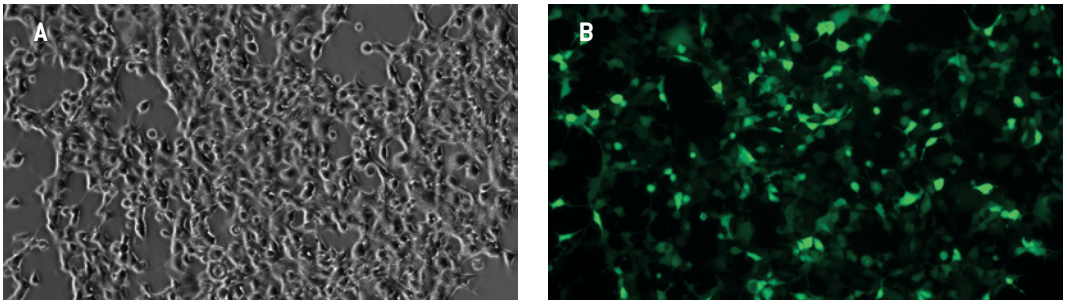
Amaxa® Cell Line Nucleofector® Kit V

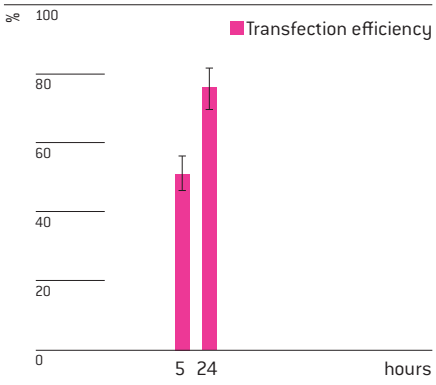
For HEK-293 [ATCC® CRL-1573™, cryopreserved]

Human embryonal kidney; adherent fibroblastoid cells in monolayers

Example for Nucleofection® of HEK-293 cells



HEK-293 cells (ATCC® CRL-1573™) were transfected with the Cell Line Nucleofector® Kit V, Program Q-001 and a plasmid encoding the fluorescent protein eGFP. Cells were analyzed 24 hours post Nucleofection® using light (A) and fluorescence microscopy (B).



Average transfection efficiency of HEK-293 cells. HEK-293 cells (ATCC® CRL-1573™) were transfected with program Q-001 and 5 µg of a plasmid encoding the mouse MHC class I heavy chain molecule H2Kk. Cells were analyzed 5 and 24 hours post Nucleofection® by flow cytometry. Cell Viability is around 70 – 80%.

Product Description

Cat. No.	**VCA-1003**
Size (reactions)	25
Cell Line Nucleofector® Solution V	2.25 ml (2.05 ml + 10% overfill)
Supplement	0.5 ml (0.45 ml + 10% overfill)
pmaxGFP® Vector (0.5 µg/µl in 10 mM Tris pH 8.0)	30 µg
Certified cuvettes	25
Plastic pipettes	25
Storage and stability	Store Nucleofector® Solution, Supplement and pmaxGFP® Vector at 4°C. For long-term storage, pmaxGFP® Vector is ideally stored at -20°C. The expiration date is printed on the solution box. Once the Nucleofector® Supplement is added to the Nucleofector® Solution it is stable for three months at 4°C.

Required Material

Note **Please make sure that the entire supplement is added to the Nucleofector® Solution. The ratio of Nucleofector® Solution to supplement is 4.5 : 1. For a single reaction use 82 µl of Nucleofector® Solution plus 18 µl of supplement to make 100 µl of total reaction volume.**

- Supplemented Nucleofector® Solution at room temperature
- Supplied certified cuvettes
- Supplied plastic pipettes
- Supplied pmaxGFP® Vector
- Substrate of interest, highly purified, preferably by using endotoxin-free kits; A260 : A280 ratio should be at least 1.8
- 6-well culture dish or culture system of your choice
- **For detaching cells:** 0.5 mg/ml Trypsin and 0.2 mg/ml EDTA in PBS and supplemented culture media or PBS/0.5% BSA
- **Culture medium:** Minimum Essential Medium [ATCC®, Cat. No. 30-2003] supplemented with 10% FCS and 1 mM sodium pyruvate [Lonza, Cat. No. BE13-115E]
- Prewarm appropriate volume of culture medium to 37°C (1.5 ml per sample)
- Appropriate number of cells (1 x 10^6 cells per sample; lower or higher cell numbers may influence transfection results)

1. Pre Nucleofection®

Cell culture recommendations

1.1 Replace media every 2 days
1.2 Passage cells at 80 – 90% confluency
1.3 Seed out 5 x 10^5 cells/25cm2 flask
1.4 Subculture 2 – 3 days before Nucleofection®
1.5 HEK-293 cells should not be used for Nucleofection® after passage number 20.
1.6 Optimal confluency for Nucleofection®: 80 – 90%. Higher cell densities may cause lower Nucleofection® Efficiencies

Trypsinization

1.7 Remove media from the cultured cells and wash cells once with PBS; use at least same volume of PBS as culture media
1.8 For harvesting, incubate the cells ~5 minutes at 37 °C with indicated trypsinization reagent (please see required material)
1.9 Neutralize trypsinization reaction with supplemented culture medium or PBS/0.5% BSA once the majority of the cells (>90%) have been detached

2. Nucleofection®

One Nucleofection® Sample contains

1 x 10^6 cells
1 – 5 µg plasmid DNA (in 1 – 5 µl H_2O or TE) or 2 µg pmaxGFP® Vector or 30 – 300nM siRNA (3 – 30 pmol/sample)
100 µl Cell Line Nucleofector® Solution V

2.1 Please make sure that the entire supplement is added to the Nucleofector® Solution
2.2 Prepare 6-well plates by filling appropriate number of wells with 1 ml of supplemented culture media and pre-incubate/equilibrate plates in a humidified 37°C/5% CO_2 incubator
2.3 Harvest the cells by trypsinization (please see 1.7 – 1.9)
2.4 Count an aliquot of the cells and determine cell density
2.5 Centrifuge the required number of cells (1 x 10^6 cells per sample) at 200xg for 10 minutes at room temperature. Remove supernatant completely
2.6 Resuspend the cell pellet carefully in 100 µl room-temperature Nucleofector® Solution per sample

Note **Avoid leaving the cells in Nucleofector® Solution for extended periods of time (longer than 15 minutes), as this may reduce cell viability and gene transfer efficiency**

2.7 Combine 100 µl of cell suspension with **1 – 5 µg DNA**, 2 µg pmaxGFP® Vector or **30 nM – 300 nM siRNA** (3 – 30 pmol/sample) or other substrates
2.8 Transfer cell/DNA suspension into certified cuvette (sample must cover the bottom of the cuvette without air bubbles). Close the cuvette with the cap
2.9 Select the appropriate Nucleofector® Program **Q-001** (Q-01 for Nucleofector® I Device)
2.10 Insert the cuvette with cell/DNA suspension into the Nucleofector® Cuvette Holder and apply the selected program by pressing the X-button
2.11 Take the cuvette out of the holder once the program is finished
2.12 Immediately add ~500 µl of the pre-equilibrated culture medium to the cuvette and gently transfer the sample into the prepared 6-well plate (final volume 1.5 ml media per well). Use the supplied pipettes and avoid repeated aspiration of the sample

3. Post Nucleofection®

3.1 Incubate the cells in humidified 37°C/5% CO_2 incubator until analysis. Gene expression or down regulation, respectively, is often detectable after only 4 – 8 hours

Additional Information

For an up-to-date list of all Nucleofector® References, please refer to:
www.lonza.com/nucleofection-citations

For more technical assistance, contact our Scientific Support Team:

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