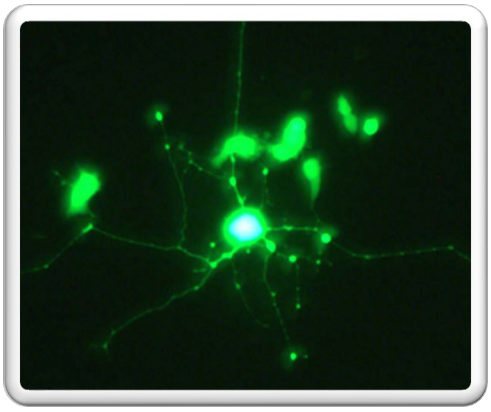
magnefect nano by BLACKFISH BIOTECH

Magnefect Nano

The system for high performance gene transfection

Magnefect Nano

The full-feature, fully flexible solution



GFP expression in PC12 neural cells

Blackfish Biotech's magnefect system uses improved gene transfection technology which applies oscillating magnet arrays and magnetic nanoparticles to promote particle/DNA uptake into cells.

The systems are proven to provide:

- Excellent cell viability
- Improved transfection efficiency and effectiveness
- Low running costs
- Rapid (<30 minutes), scalable transfection

- Fully flexible for optimisation and use with broadest range of cell types
- Possibility to switch between magnet array configurations (6-, 24- AND 96- well plate)
- Full control over software parameters (oscillation frequency, displacement, cycles, time)

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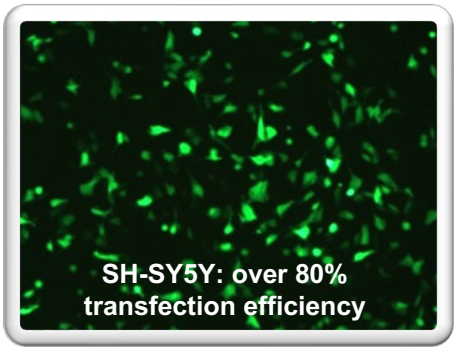
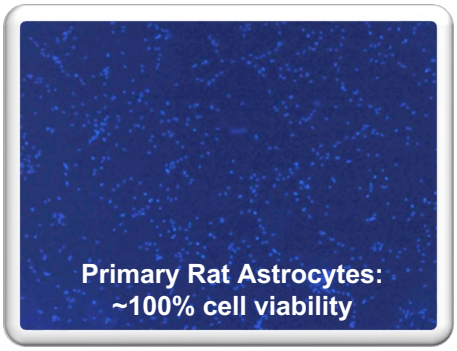
Magnefect Nano: proven performance and benefits

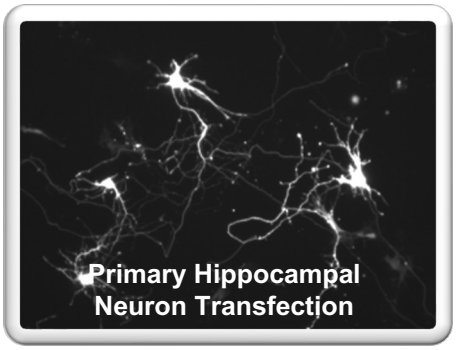
More efficient transfection: provides improved results



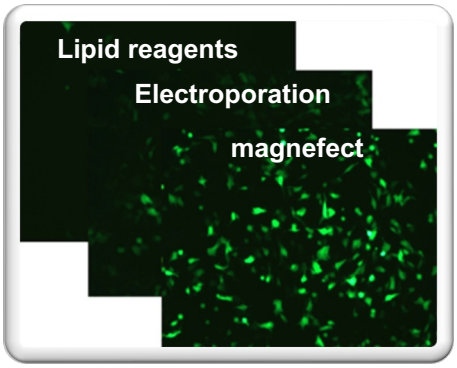
No adverse effects on cell viability (even after 72 hours): enables potential for *in vivo / ex-vivo use*



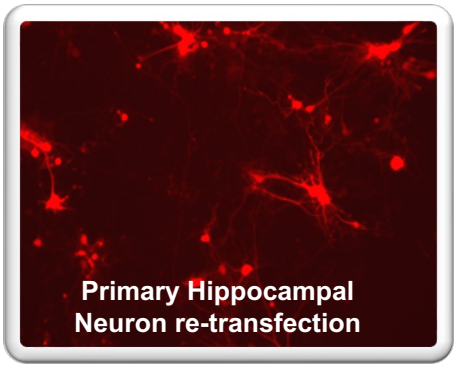
Transfection in adherent state; eliminates need for trypsinisation / detachment of cells)



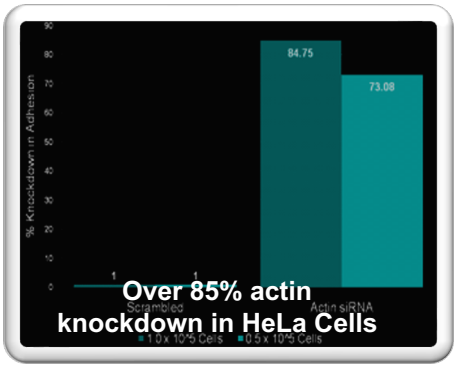
Higher levels of protein expression: for improved results



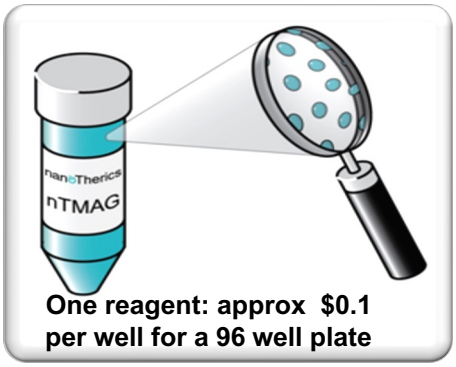
Possibility to re-transfect: enables user flexibility to improve results



Possibility to transfect DNA or siRNA: provide flexibility of use for different applications



Inexpensive to use: reduces costs



Scalability for high throughput screening; provides user flexibility

Significantly faster transfection times (<30 minutes): speeds up your experiments

Magnefect technology: how it works

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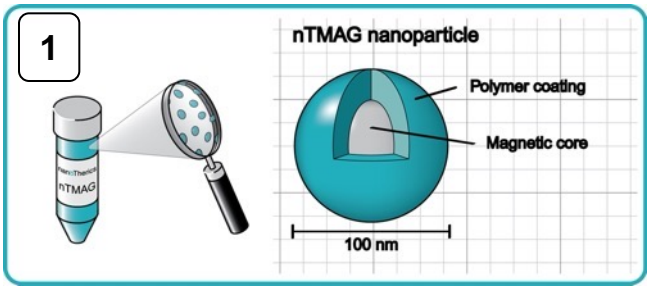
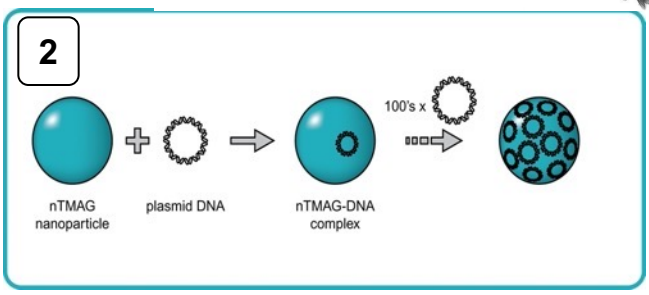
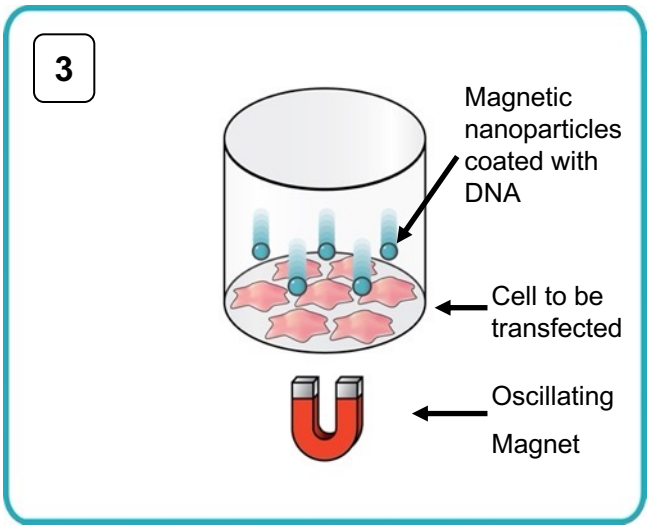
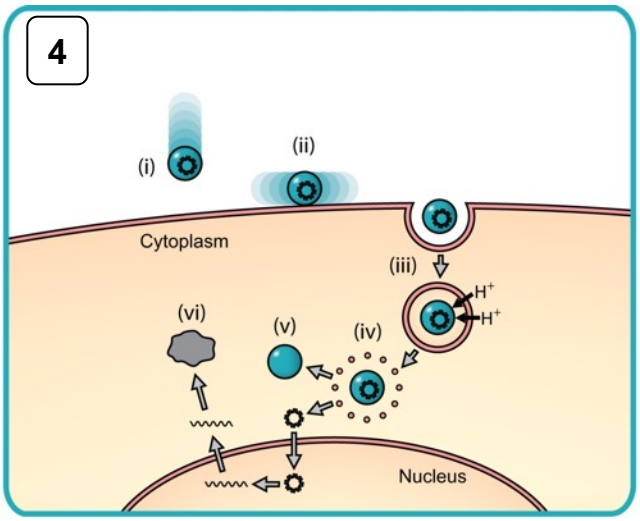


nTMag is an aqueous dispersion of magnetic nanoparticles coated with a positively charged polymer



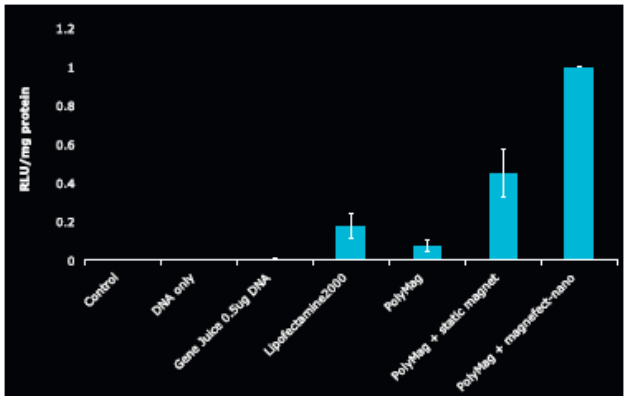
DNA condenses onto surface of nTMag particle. Many plasmids can condense onto a single nTMag particle.





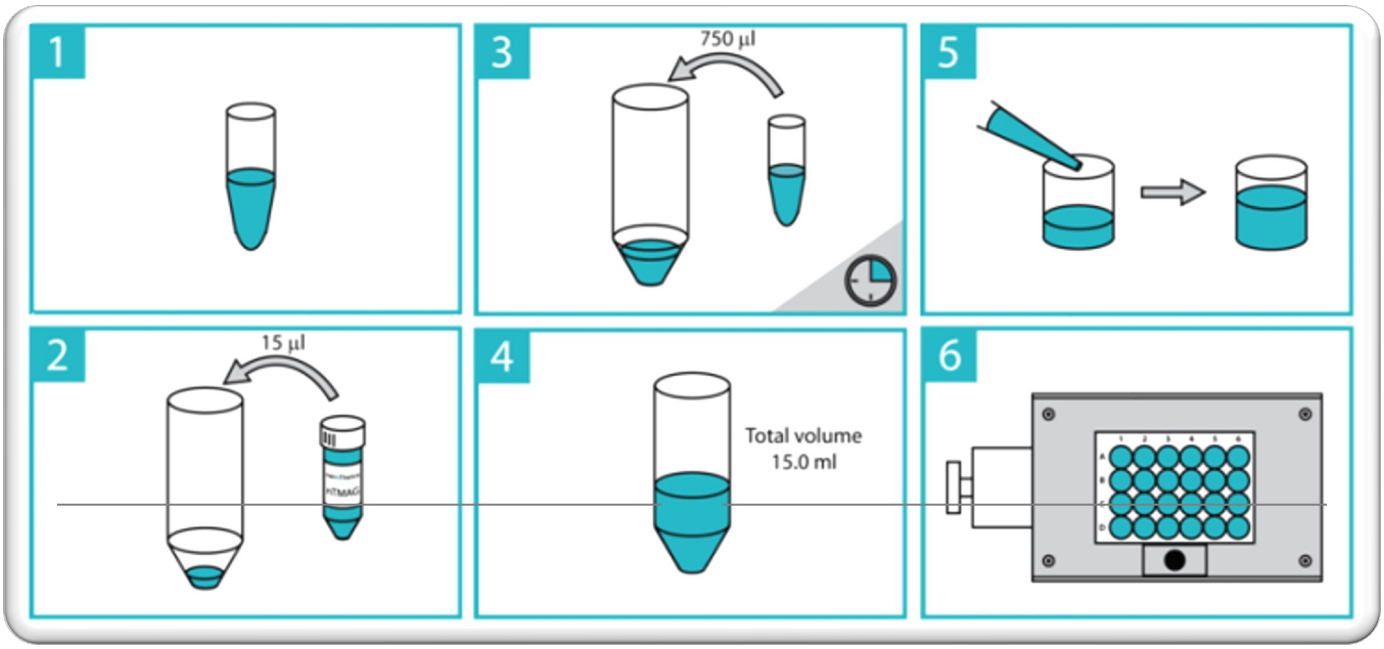
i. magnefect nano's oscillating magnets pull nTMag-DNA particle complex onto cell surface.
ii. Mechanical stimulation of cells caused by oscillating motion of particles complex stimulates endocytosis,
iii. Results in enhanced nTMag–DNA particle complex uptake.
iv. nTMag's polymer coating facilitates particle' complex escape from the endosome.
v. nTMag particle and plasmid DNA are then released into the cytoplasm.
vi. Plasmid DNA can then diffuse into nucleus where it can be transcribed and translated into transgene product.

Advantages of using oscillating magnet arrays



Normalised data from six experiments (N = 72) showing luciferase activity in NCI-H292 human lung epithelial cells transfected with pCIKLux luciferase reporter construct using magnetic nanoparticles in response to static and oscillating magnetic fields at 200 µm amplitude and 2Hz and comparing with other transfection methods (results from magnefect-nano seen on right of bar graph)

Easy to use: no need for wash steps or for special buffers / media



List of successful transfections

−Primary Neurons
−Primary Rat Astrocytes
−Aortic Smooth Muscles
−SH-SY5Y (differentiated and undifferentiated)
−PC-12 (differentiated and undefferentiated)
−BHK-1
−COS-7
−NIH 3T3
−CHO K1
−HeLa
−Jurkat
−MCF-7
−NCI H292
−HFF1
−MG63
−HEK 293
−THP-1
−MSC
−NCI H295R
−Large plasmids (18 kb)
−siRNA

Part numbers

−Magenfect Nano (comes with 6-well, 24-well and 96-well arrays: NAN101004
−6-well plate array: NAN102003
−24-well plate array: NAN102002
−96-well plate array: NAN102001
−magnefect-LT 6-well array: NAN101007
−magnefect-LT 24-well array: NAN101006
−magnefect-LT 96- well array: NAN101005