

## BoosterExpress™ Reagent Kit

### PRODUCT SUMMARY

**Cat. Nos.:** T20100B, T20101B, T20102B, T20103B

**Description:** The BoosterExpress™ Reagents are a set of chemical cocktails developed by Genlantis to increase the gene expression level obtained with synthetic non-viral DNA delivery systems such as GenePORTER® and GenePORTER® 2. They also can be used with all other commercially available transfection reagents. Three unique formulations have been developed for different cell types (Tables 1). They are very easy to use: simply add the appropriate BoosterExpress reagent to your culture medium 4 hours post-transfection. The level of gene expression can be enhanced by 2 to 12 fold (Table 3).

One vial of BoosterExpress Reagent (1.5 ml), at a 100 X concentration, is sufficient for 150 transfections using 1 ml transfection volume.

**Components:**

Catalog Number	Quantity
T20100B	Booster Reagent #1, 1 vial x 1.5 ml. Booster Reagent #2, 1 vial x 1.5 ml. Booster Reagent #3, 1 vial x 1.5 ml.
T20101B	Booster Reagent #1, 3 vials x 1.5 ml.
T20102B	Booster Reagent #2, 3 vials x 1.5 ml.
T20103B	Booster Reagent #3, 3 vials x 1.5 ml.

**Storage:** Store components at -20°C or + 4°C.

**Stability:** Booster Reagent # 1, #2 and #3 are stable for at least 6 months at + 4°C or -20°C.

### INTRODUCTION

The BoosterExpress Reagents are one of the newest advances in gene delivery developed by Genlantis. While featuring all of the advantages of DHC technology used by the GenePORTER® reagents (GenePORTER® and GenePORTER® 2 Transfection Reagents), the BoosterExpress Reagents assist in achieving even higher levels of transgene expression\*.

- Economical and easy to use
- Highest gene expression in diverse cell types
- Excellent enhancement with GenePORTER® and GenePORTER® 2 Transfection Reagents
- Very good improvement with other transfection reagents
- Effective for both transient and stable transfection
- Extended shelf life

\* The application of the BoosterExpress Reagent is cell type dependent. Indeed, some cells respond greatly to the booster reagent (see Table 1 and 3) whereas others are not responsive (Table 2). Since the BoosterExpress Reagents are cocktails of specific chemicals, they could affect cell phenotype to a certain degree. Moreover, cellular toxicity may be increased with these reagents for certain cells and optimization may be required (see Notes).

**Table 1: Cell Types with Transfection Efficiency Improved with the BoosterExpress™ Reagents**

BoosterExpress reagents successfully increase the expression level of a  $\beta$ -galactosidase reporter gene in the cell lines listed.

Transfected Cell Types	
Jurkat	K562
HeLa S3	MCF-7
PC-12	293
P19	HUV-EC-C

**Table 2: Cell Types Non-Responding to the BoosterExpress Reagents**

For some of the cell lines listed, boosters may exhibit some cytotoxicity.

Transfected Cell Types	
B16-F0	CV-1
BHK-21	Hep-G2
CHO-K1	MDCK
COS-7	NIH-3T3

**DIRECTIONS**

- Select the appropriate BoosterExpress Reagent for desired cell types according to Table 3
- Before each use, vortex the reagent briefly. Bring up to room temperature first if stored at  $-20^{\circ}\text{C}$ .
- Dilute the BoosterExpress Reagent 100 times in the culture medium.

**PROTOCOL**

1. Prepare the DNA/transfection reagent (such as GenePORTER<sup>®</sup> and GenePORTER<sup>®</sup> 2 reagents) complexes according to the manufacturer's instruction.
2. Transfer the complexes onto the cells growing in serum-free or serum-containing medium as suggested by the manufacturer's protocol.
3. 4 hours post-transfection, add the appropriate booster reagent to your cells. Each booster reagent provided is 100X concentrated. The booster reagent can be added to the cells in two different ways:
  - a. The preferred method is to prepare serum-containing medium with booster at 2X concentration (i.e., 1:50 dilution). The needed volume of booster-containing medium is equivalent to your transfection volume (i.e., if the cells are transfected in 1ml of medium, prepare 1 ml of 2X booster solution in serum-containing medium). Then add the booster-containing medium to the cells (final booster concentration is 1X). This method gives the best mixing.
  - b. Alternatively the booster can be directly added to the cells at a 1:100 dilution and mixed immediately by swirling. This step is very critical and important to avoid localized cytotoxicity. If your cells are transfected in serum-free medium, first add the serum-containing medium to your cells according to the transfection reagent manufacturer's protocol, and then add the booster reagent to 1X final concentration. On the other hand, if the transfection is done in serum-containing medium add the booster reagent directly to the cells to 1X final concentration.

4. If needed, add fresh growth media the next day (without BoosterExpress™ Reagents). To avoid possible excessive cytotoxicity, the next day remove the old medium containing the booster and replace it with fresh booster-free medium.
5. Depending on the cell type, reporter gene and promoter activity, the assay for the reporter gene can be performed 24 to 72 hours following transfection.
  - If you are using GenePORTER® and GenePORTER® 2 Reagents, please refer to Table 3 for the expected range of improvement.

**Table 3: Recommended Uses for the BoosterExpress and GenePORTER Reagents**

	Booster #1	Booster #2	Booster #3	<i>Recommended Transfection Reagent</i>	<i>Enhanced</i>
Jurkat	★★★	NR	NR	GenePORTER	4-8X
K-562	★★★	NR	NR	GenePORTER 2	4-12X
HeLa-S3	NR	★★★	★★	GenePORTER 2	4-10X
MCF-7	NR	★★	★★	GenePORTER 2	1.5-2X
PC-12	NR	★★	★★★	GenePORTER 2	2-8X
293	★★	★★	★★	GenePORTER 2	2-3X
P19	★★	★★★	★	GenePORTER 2	2-3X
HUV-EC-C	NR	NR	★	GenePORTER 2	1.5-2X

**LEGEND:** ★ Works Well, ★★ Works Better, ★★★ Works Best and NR: Not recommended due to increased toxicity and lowered transfection efficiency.

## NOTES

### Warning!

- For some cell types such as B16-F0, BHK-21, CHO-K1, COS-1, COS-7, CV-1, HeLa, Hep-G2, MDCK and NIH-3T3 we do not recommend the use of the BoosterExpress reagents. The reagents either have no effect on the transfection efficiency or increase toxicity and consequently lower the transfection efficiency.

### For all BoosterExpress Reagents:

- Although the booster cocktail formulations were carefully optimized for some cells, it may be necessary to adjust the booster final concentration to reduce toxicity and to yield higher transfection efficiency. To achieve this, various dilutions of the BoosterExpress Reagent can be tested. We recommend testing a range from 50X to 250X dilutions.

### For Booster # 1:

- Booster # 1 Transfection Reagent may be added to the cell culture medium at different times during the transfection procedure. For instance, Booster # 1 can be added to the cells simultaneously with the DNA/transfection reagent complexes or 4 hours post-transfection (see above). Booster # 1 can also be added to the cell culture medium the day after transfection.

### For Booster # 2 and # 3:

- Booster # 2 and # 3 may be added to the cell culture medium at different times during the transfection procedure. For instance, Booster # 2 and 3 can be added to the cells simultaneously with the DNA/transfection reagent complexes or 4 hours post-transfection (see above). Contrary to Booster # 1, Booster # 2 and # 3 are ineffective if added the day after transfection.
- These two Boosters can be relatively toxic for some cells and thus if added with the DNA/transfection reagent complexes or 4 hours later, the culture medium may be replaced the next day with fresh booster-free culture medium.

## RELATED PRODUCTS

<b>Product</b>	<b>Catalog #</b>
<u>Transfection Reagents:</u>	
GenePORTER <sup>®</sup> 75 reactions	T201007
GenePORTER <sup>®</sup> 150 reactions	T201015
GenePORTER <sup>®</sup> 750 reactions	T201075
GenePORTER <sup>®</sup> 2 75 reactions	T202007
GenePORTER <sup>®</sup> 2 150 reactions	T202015
GenePORTER <sup>®</sup> 2 750 reactions	T202075
<u>gWiz Expression Vectors:</u>	
gWiz $\beta$ -gal vector	P010200
gWiz Luciferase vector	P030200
gWiz GFP vector	P040400
gWiz Secreted AP vector	P050200
<u><math>\beta</math>-galactosidase assay kits:</u>	
Enhanced $\beta$ -galactosidase assay kit (CPRG)	A10100K
$\beta$ -galactosidase assay kit (ONPG)	A10200K
X-Gal staining assay kit	A10300K

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