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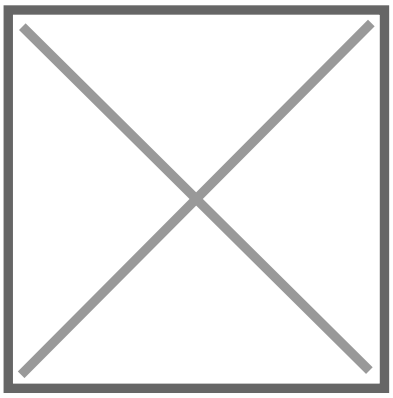
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# Transfection

**How to use OZ Biosciences' in vivo magnetofection™**

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 or 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?

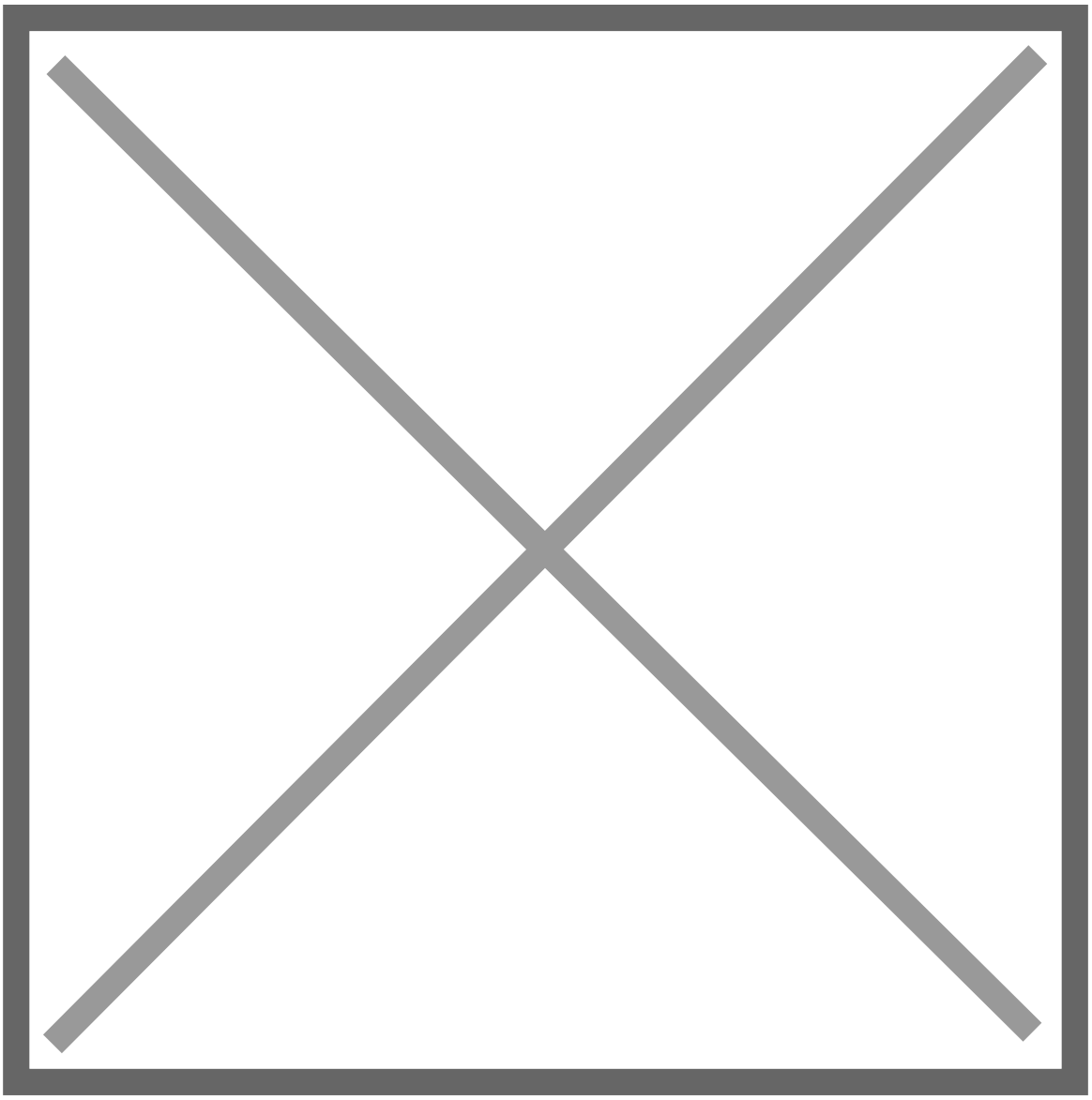
Three optimized In vivo Magnetofection reagents have been designed according to defined applications: In vivo PolyMag, In vivo DogtorMag, In vivo ViroMag, In vivo SilenceMag.

- 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.
- For gene silencing: In vivo SilenceMag is is a rapid, simple and highly efficient method dedicated to transfect small RNA (siRNA, miRNA) into target cells/tissue in vivo.

## 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),
- Local administration (intratumoral, intracerebroventricular, intraperitoneal, intramuscular, subcutaneous).



Magnet can be positioned:

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

https://www.ozbiosciences.com/content/15-in-vivo-magnetofection-targeted-gene-delivery