OZBIOSCIENCES
The art of delivery systems

DNA Transfection

Increase your DNA delivery in Cell Lines & Primary Cells

Decisionnal Tree

What type of cells do you want to transfect ?

- **Primary cells**
  - Polymer-based reagent : Stand-alone reagent, ready to use. → PolyMag Neo (M)
  - Lipid-based reagent : Transfection kit, offers greater optimization freedom. → Magnetofectamine™ O2 (M)
- **Cell Lines**
  - Lipid-based reagent : high protein expression level. → DreamFect™ Gold
  - Polymer-based reagent : no interference with cellular lipid metabolism, low autofluorescence. → HelixIN
- **Specific cells**
  - Neurons → NeuroMag (M)
  - Microglial Cells → Glial-Mag (M)
  - Hela Cells → HelaFect
  - Vero Cells → VeroFect
  - Insect Cells → FlyFectIN™
- **3D cell culture**
  - 3D-scaffolds → 3D Fect™
  - Gel (Hydrogel) → 3D FectIN™
- **Explants**
  - Organotypic cultures → XP Mag (M)

(M) Magnetofection Technology - This reagent needs to be used with a magnetic plate

More information at www.ozbiosciences.com

Primary Cells

PolyMag Neo

PolyMag Neo, a versatile polymer-based transfection reagent, is composed of magnetic nanoparticles coated with specific cationic molecules. It enhances transfection efficiency on primary cells and hard-to-transfect cells.

- High transgene expression
- High transfection efficiency on primary cells
- Multipurposes: successfully tested with with various cells and nucleic acids
- High performance even with low doses of nucleic acids

Over 120 cells tested!

«Primary human neonatal cardiomyocytes successfully transfected with plasmid DNA using Polymag.»
Bittel DC. et al, Cells. 2014.

«DNA Transfection, gene silencing & cotransfection (DNA + siRNA) in HUVEC using PolyMag.»
Acosta MI. et al, Scientific Rep. 2018.

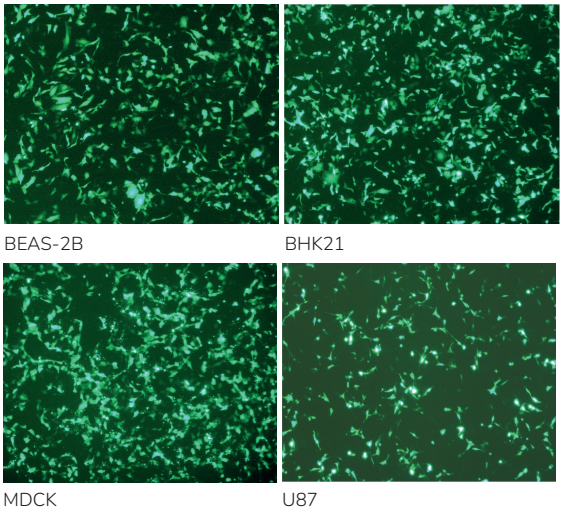


Figure 1: $1x10^5$ cells were transfected with PolyMag Neo reagent in 24-well plates. EGFP expression was monitored 24h after transfection by fluorescence microscopy.

Magnetofectamine O2

The alliance of MTX transfection reagent and CombiMag reagent is the perfect one to lead to increased transfection efficiency, minimized toxicity and enhanced gene expression.

- Boost transfection efficiency
- Low amount of nucleic acids - minimized toxicity
- No need to change your standard protocol
- Serum compatible

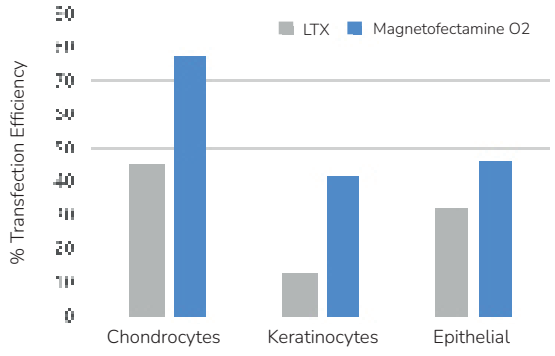


Figure 2: Various primary cells were transfected with LTX or Magnetofectamine O2 (MTX-O2). Results showed that Magnetofectamine O2 outperforms LTX transfection efficiency.

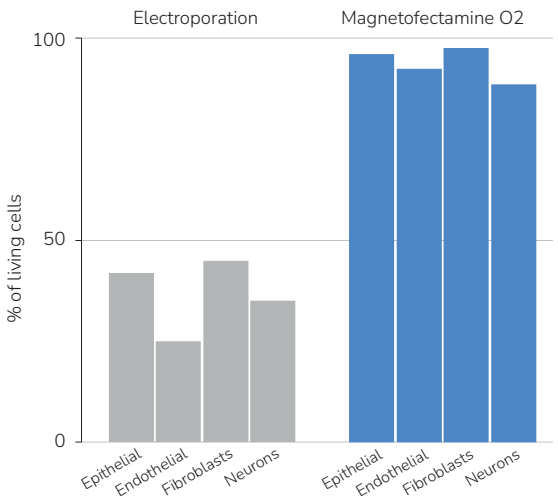


Figure 3: Cytotoxicity comparison on primary cells between 2 transfection methods: Electroporation and MTX02.

Cell Lines

Dreamfect™ Gold

Based on the Tee-technology, DreamFect™ Gold 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.

- Biodegradable - Avoid secondary effects
- Simple, rapid and easy-to-use
- Serum compatible

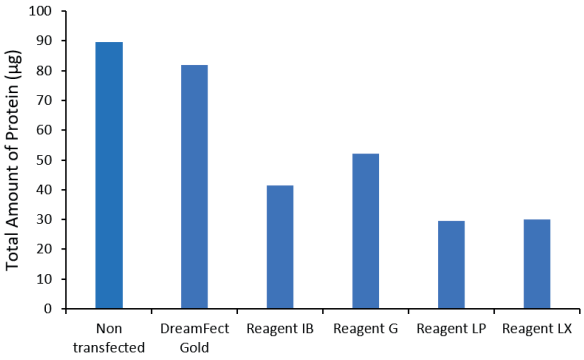
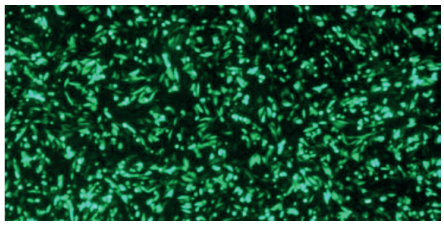


Figure 4: HeLa cells were transfected with 0.5 µg of pLacZ plasmid and 2 µL of each reagent per well in a 96-well plate. The total amount of protein per well was monitored 24 h after transfection using OZ Biosciences' Bradford Protein Assay kit (catalog number BA00100).

CHO-K1



HeLa-S3

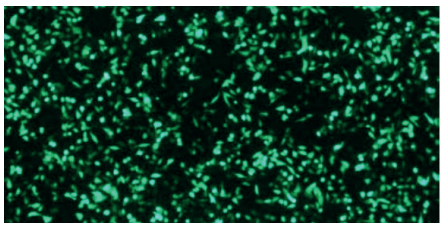


Figure 5: Different cell lines were transfected with 1 µg of pEGFP plasmid DNA and 4 µL of DreamFect Gold reagent per well in a 24-well plate. EGFP expression was monitored 24 h after transfection by fluorescence microscopy.

DNA/RNA/ODN...

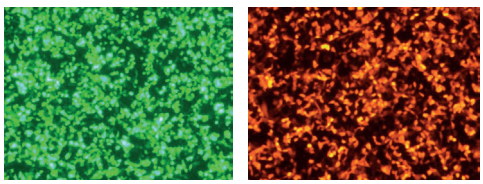
Helix-IN™

OZ Biosciences revolutionizes Polyfection with the design of Helix-IN™, a novel patented Cationic Hydroxylated Amphiphilic Multi-block Polymer (CHAMP™ Technology). This novel bi-functional co-polymer is biocompatible, ionizable, pH responsive and biodegradable.

- Broad Spectrum transfection Reagent for cell lines and hard-to-transfect cells
- High Intracellular Protein Production while preserving viability
- High secreted Protein Production while minimizing cellular stress
- Biodegradable - Avoid secondary effects

«Discover how to use Helix-IN to transfect prostate cancer cell line DU145»
Liu X. et al - Nature Communications. 2018

Helix-IN



Lipofectamine 2000

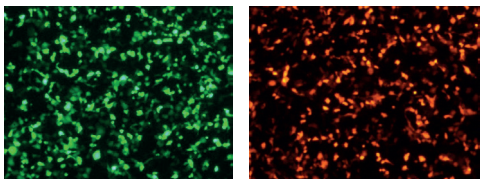


Figure 6: HEK-293 cells were cotransfected with 0.25 µg or pVectOZ-GFP and 0.25µg of mCherry encoding vector using Helix-IN (ratio 2:1) or commercial reagents following manufacturer's instruction.

BROAD SPECTRUM

NEURONS

NeuroMag

NeuroMag is the first dedicated transfection reagent for neurons. It is perfect for primary neurons but also for neural cells. Due to its unique properties, NeuroMag allows to follow the maturation of transfected neurons during several days after transfection.

- Highly efficient on primary neurons: hippocampal, cortical, motor and dopaminergic neurons, glioblastoma, neuroblastoma, DRG, oligodendrocytes, neural stem cells...
- Efficient from 1 DIV to 21 DIV
- Non toxic and completely biodegradable: high transfected neurons viability
- Long transgene expression (up to 7 days)
- Suitable for all types of nucleic acids

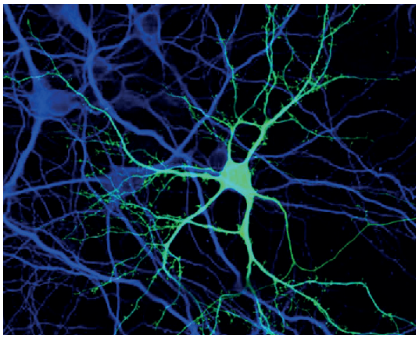


Figure 7: Primary rat hippocampal neurons 6 days after transfection with NeuroMag.

«Transfection of small RNAs (siRNAs, siPOOLs or sgRNAs) in primary Retinal Ganglion Cells using NeuroMag.»
Welsbie DS et al, Neuron. 2017.

«Transfection efficiency of primary cortical neurons was in the range of 20–30% for overexpression, and 10–15% for TDP-43 knockdown experiments.»
Chou C.C. et al, Nature Neuroscience. 2018.

GLIAL CELLS

Glial-Mag

Glial-Mag transfection reagent is a new powerful formulation for delivery of nucleic acids into microglial cell lines and primary microglia. This kit is the association of a specific magnetic nanoparticles formulation (Glial-Mag reagent) and a booster (Glial-Boost) designed to enhance transfection efficiency.

- For transfection of microglial cells line such as BV2, N9, N13, HMO6, MG-5, SIM-A9 and primary microglia
- Low nucleic acid amount - minimized toxicity
- High level of nucleic acid compaction

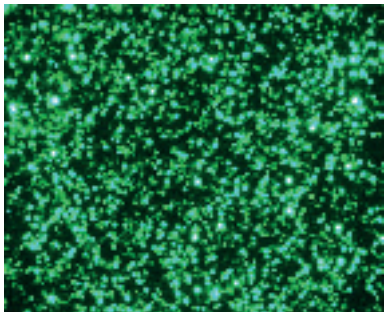


Figure 9: BV2 transfected with pVectOZ-GFP using Glial-Mag.

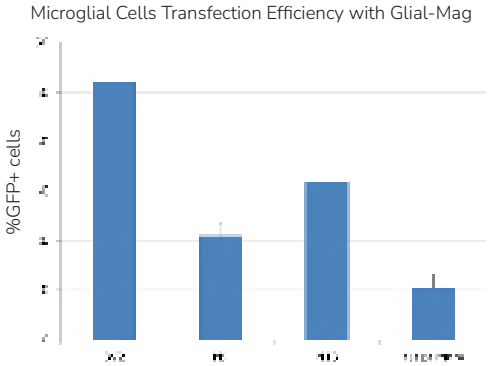


Figure 8: BV2, Rat Primary, N9 and N13 cells were transfected with Glial-Mag. After 24h, GFP+ cells were analyzed by Flow cytometry.

«Magnetofection is superior to other chemical transfection methods in a microglial cell line.»
Smolders S. et al, Journal Neuroscience Methods. 2018.

Specific Cells

HeLaFect

HeLaFect is a lipid-based reagent based on the Tee-Technology ("Triggered Endosomal Escape"). The cationic design of HeLaFect reagent allows high nucleic acid compaction for an efficient transport into HeLa cells.

- More than 80% of transfected HeLa cells
- Ready-to-use
- Low nucleic acid amount - minimized toxicity
- Compatible with any culture medium

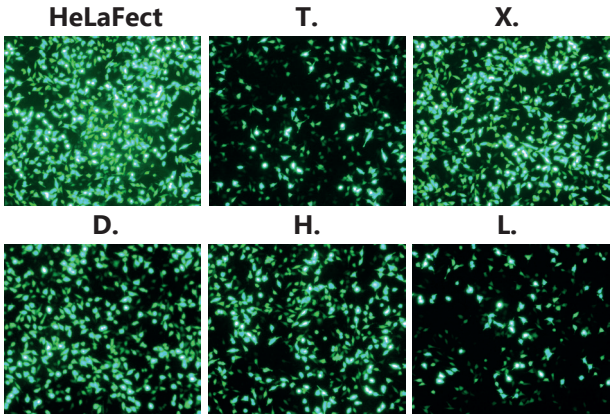


Figure 10: Complexes of DNA and HeLaFect were prepared (0.5 µg per well in a 24-well plate; ratio 2:1) and DNA transfections with other commercial transfection reagents were performed as recommended by the manufacturers. 24 h after, transfection efficiency was measured by FACS analysis and fluorescence microscopy.

HELA CELLS

VeroFect

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

- Highly efficient and reproducible results
- Simple, Ready-to-use and Rapid
- Non toxic
- Serum compatible

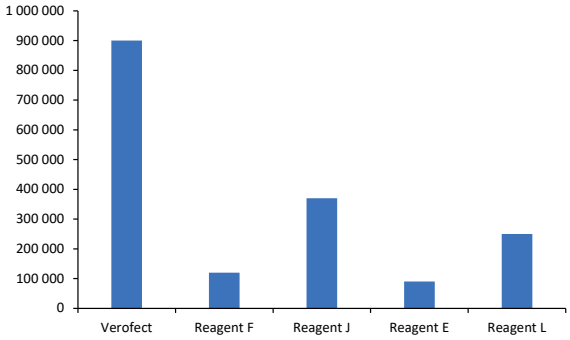


Figure 11: Cells were transfected with 0.5 µg/well of pLacZ plasmid and various transfection reagent in 96-well plates. β-Galactosidase expression was revealed 48 h after transfection using OZ Biosciences' ONPG b-Galactosidase assay kit (catalog number GO-10001).

VERO CELLS

FlyfectIN™

FlyFectin™ is a powerful reagent based on the TEE-technology and specifically designed to obtain highly efficient and reproducible transfection of insect cells. It is adapted to the delivery of all types of nucleic acids.

- Dedicated to insect cells
- Ideal for production of recombinant protein using Baculovirus expression system.
- Non toxic

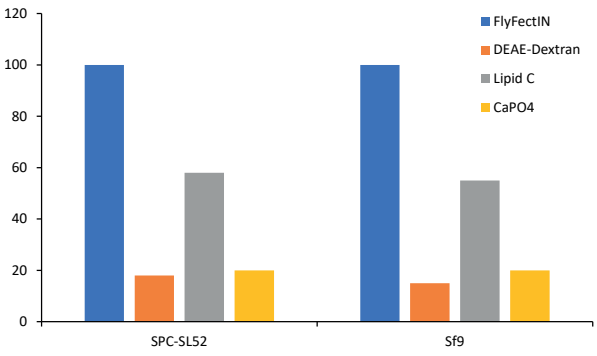


Figure 12: Cells were transfected according to the instruction manuals. Luciferase activities were measured with a Luciferase assay kit and results are expressed as relative values.

INSECT CELLS

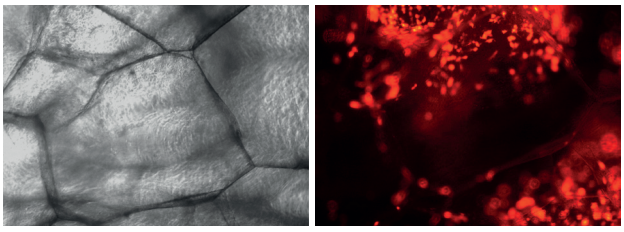
3D Cell Culture & Explant

3D Fect

3D SCAFFOLDS

3D Fect is specifically developed to directly transfect cells cultured in 3D scaffolds. 3D matrices not only add a third dimension to cells' environment, they also allow creating significant differences in cellular characteristics and behaviours.

- Specific for 3D Scaffolds
- Compatible with all types of nucleic acids
- Completely biodegradable
- Long term protein expression



White Field **RFP**

Figure 13: COS-7 cells (0.5 x105 cells/ well) were transfected in a Collagen-based 3D scaffold preloaded with complexes formed by 3 µg of RFP plasmid DNA and 12 µL of 3D-Fect transfection reagent per well in a 24-well plate. Photos were taken under white field and fluorescence 24h post-transfection.

3D FectIN™

HYDROGELS

3D-FectIN™ is the newest 3D-Transfection Reagent specifically developed to directly transfect cells cultured in 3D hydrogels. 3D-FectIN™ is suitable for all kind of hydrogels and cells. This method allows studying angiogenesis, tube and acini formation, colonization ...

- Specific for 3D Hydrogels
- Compatible with all types of nucleic acids
- Completely biodegradable
- Serum compatible

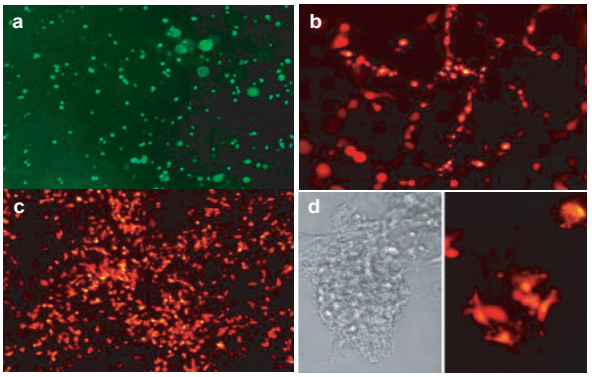


Figure 14: DNA Transfection of various cells on different gels with 3D-Fectin.

XP Mag

EXPLANTS

XPMag is a novel magnetic nanoparticles formulation dedicated to gene transfection in organotypic cultures of explant by "Reverse Magnetofection", which allows the delivery of nucleic acids (NA) up to the deepest explant layers.

- Low nucleic acid amount - minimized toxicity
- High level of nucleic acid compaction
- Easy and straightforward protocol
- Compatible with any type of explant

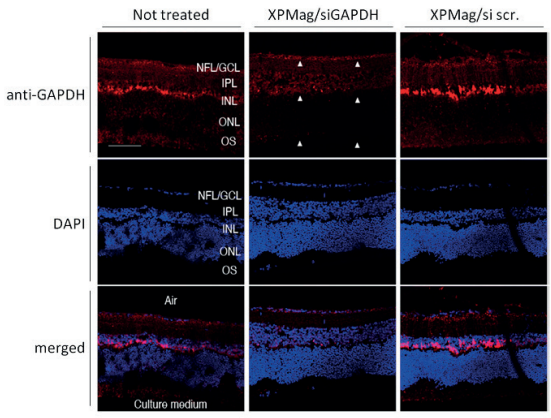


Figure 15: 100 nM siRNA against GAPDH (siGAPDH) or scrambled siRNA (siScr) were transfected by Reverse Magnetofection in sections of the central retina. Gene silencing was evaluated by immunostaining 72H after transfection using antibodies against GAPDH. Bands intensities were normalized and expressed as relative GAPDH expression.

Complementary products :

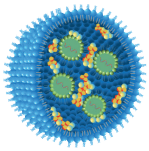
pVectOZ Transfection Plasmids :

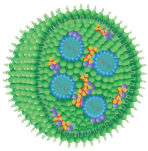
OZ Biosciences proposes five expressions vectors encoding for the most popular reporter genes (**CAT, GFP, LacZ, Luciferase, SEAP**). They are engineered in an optimized backbone and are ideal for all transfections.

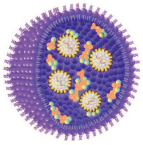
Ready to use mRNA :

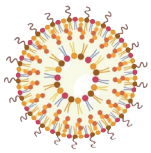
OZ Biosciences offers mRNAs that mimic fully processed mature mRNAs. These mRNAs are stabilized with **5' Cap 1** structure and **3' poly(A) tail** and are optimized to yield improved stability & performance. They can be modified with **5-methoxyuridine** or **N1-methyl-pseudouridine** to reduce innate immune responses. We also offer **unmodified mRNAs.**

Ready to use Lipid NanoParticles :


NanOZ LNP mRNA(GFP)


NanOZ LNP mRNA(Luc)


NanOZ LNP mRNA(OVA)


NanOZ empty-LNP

Custom services for mRNA and LNP :

Our platforms can produce custom mRNA according to your needs and preferences, and encapsulate them into LNP with the formulation of your choice.
Fill out the form on our website and we will get back to you with a quote !

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