tips, tricks and suggestions at **tech@ozbiosciences.com**

The cells

1. Do not use freshly thawed cells: passage cells at least 3 times after thawing before transfecting them.
2. Passage cells when they are in log-phase growth before they reach confluency.
3. Plate the cells the day before the transfection experiment so that they will be 60 to 80 % of visual confluency on the day of transfection.
4. For routine culture, passage cells on regular basis and do not allow cells to become confluent (passage conditions depending on the doubling rate of the cells).
5. Measure the cell viability using the OZ Biosciences MTT kit.

(see page 44)

The DNA quality

1. Prepare DNA as pure as possible, free for contaminants or endotoxins.
2. Determine the purity by measuring the OD 260/280 (between 1.7-1.9
3. Use highly-purified "transfection grade" OZ Biosciences reporter plasmid as positive controls for transfection.

(pVectOZ-GFP, -LacZ, - SEAP, - LUC, -CAT)

NOTE : plasmid purity doesn't necessarily lead to high transfection level as residual purification buffer reagent may impaired the complex formation and supercoiling level may not be high
Prefer using pVectOZ as positive control (supercoiled DNA, see page 51).

The transfection practices

1. We recommend preparing complexes in DMEM without any complement or in PBS.
2. Allow the reagent to reach room temperature before beginning the experiment.
3. Once DNA is added to transfection reagent, incubate 20 min at room temperature for complexes formation and directly add onto the cells; do not wait more than 30 min once complexes are formed.
4. Disperse complexes onto the cells in a drop wise manner and gently rock the plate to ensure correct dispersion.
5. Refer to DreamFect Gold or PolyMag Neo optimization protocol in this catalog to design your experiment

(pages 66,67)

6. Do not hesitate to contact us: **tech@ozbiosciences.com**

OZ BIOSCIENCES

TERMS OF SALE AND CONDITIONS

TERMS OF SALE AND CONDITIONS

General conditions of sale and payment

OZ Biosciences, hereafter referred to as the "Seller".

General principles

The present General Conditions apply to all sales placed with the Seller. The placing of an order implies the acceptance without reservation of these General Conditions. These Conditions may not be waived or modified by opposing terms appearing on any documents of the Buyer. No waiver by the Seller of strict compliance with any term of these Conditions shall constitute a waiver of any subsequent failure of the Buyer to comply strictly with each and every term and condition hereof. If any provision of these conditions of sale and payment shall be held invalid, the validity of the remaining provisions hereof shall not be affected thereby.

Usage

All the OZ Biosciences products are developed, designed, envisaged, and sold for the exclusive purpose of scientific research in laboratory. They are not in conformity with the requirements of the French, European and foreign pharmaceutical regulation. Consequently, they should not be employed for the human and veterinary diagnosis or be included/used in drug intended for the human use. The users are the only responsible for the uses, the experiments carried out and the handled products. The Buyer who wishes to use OZ Biosciences products for uses and/or applications not related to fundamental research must contact the direction of the company. For this purpose, OZ Biosciences reserves the right to accord or to refuse licenses for such uses.

Acceptance

The orders are final only when the Buyer confirms them by writing. OZ Biosciences recommends using the numbers and designations of the catalogue or the concerned offer. In the case of unclear wording, if the Salesman must make a choice itself, it declines his responsibility; the expenses of return for nonconformity, which will result from this, will be the Buyer responsibility.

Prices

Our prices are net, quoted ex-works, taxes excluded, in euros or USD and based on the communicated prices to the customer. Our prices exclude shipment. Prices quoted in any documentation of the seller are without undertaking as regards the duration of validity and are subject to change between two orders. OZ Biosciences reserves the right to modify, without notice, its products price. Prices invoiced shall be those of the price list in force on the date of order.

Shipments

The Seller shall arrange for the packaging in a manner suitable under normal transport conditions to prevent damage to or deterioration of the goods taking into account their destination. Deliveries are made ex-works. The shipment costs are the responsibility of the customer. Should the Seller accept to arrange for the transportation, according to the Buyer's instructions, any and all forwarding charges shall be invoiced in addition to the Buyer. The delivery is carried out either by the direct handling-over of the goods to the customer, or by notice of delivery, or by delivery with a transporter or a shipper. Whatever the conditions of expeditions are, our goods travel to the risks and dangers of the recipient and without insurance. In case of damage and being lost in the course of shipment, the Buyer will have to notify the shipper the damage or lacks noted within the legal times and to inform the Salesman of this notification within the same times. The Salesman declines any responsibility in the event of non-observance for these formalities. Our delivery periods are indicative. No allowance for delay of delivery could be claimed. The delivery can be made only if the Buyer is up to date of his obligations towards OZ Biosciences.

Returns

No return will be accepted without prior agreement and written from our Sales management, which will specify the methods of return. In this case, the articles will be returned, in their packing of origin, in paid port, to the address which will be communicated to the Buyer. OZ Biosciences reserves the right to send back, in paid port, all goods received without this agreement.

Force Majeure

The Seller shall be entitled to cancel the whole or any order the fulfillment of which has been suspended or is no longer possible due to causes of any kind or extent beyond the Seller's control or of force majeure, including but not limited to war, partial or total strikes, breakdown of transportation, shortage of raw material, fires, floods, tooling accidents or any other circumstances impeding the activity of the Seller's works.

Cancelation of orders

Any order is binding upon the Buyer and irrevocable when accepted by the Seller. No order may be cancelled by the Buyer, except with the Seller's prior written consent, in which case the Seller reserves the right to claim as indemnity the value of manufactured goods or of the work in progress.

Description-changes in product

Descriptions and specifications appearing in the Seller's documentation are given as a guide only. The Seller reserves the right at any time and from time to time to make changes to the products in such a manner, as it may consider advisable particularly to have them conform to technical developments, but the Seller shall not be held to make such charges to its products previously delivered or the delivery of which is in progress. Any and all drawings, descriptions, specifications, proposals, price-lists and more generally any documents issued by the Seller are the Seller's proprietary information and cannot be used, reproduced or disclosed to third parties, except with the Seller's prior express agreement.

Lack of conformity-claims

Any claim relating to lack of conformity must be notified by registered letter together with a bill of receipt and requested within a 48-hour delay from the receipt of goods. Any use of the goods shall be considered as a waiver by the purchaser of the right to claim for lack of conformity.

Warranty

Warranty of the reagents /products occurs only if packing is stored under good conservation conditions. The materials and new equipment sold by OZ Biosciences are guaranteed against all manufacture defects for one year as from the delivery. This guarantee is applicable exclusively in the event of defect coming from design or hidden deficiency.

Payment conditions

All payments shall be due 30 days from the date of invoice, net and without credit, even in the case of cash payment. The payment of any partial delivery becomes eligible at the due date mentioned on the corresponding invoice, and not at the time of the balance dues. OZ Biosciences reserves the right to claim an installment before the order execution. Any deterioration of the Buyer credit could justify the demand of guarantees or require cash payment, before the execution of the received orders. In accordance with the legal provisions, if the payment is not made at the date stated on the invoice, interest on the delay of payment will be payable based upon three time the current bank rate from the day following the date upon which the payment was due and must be paid in addition to the amount stated on the invoice and the Sellers reserves the right to suspend the fulfillment of the any possible pending delivery. If the Buyer has past due balances or if its financial standing worsens seriously, the Seller reserves the right to require cash payment before execution of any further delivery, notwithstanding the usual conditions of payment. No compensation for any possible sums in litigation or any blocking of the payment of the invoices will be accepted. In the event of possible litigation all the expenses shall be borne buy the Buyer.

Retention of title – Cancellation

All goods delivered remain the seller's property until payment in full of their price. The transfer of title shall arise solely upon actual collection of price. The purchase of OZ Biosciences products grants the purchaser a non-transferable, non-exclusive license to use the products and/or its separate and included components. These products are intended for in-house research only by the buyer. In addition, research only use means that the products and all of its contents are excluded, without limitation, from resale, repackaging, or use for the making or selling of any commercial product or service without the written approval of OZ Biosciences. Title on goods being retained by the Seller until full payment of their price, it is expressly understood that the purchaser is not authorized to sell, pledge or in anyway dispose of the goods before such payment. Notwithstanding the retention of title, the purchaser shall bear any and all risks the good could undergo or cause as from the delivery of the goods. Should payment not have been made on the due date for the total or partial amount of the invoice, the Seller shall have the right to cancel any and all sales delivered but not paid for and to take back the goods, by notifying the purchaser of its intent by registered mail together with a bill of receipt and requested eight days before the taking back. The costs of return of the goods shall be due by the purchaser in default, together with any depreciation of the goods. The Seller as compensation shall retain installments previously paid.

Jurisdiction

The players will seek, before any contentious action, a friendly agreement. The Tribunal of Commerce of Marseille (France) shall be the only competent party to settle any dispute, in the event of litigation, resulting from an order, unless OZ Biosciences prefer to seize any other competent court of jurisdiction. This condition may not be waived or modified by opposing terms appearing on any documents of the Buyer, even in the event of summary procedure, of incidental request or plurality of defendants or in calls of guarantee. No waiver by the Seller of strict compliance with any term of these Conditions shall constitute a waiver of any subsequent failure of the Buyer to comply strictly with each and every term and condition hereof.