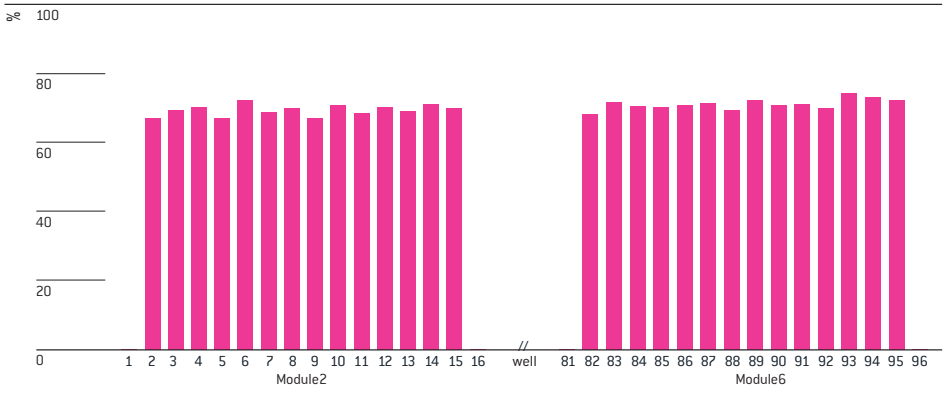
Amaxa® Cell Line 96-well Nucleofector® Kit SE

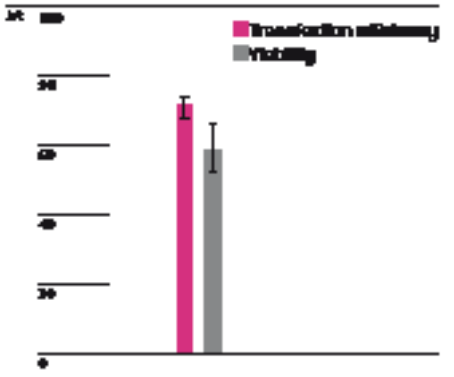
For MCF7

Human mammary gland adenocarcinoma cell line; adherent epithelial

Example for Nucleofection® of MCF7



Well-to-well uniformity of reporter gene expression in MCF7 cells transfected with the Nucleofector® 96-well Shuttle® System. MCF7 cells were transfected with 0.4 µg pmaxGFP® Vector using the Cell Line 96-well Nucleofector® Kit SE. 24 hours post Nucleofection® cells were analyzed on a FACSCalibur™ with HTS option [Becton Dickinson]. Wells without GFP expression are negative controls of cells in 96-well Nucleofector® Solution and plasmid DNA but without Nucleofection®.



Transfection efficiency and viability of MCF7 cells 24 hours post Nucleofection®. MCF7 cells were transfected with program 96-EN-130 and 0.4 µg of pmaxGFP® Vector. 24 hours post Nucleofection® cells were analyzed on a FACSCalibur™ with HTS option [Becton Dickinson]. Cell viability was determined as % PI negative cells.

Product Description

Cat. No.	VHCA-1001	VHCA-2001
Size (reactions)	1 x 96	10 x 96
Cell Line 96-well Nucleofector® Solution SE	2.025 ml	20.25 ml
Supplement	0.45 ml	4.5 ml
pmaxGFP® Vector (0.2 µg/µl in 10 mM Tris pH 8.0)	45 µg	45 µg
Nucleocuvette® Plate(s)	1	10
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 expiry 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.	

Note **96-well Nucleofector® Solutions and standard Nucleofector® Solutions are not compatible.**

Required Material

Note **Please make sure that the entire supplement is added to the Nucleofector® Solution.**

- Nucleofector® 96-well Shuttle System (Nucleofector® Device, version IIS; 96-well Shuttle® Device; laptop with 96-well Shuttle® Software)
- Supplemented 96-well Nucleofector® Solution at room temperature
- Supplied Nucleocuvette® Plates
- Supplied pmaxGFP® Vector
- Substrate of interest, highly purified, preferably by using endotoxin free kits; A260 : A280 ratio should be at least 1.8
- **Nucleocuvette® compatible tips:** epT.I.P.S.® [US/CDN: Eppendorf North America, Cat. No. 2491.431, Rest of World: Eppendorf AG, Cat. No. 0030073.266], Matrix TallTips® [Matrix Technologies Corp., Cat. No. 7281] or LTS Tips [Rainin Instrument, LLC, Cat. No. SR-L10F, SR/SS-L250S, SR/SS-L300S]. Before using other types of pipette tips, please ensure they reach the bottom of the Nucleocuvette® Wells without getting stuck
- **For detaching cells:** 0.05% trypsin/0.02% EDTA and supplemented culture media or PBS/0.5% BSA
- 96-well culture plates or culture plates of your choice
- **Culture medium:** Minimum essential media (Eagle) with 2 mM L-glutamine and Earle's BSS adjusted to contain 1.5 g/L sodium bicarbonate, 0.1 mM non-essential amino acids and 1 mM sodium pyruvate, 90% supplemented with 0.01 mg/ml bovine insulin [Sigma, Cat. No. I-0516]; fetal bovine serum
- Prewarm appropriate volume of culture media at 37°C (255 µl per sample)
- Appropriate number of cells (4 x 10^5 cells per sample; lower or higher cell numbers may influence transfection results)

1. Pre Nucleofection®

Cell culture recommendations

1.1 Replace media 2 – 3 times week (30 ml per 162 cm^2 flask)
1.2 Cells should be passaged at 75 – 80% confluency
1.3 Seed out 2 x 10^5 cells/cm^2
1.4 Subculture 3 – 4 days before Nucleofection®
1.5 For Nucleofection® cells should be 75 – 80% confluent

Trypsinization

1.6 Remove media from the cultured cells and wash cells once with PBS; use at least same volume of PBS as culture media
1.7 For harvesting, incubate the cells at 37°C with e.g. 0.05% trypsin/0.02% EDTA
1.8 Inactivate trypsinization reaction with supplemented culture media or PBS/0.5% BSA

2. Nucleofection®

One Nucleofection® Sample contains

4 x 10^5 cells
0.2 – 1 µg plasmid DNA (in 1 – 2 µl H_2O or TE) or 0.4 µg pmaxGFP® Vector or 30 – 300nM siRNA (0.6 – 6 pmol/sample)
20 µl Cell Line 96-well Nucleofector® Solution SE

2.1 Please make sure that the entire supplement is added to the Nucleofector® Solution
2.2 Start Nucleofector® 96-well Shuttle® Software, verify device connection and upload experimental parameter file (for details see Manual "Nucleofector® 96-well Shuttle® System")
2.3 Select the appropriate Nucleofector® Program **96-EN-130**
2.4 Prepare cell culture plates by filling appropriate number of wells with desired volume of recommended culture media, e.g. 175 µl for one well of a 96-well plate and pre-incubate/equilibrate plates in a humidified 37°C/5% CO_2 incubator
2.5 Pre-warm an aliquot of culture media to 37°C (80 µl per sample* see comments at the end of this chapter)
2.6 Prepare **0.2 - 1 µg** plasmid DNA or 0.4 µg pmaxGFP® Vector. For siRNA experiments we recommend to start using **30 nM – 300 nM** (0.6 – 6 pmol/sample).
2.7 Harvest the cells by trypsinization (please see 1.6 – 1.8)
2.8 Count an aliquot of the trypsinized cells and determine cell density
2.9 Centrifuge the required numbers of cells (4 x 10^5 cells per sample) at **90xg for 10 minutes** at room temperature
2.10 Resuspend the cell pellet carefully in 20 µl room temperature 96-well Nucleofector® Solution per sample

A. One or several substrates (DNAs or RNAs) in multiples:

– Prepare mastermixes by dividing cell suspension according to number of substrates
– Add required amount of substrates to each aliquot (max. 2 µl per sample)
– Transfer 20 µl of mastermixes into the wells of the 96-well Nucleocuvette® Modules

B. Multiple substrates (e.g. library transfection):

– Pipette 20 µl of cell suspension into each well of a sterile U- or V-bottom 96-well microtiter plate
– Add 2 µl substrates (maximum) to each well
– Transfer 20 µl of cells with substrates into the wells of the 96-well Nucleocuvette® Modules

Note **It is advisable to pre-dispense each cell suspension into a sterile round-bottom 96-well plate or to pipet from a pipetting reservoir for multi-channel pipettes. Use a multi-channel or single-channel pipette with suitable pipette tips. As leaving cells in 96-well Nucleofector® Solution for extended periods of time may lead to reduced transfection efficiency and viability it is important to work as quickly as possible. Avoid air bubbles while pipetting.**

2.11 Gently tap the Nucleocuvette® Plate to make sure the sample covers the bottom of the well
2.12 Place 96-well Nucleocuvette® Plate with closed lid into the retainer of the 96-well Shuttle. Well "A1" must be in upper left position

2.13 Start 96-well Nucleofection® Process by either pressing "Upload and start" in the 96-well Shuttle® Software or pressing "Upload" in the 96-well Shuttle® Software and then the "Start" button at the 96-well Shuttle® (for both options please refer to the respective Manual)

2.14 After run completion, open retainer and carefully remove the 96-well Nucleocuvette® Plate from the retainer

2.15 Resuspend cells with desired volume of pre-warmed media (maximum cuvette volume 200 µl)

2.16 Mix cells by gently pipetting up and down two to three times. Recommendation for 96-well plates: Resuspend cells in 80 µl of pre-warmed media*

2.17 Plate desired amount of cells in culture system of your choice. Recommendation for 96-well plates: Transfer 25 µl of resuspended cells to 175 µl pre-warmed media prepared in 96-well culture plates*

*** Note** **The indicated cell numbers and volumes have been found to produce optimal 96-well Nucleofection® Results in most cases, however, depending on your specific needs you may wish to test an extended range of cell numbers. Cell numbers and volumes can be adapted such that fewer cells are transferred or duplicate plates can be seeded.**

3. Post Nucleofection®

3.1 Incubate the cells in a humidified 37°C/5% CO_2 incubator until analysis. Gene expression 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

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