PolyMag Results

Magnetofection™ is a novel, simple and highly efficient method to transfect cells in culture and in vivo. It exploits magnetic force exerted upon gene vectors associated with magnetic particles to drive the vectors towards, possibly even into, the target cells. In this manner, the complete applied vector dose gets concentrated on the cells within a few minutes so that 100% of the cells get in contact with a significant vector dose.

This has several important consequences:

1. Greatly improved transfection rates in terms of percentage of cells transfected compared to standard transfections.
2. Up to several thousand folds increased levels of transgene expression compared to standard transfections.
3. High transfection rates and transgene expression levels are achievable with extremely low vector doses, which allow saving expensive transfection reagents.
4. Extremely short process time in comparison to standard procedures. A few minutes of incubation of cells with gene vectors are sufficient to generate high transfection efficiency.

OZ Biosciences offers three types of ready-to-use reagents: **SilenceMag** specific to siRNA delivery, **CombiMag** designed to be associated with all vectors: transfection reagents and viruses and **PolyMag**. **PolyMag** has been designed and used successfully to deliver all types of nucleic acids such as plasmid DNA, RNA, Oligonucleotides & siRNA. **PolyMag** is a universally applicable magnetic particle preparation for high transfection efficiency. Nucleic acids to be transfected and the magnetic particles are mixed in a one-step procedure.

Nucleic Acid Types

Nucleic Acid or Virus Type	PolyMag	SilenceMag	CombiMag
DNA (plasmid)	√	NA	√
Oligonucleotides	√	ND	√
mRNA	√	ND	√
siRNA	√	√	√
dsRNA	ND	√	√
shRNA	ND	√	√
Adenovirus	NA	NA	√
Retrovirus	NA	NA	√

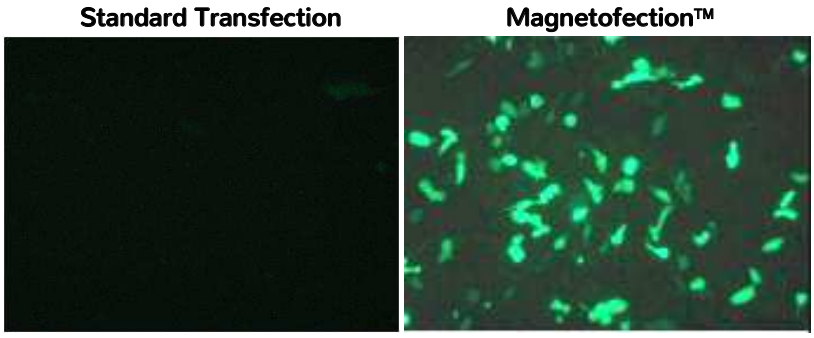
Cell Types

PolyMag is generally applicable on numerous cell types. This technology has been tested successfully on a variety of immortalized and primary cells.

Transfection of Primary Cells

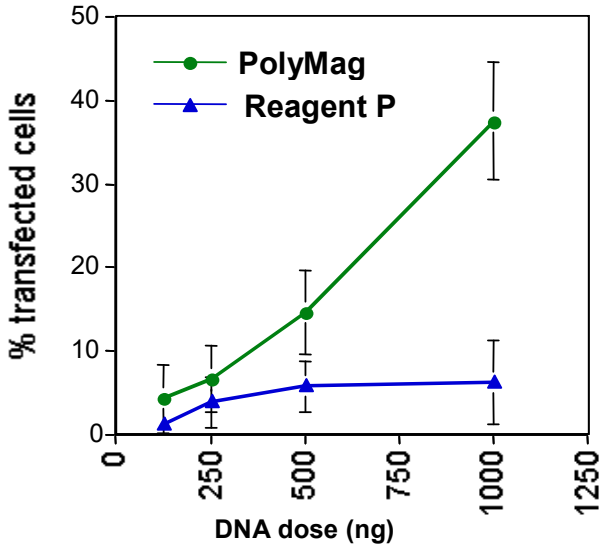
Confluent Primary Human Keratinocytes
Transfected with a commercial reagent L or **PolyMag**
Reporter Gene: GFP

We are grateful to the laboratories of Dr. C. Plank (Technical University, Munich) for kindly providing these data.



Primary Porcine Aortic Endothelial Cells
Transfected with a commercial reagent P or **PolyMag**
Reporter Gene: GFP
Culture dish: 96-well plate

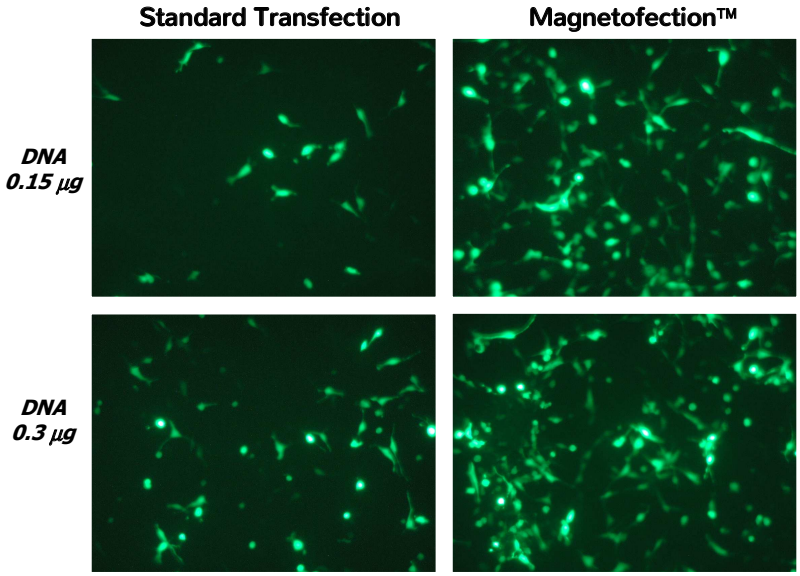
We are thankful to Dr. F. Kroetz (Ludwig-Maximilians University, Munich) for nicely providing these data.



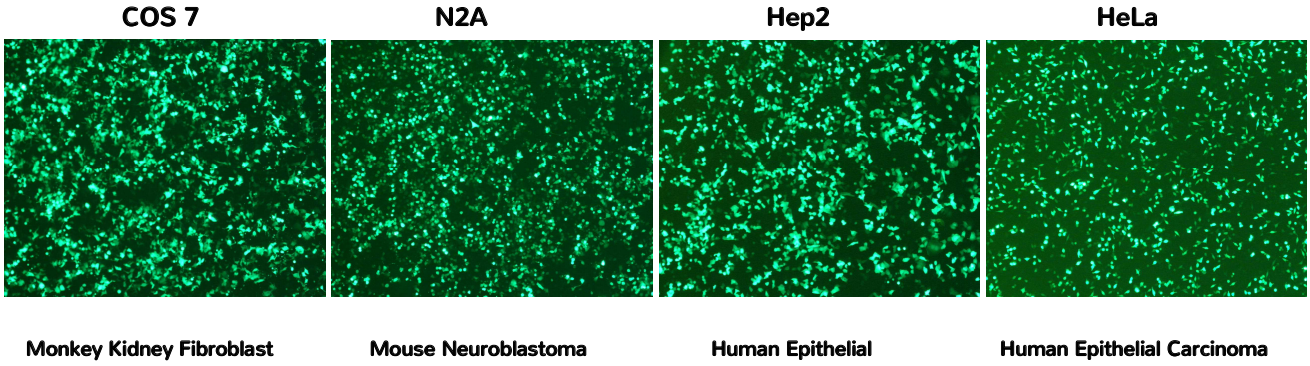
Transfection of Cell Lines

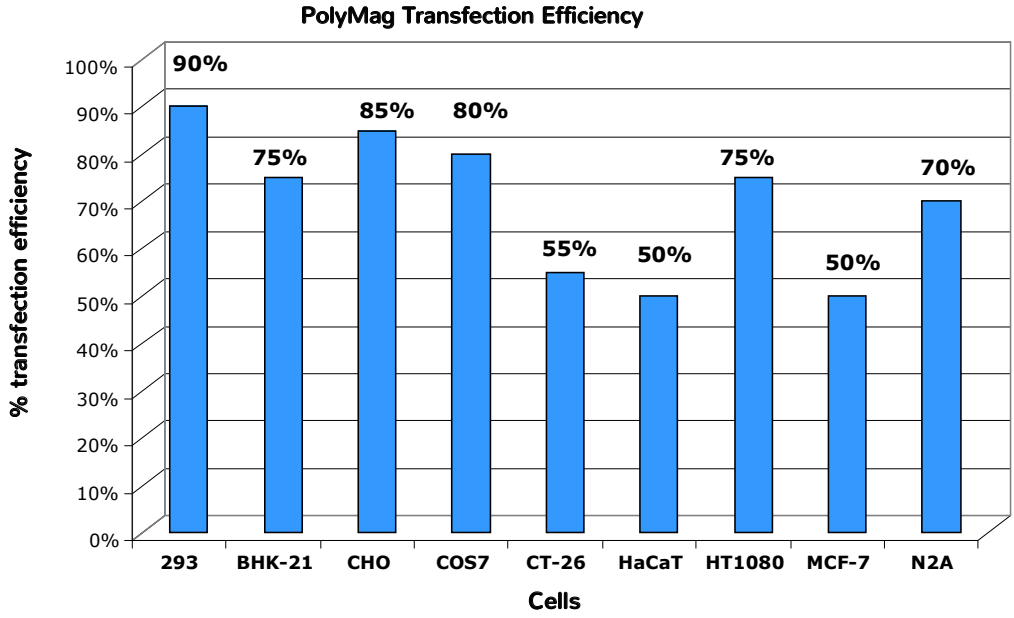
CT-26 Colon Carcinoma / Mouse
Transfected with a commercial reagent D or **PolyMag**
Reporter Gene: GFP
Culture dish: 24-well plate

We are grateful to the laboratories of Dr. C. Plank (Technical University, Munich) for kindly providing these data.



Various examples of **PolyMag** transfection efficiency (24-well plate; 0.5 l PolyMag & 0.5 g DNA/ well):



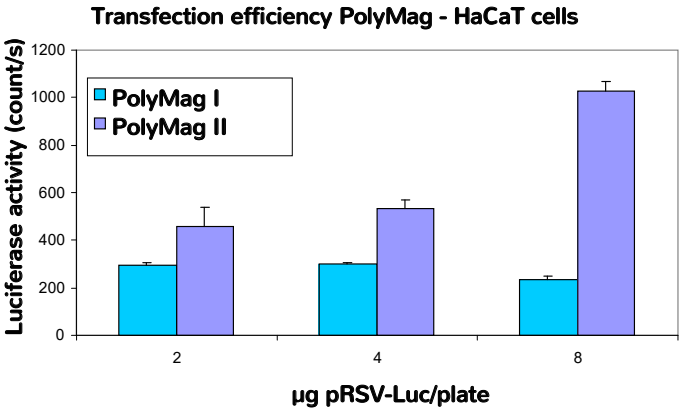


Improved and Optimized PolyMag Formulation

OZ Biosciences has developed a new very efficient **PolyMag** formulation for Magnetofection™. This improved PolyMag II reagent gives reliable higher transfection efficiencies in numerous cell types (see figures), transports all type of nucleic acids (DNA, siRNA, ODN). This **PolyMag** optimized formulation is the actual commercialized **PolyMag** reagent.

Most of the herein described results were obtained with the new optimized **PolyMag** formulation.

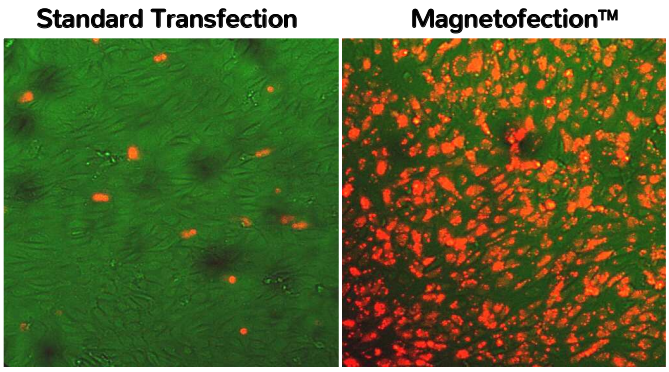
We are thankful to Dr. L. Journot (CNRS-UPR2580, Montpellier) for nicely providing these data.



Delivery of Oligonucleotides

HUVEC-C (Primary) / Human
Transfected with a commercial reagent E or **PolyMag**
Fluorescent Oligonucleotides
Culture dish: 24-well plate
ODN: 200 ng / well

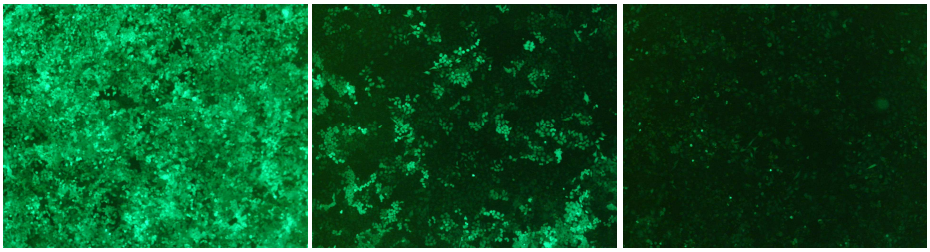
We are grateful to Dr. F. Kroetz (Ludwig-Maximilians University, Munich) for kindly providing these data.



siRNA Delivery Efficiency

GFP stably transfected HeLa cells.

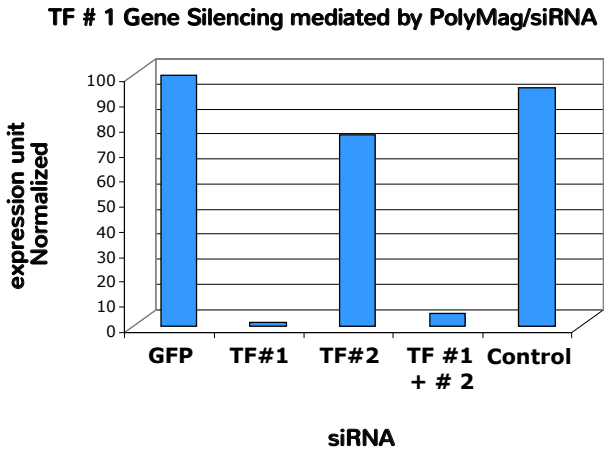
Target siRNA: GFP
Cell culture dish: 96-well plate
Transfection volume: 200 l.



Primary Human Umbilical Vein Endothelial Cells (HUVEC).
Target siRNA: Transcription factor # 1
Control siRNA: Transcription factor # 2
(Belongs to TF#1 family)
Control siRNA: GFP

Cell culture dish: 60 mm
SiRNA final concentration: 25nM (2x treatments)

We are grateful to Dr. D. Mathieu (CNRS-UMR5535, Montpellier) for kindly providing these data.



Cytotoxicity Electroporation vs. Magnetofection