

# BioArkLipo® In Vitro DNA and siRNA Transfection Kit (Ver. II)

----- A General Protocol for Transfecting Mammalian Cell

- ☐ 100 µl
- ☐ 500 µl
- ☐ 1000 µl



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This product is for laboratory research ONLY and not for diagnostic use

## Introduction:

Based on our innovative and proprietary lipid-conjugation technology, BioArkLipo® Transfection Kit, formulated from novel fluorinated cationic lipids, exhibits significant difference from other lipids transfection reagents in the market. BioArkTech® Transfection Kit is the most powerful yet very gentle gene delivery tool for a variety of applications including plasmid DNA and/or siRNA for most of mammalian cell types. Compared with leading products in the market, BioArkLipo® is more cost-effective and always provides higher transfection efficiency with less cytotoxicity.

## Contents Per Kit:

- 1x1.0 ml of BioArkLipo® DNA In Vitro Transfection Reagent
- 1x8.0 ml of BioArkLipo® Transfection Buffer (5x)

## Important Guidelines for Transfection:

- BioArkTech® reagent was formulated for DNA and siRNA transfection. The following standard protocol is given for DNA and siRNA transfection to mammalian cells. For a protocol of siRNA/DNA co-transfection, please email us at [Support@BioArkTech.com](mailto:Support@BioArkTech.com)
- For better efficiency, choosing BioArkLipo® Transfection Buffer (1x) is a must.
- To lower cytotoxicity, transfect cells in presence of serum (10%) and antibiotics.

## Part I. A General Protocol for DNA Transfection.

### Step I. Preparation of Working Solution of BioArkLipo® Transfection Buffer (1x)

BioArkTech® Transfection Buffer (5x) is provided as 5x concentrated stock solution. To make working solution, dilute one part of the stock solution with 4 parts of ddH<sub>2</sub>O. The BioArkLipo® Transfection Buffer (1x) working solution is stable at RT for 24 months.

**Note:** Always keep BioArkLipo® Transfection Buffer (5x) at RT. If refrigerated, white precipitates may appear. It won't affect the transfection efficiency. After dilution with 4 parts of ddH<sub>2</sub>O to make BioArkLipo® Transfection Buffer (1x) working solution, the white precipitates will disappear. Always keep BioArkLipo® Transfection Buffer working solution (1x) at RT.

### Step II. Cell Seeding:

Cells should be plated 18 to 24 hours prior to transfection so that the monolayer cell density reaches to the optimal 60-70% confluency at the time of transfection. Complete culture medium with serum and antibiotics is freshly added to each well 30-60 minutes before transfection.

**Note:** High serum levels (>5%) with antibiotics do NOT have inhibitory effect on transfection efficiency. We recommend using complete serum/antibiotics-containing medium to grow the cells during transfection.

### Step III. Preparation of BioArkLipo® -DNA Complex and Transfection Procedures:

For different cell types, the optimal ratio of BioArkLipo® (µL):DNA (µg) varies from 1:1 to 3:1. We recommend using BioArkLipo® (µL):DNA (µg) at 2:1 at a starting point.

The following protocol is given for transfection in 24-well plates, refer to [Table 1](#) for transfection in other culture formats.

- For each well, dilute 0.5 µg of DNA into 50 µl of BioArkLipo® Transfection Buffer (1x) prepared from [Step I](#). Mix by vortexing.
- Add 1.0 µl of BioArkLipo® reagent, vortex briefly to mix.
- Incubate for ~10 min at RT to allow BioArkLipo®/DNA complex to form. **Note:** Never keep the BioArkLipo®/DNA complex longer than 20 min.
- Add the BioArkLipo®/DNA transfection mix to the cells in serum containing medium drop wise.
- Swirl plate gently to homogenize.
- Check transfection efficiency 24 to 48 hours post transfection. 48 hours usually give better efficiency.

**Table 1. Recommended Amounts for Different Culture Vessel Formats**

| Culture Dish | Culture Medium (ml) | Plasmid DNA (µg) | BioArkLipo® Transfection Buffer (1x) (µL) | BioArkLipo® Reagent (µL) |
|--------------|---------------------|------------------|---|--------------------------|
| 96-well      | 0.1                 | 0.1              | 5   | 0.2                      |
| 48-well      | 0.25                | 0.25             | 25  | 0.5                      |
| 24-well      | 0.5                 | 0.5              | 50  | 1                        |
| 6-well       | 2                   | 2.0              | 200                                       | 4                        |
| 35 mm dish   | 2                   | 2.0              | 200                                       | 4                        |
| 60 mm dish   | 4                   | 4.0              | 400                                       | 8                        |
| 10 cm / T75  | 10                  | 10               | 800                                       | 20                       |
| 15 cm / T175 | 20                  | 20               | 1600                                      | 40                       |

**Storage:** BioArkLipo® Reagent is stable for up to 12 months at +4 °C after receipt. Keep BioArkLipo® Transfection Buffer (5x) at RT.

# BioArkLipo® In Vitro DNA and siRNA Transfection Kit



----- A General Protocol for Transfecting Mammalian Cell

- ☐ 100 µl
- ☐ 500 µl
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## Part II. A General Protocol for siRNA Transfection.

### Step I. Preparation of Working Solution of BioArkLipo® Transfection Buffer

BioArkLipo® Transfection Buffer (5x ) is provided as 5x concentrated stock solution. To make working solution, dilute one part of the stock solution with 4 parts of ddH<sub>2</sub>O. The 1x BioArkLipo® Transfection Buffer is stable at RT for 24 months.

**Note:** Always keep BioArkLipo® Transfection Buffer (5x ) at RT. If refrigerated, white precipitates may appear. It won't affect the transfection efficiency. After dilution with 4 parts of ddH<sub>2</sub>O to make BioArkLipo® Transfection Buffer (1x ) working solution, the white precipitates will disappear. Always keep BioArkLipo® Transfection Buffer working solution (1x ) at RT.

### Step II. Cell Seeding:

Cells should be plated 18 to 24 hours prior to transfection so that the monolayer cell density reaches to the optimal 50% confluency at time of transfection. Complete culture medium with serum and antibiotics is freshly added to each well 30-60 minutes before transfection. **Note:** High serum levels (>5%) with antibiotics usually do not have inhibitory effect on transfection efficiency. We recommend using complete serum/antibiotics-containing medium to grow the cells during transfection.

### Step III. Preparation of BioArkLipo®-siRNA Complex and Transfection Procedures:

For optimal siRNA-mediated silencing, we recommend using 10-80 nM siRNA (final concentration). The following protocol is given for transfection in 6-well plate, refer to **Table 2** for transfection in other culture formats.

- For each well, dilute 20 ~ 160 pmoles siRNA (for a final concentration of 10 to 80 nM per well) into 200 µl of BioArkLipo® Transfection Buffer (1x ) prepared from **Step I**. Mix gently.
- Add 4 µl of BioArkLipo® reagent, vortex briefly to mix.
- Incubate for ~10 min at RT to allow BioArkLipo® /siRNA complexes to form.

**Note:** Never keep the BioArkLipo®/siRNA complex longer than 20 min.

- Add the LBioArkLipo®/siRNA transfection mix to the cells in serum-containing medium drop wise.
- Swirl plate gently to homogenize.
- Check siRNA silencing efficiency 24 to 72 hours post transfection. 48-72 hours usually give better efficiency.

**Table 2. Recommended Amounts for Different Culture Vessel Formats**

| Culture Dish | Culture Medium (mL) | siRNA (pmoles) 10-80 nM | BioArkLipo® Transfection Buffer (1x ) (µL) | BioArkLipo® Reagent (µL) |
|--------------|---------------------|-------------------------|--|--------------------------|
| 96-well      | 0.1                 | 1 ~ 8                   | 10   | 0.3                      |
| 48-well      | 0.25                | 2.5 ~ 20                | 25   | 0.75                     |
| 24-well      | 0.5                 | 5 ~ 40                  | 50   | 1.5                      |
| 6-well       | 2                   | 20 ~ 160                | 200  | 4                        |
| 35 mm dish   | 2                   | 20 ~ 160                | 200  | 4                        |
| 60 mm dish   | 4                   | 40 ~ 320                | 400  | 8                        |
| 10 cm / T75  | 10                  | 100 ~ 800               | 800  | 20                       |

**Storage:** BioArkLipo® Reagent is stable for up to 12 months at +4 °C after receipt. Keep BioArkLipo® Transfection Buffer (5x ) at RT.