

# pFUSE2-CLIg-ratK

Plasmid featuring the constant region of the rat immunoglobulin kappa light chain

Catalog # pfuse2-rtclk

For research use only

Version 20J08-MM

## PRODUCT INFORMATION

### Content:

- 20  $\mu$ g of pFUSE2-CLIg-ratK plasmid provided as lyophilized DNA
- 2 x 1 ml blasticidin at 10 mg/ml

### Storage and Stability:

- Product is shipped at room temperature.
- Lyophilized DNA should be stored at -20°C.
- Resuspended DNA should be stored at -20°C and is stable for 1 year.

### Quality control:

- Plasmid construct has been confirmed by restriction analysis and sequencing.
- Plasmid DNA was purified by ion exchange chromatography.

### Materials required for antibody generation & isotype switching

- pFUSE2-CLIg plasmid that features the constant region of the kappa or lambda light chains. pFUSE2-CLIg plasmids are selectable with blasticidin.
- pFUSE-CH1g plasmid for the constant region of the heavy chain, this plasmid is selectable with Zeocin™ (sold separately, see RELATED PRODUCTS).

## GENERAL PRODUCT USE

pFUSE-CL1g and pFUSE-CH1g plasmids are designed to change a monoclonal antibody from one isotype to another, therefore, enabling the generation of antibodies with the same antigen affinity but with different effector functions (increased or reduced ADCC and CDC). Furthermore, they can be used to produce entire IgG antibodies from Fab or scFv fragments.

pFUSE-CH1g and pFUSE2-CL1g express the constant regions of the heavy (CH) and light (CL) chains, respectively. They contain a multiple cloning site (MCS) upstream of these constant regions to enable the cloning of the variable (VH and VL) regions of a given antibody. Transfection of mammalian cell lines with the recombinant pFUSE-CH1g and pFUSE2-CL1g pair allows to generate an IgG antibody that can be purified from the supernatant using the appropriate Protein A, Protein G or Protein L affinity chromatography.

## Features of pFUSE2-CL1g and pFUSE-CH1g plasmids

- **hEF1-HTLV prom** is a composite promoter comprising the Elongation Factor-1 $\alpha$  (EF-1 $\alpha$ ) core promoter<sup>1</sup> and the R segment and part of the U5 sequence (R-U5') of the Human T-Cell Leukemia Virus (HTLV) Type 1 Long Terminal Repeat<sup>2</sup>. The EF-1 $\alpha$  promoter exhibits a strong activity and yields long lasting expression of a transgene *in vivo*. The R-U5' has been coupled to the EF-1 $\alpha$  core promoter to enhance stability of RNA.
- **MCS:** The multiple cloning site contains several restriction sites that are compatible with many other enzymes, thus facilitating cloning.
- **SV40 pAn:** The Simian Virus 40 late polyadenylation signal enables efficient cleavage and polyadenylation reactions resulting in high levels of steady-state mRNA<sup>3</sup>.
- **ori:** A minimal *E. coli* origin of replication to limit vector size, but with the same activity as the longer Ori.
- **CMV enh / hFerL prom:** This composite promoter combines the human cytomegalovirus immediate-early gene 1 enhancer and the core promoter of the human ferritin light chain gene. This ubiquitous promoter drives the expression of the blasticidin-resistance gene in mammalian cells.
- **EM2KC** is a bacterial promoter that enables the constitutive expression of the antibiotic resistance gene in *E. coli*. EM2KC is located within an intron and is spliced out in mammalian cells.
- **$\beta$ Glo pAn:** The human beta-globin 3'UTR and polyadenylation sequence allows efficient arrest of the transgene transcription<sup>4</sup>.

## pFUSE2-CL1g-ratK specific features

- **Rat IGKC (Ig Kappa Light Chain Constant Domain):** When cloning your kappa light chain variable region of choice in the MCS, care must be taken to preserve the integrity of the kappa light chain constant region and reading frame.
- **Bsr (blasticidin resistance gene):** Resistance to blasticidin is conferred by the bsr gene from *Bacillus cereus*. The same resistance gene confers selection in both mammalian cells and *E. coli*.

### References:

1. Kim DW. *et al.* 1990. Use of the human elongation factor 1 alpha promoter as a versatile and efficient expression system. 91(2):217-23. 2. Takebe Y. *et al.* 1988. SR alpha promoter: an efficient and versatile mammalian cDNA expression system composed of the simian virus 40 early promoter and the R-U5 segment of human T-cell leukemia virus type 1 long terminal repeat. Mol Cell Biol. 8(1):466-72. 3. Carswell S. & Alwine JC. 1989. Efficiency of utilization of the simian virus 40 late polyadenylation site: effects of upstream sequences. Mol Cell Biol. 9(10):4248-58. 4. Yu J. & Russell JE. 2001. Structural and functional analysis of an mRNP complex that mediates the high stability of human beta-globin mRNA. Mol Cell Biol. 21(17):5879-88.

## TECHNICAL SUPPORT

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## PROTOCOL

### Obtaining VH and VL sequences

To obtain the cDNA sequence of the VH and VL regions from an antibody producing hybridoma, total RNA or mRNA is extracted and reverse transcribed to cDNA. PCR is performed with 5' degenerate primers to anneal to the unknown VH and VL regions and the 3' primers designed to anneal to the "known" CH and CL regions. Alternatively 5' RACE can be used. The resulting amplicons must be sequenced.

### Plasmid resuspension

Briefly spin the tube containing the lyophilized plasmid to pellet the DNA. To obtain a plasmid solution at 1 µg/µl, resuspend the DNA in 20 µl of sterile H<sub>2</sub>O. Store resuspended plasmid at -20°C.

### Cloning into pFUSE-CHIg and pFUSE2-CLIg

Once the VH and VL sequence are known, inserts for cloning into the plasmids can be generated. In pFUSE2-CLIg-ratK, the constant region of the rat kappa light chain is preceded by a multiple cloning site containing four unique restriction sites: AgeI, BstEII, XhoI, and BstAPI. We recommend using the AgeI restriction site for insertion of the 5' end of the variable region including the native signal sequence. If the immunoglobulin signal sequence is unknown, pFUSE2ss and pFUSE2ss plasmids containing a signal sequence should be used. In pFUSE2-CLIg-ratK, use BstAPI as the 3' cloning site for the VK in order to preserve the kappa constant domain amino acid sequence.

#### Notes:

- BstAPI is located around the third & fourth constant domain amino acids: the first two must be added to the VK PCR cloning primers.
- The 5' end of the variable region should encompass the native ATG initiation codon and the region immediately after which corresponds to the signal sequence. For proper initiation of translation, make sure that your insert contains a Kozak translation initiation sequence upstream of the ATG, such as (G/A)NNATG.
- When generating the insert for VH, use Eco47III (blunt-end cloning) as the 3' cloning site in order to preserve the heavy constant domain amino acid sequence. There is a choice of restriction sites at the 5' end (pFUSE-CHIg plasmids featuring the rat IgG isotypes; see Related products).

### Antibody production

Cotransfect mammalian cells, such as 293 and CHO cells, with the recombinant plasmids pFUSE2-CLIg encoding the light chain and pFUSE-CHIg encoding the heavy chain. Antibody production depends greatly on the ratio of heavy chain and light chain expression. Typically, pFUSE-CHIg to pFUSE2-CLIg ratio of 2:3 is used to cotransfect mammalian cells. Since both plasmids share the same plasmid backbone, the appropriate heavy chain to light chain ratio can be easily determined by varying the quantities of plasmids.

OR  
Transfect cells using a transfection agent, such as LyoVec™, with the plasmid coding for light chain and select the best clone. Following selection of the best clone, the plasmid coding for the heavy chain clone can be transfected into this clone.

Use blasticidin and Zeocin™ to select pFUSE2-CLIg and pFUSE-CHIg respectively.

Antibody production can be analyzed by different techniques including SDS-PAGE, flow cytometry, ELISA, or a bioactivity assay.

### TECHNICAL SUPPORT

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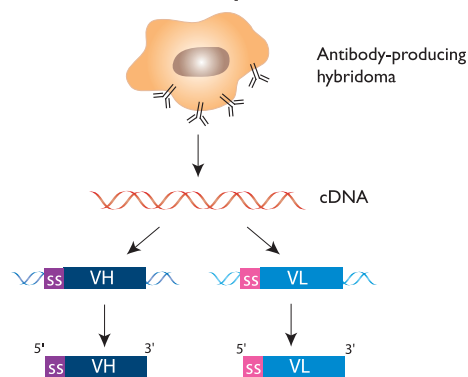
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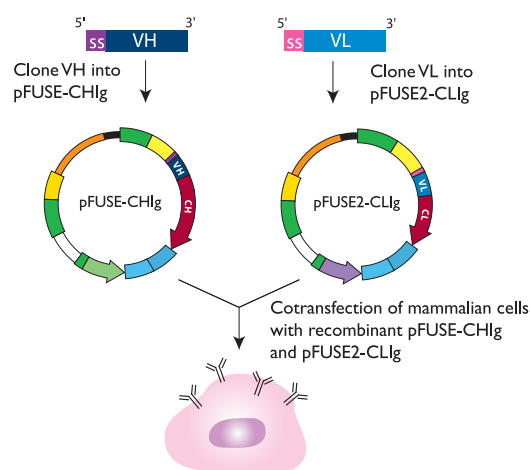
E-mail: info@invivogen.com

## Antibody generation using pFUSE-CHIg & pFUSE2-CLIg

### 1- Obtention of VH and VL sequences



### 2- Cloning into pFUSE-CHIg and pFUSE2-CLIg

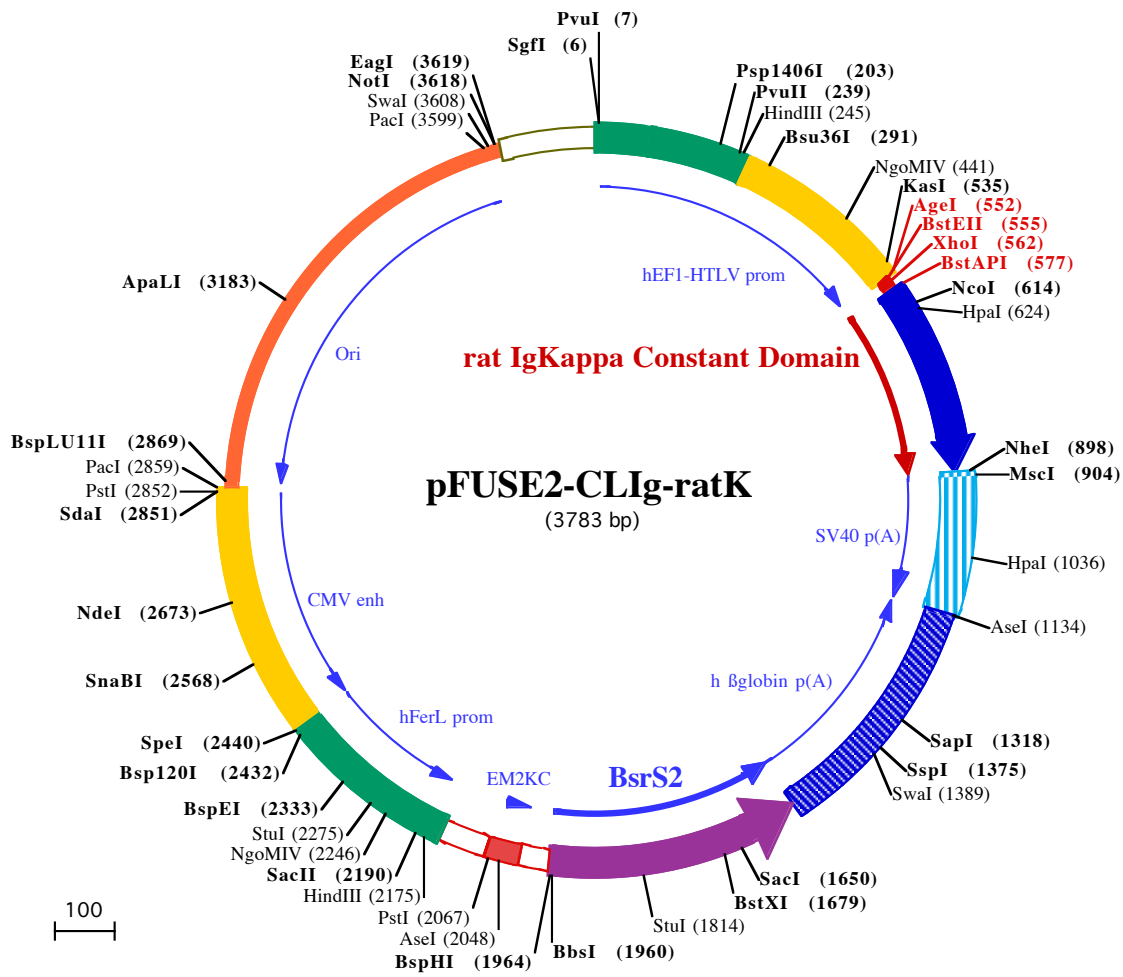


### Antibody purification

The resulting IgG antibody can be purified from the supernatant using the appropriate Protein A, Protein G or Protein L affinity chromatography.

## RELATED PRODUCTS

Product	Catalog Code
pFUSE-CHIg-ratG1	pfuse-rtchg1
pFUSE-CHIg-ratG2A	pfuse-rtchg2a
pFUSE-CHIg-ratG2B	pfuse-rtchg2b
pFUSE-CHIg-ratG2C	pfuse-rtchg2c
LyoVec™	lyec-12
Protein L / Agarose	gel-protl-2
Protein G / Agarose	gel-agg-5
Blasticidin	ant-bl-1



**PvuI (7)**  
**SgfI (6)**  
 1 GGATCTGGATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA  
 101 GAGAAAGTGGCGCGGGTAAACTGGAAAGTGATGTCGTGTAAGTGGCTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

**Psp1406I (203)** **HindIII (245)** **PvuII (239)** **Bsu36I (291)**  
 201 GTGAACGTTCTTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGGCTCGCATCTCTCTTACAGCGCCCGCCGCCCTACCTGAGGCC  
 301 GCCATCCACGCGGTTGAGTGCAGTTCGCCGCTCCCGCCTGTGGTGCTCCTGAAGTGCCTCCGCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

**NgoMIV (441)**  
 401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCGGCTCTCCACGCTTGGCTGACCCTGCTTGTCTCAACTCTACGCTTTTGTTCGTTT

**KasI (535)** **BstEII (555)** **AgeI (552)** **XhoI (562)** **BstAPI (577)**  
 501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGCGCGCTACCTGAGATCACCGGTCACCCTCGAGTTGAAACGGGCAGATGCTGCACCAACTGTATC  
 1▶ L E L K R A D A A P T V S

**NcoI (614)** **HpaI (624)**  
 601 CATCTTCCACCATCCATGGAACAGTTAATCATCTGGAGGTGCCACAGTCGTGTGCTTCGTGAACAACTTCTATCCAGAGACATCAGTGTCAAGTGAA  
 9▶ I F P P S M E Q L T S G G A T V V C F V N N F Y P R D I S V K W K  
 700 GATTGATGGCAGTGAACACGAGATGGTGTCTGGACAGTGTACTGATCAGGACAGAAAGACAGCACGTACAGCATGAGCAGACCCTCTCGTTGACC  
 42▶ I D G S E Q R D G V L D S V T D Q D S K D S T Y S M S S T L S L T

**NheI (898)**  
 800 AAGGTTGAAATATGAAAGGCATAACCTCTATACCTGTGAGGTTGTTTATAAGACATCATCCTCACCGCTCGTCAAGAGCTTCAACAGGAATGAGTGTGAA  
 76▶ K V E Y E R H N L Y T C E V V H K T S S S P V V K S F N R N E C •

**MscI (904)**  
 900 CTAGCTGGCCAGACATGATAAGATACATTGATGAGTTTGGACAAACCACAACCTAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCT

**HpaI (1036)**  
 998 ATTGCTTTATTTGTAACCATTATAAGCTGCAATAAACAAGTTAAACAACAATTGCATTCTTTTATGTTTCAGGTTACAGGGGAGGTGTGGGAGGTTT

**AseI (1134)**  
 1098 TTTAAAGCAAGTAAACCTCTACAAATGTGGTATGGAATTAATTTCTAAAATACAGCATAGCAAACCTTTAACCTCCAAATCAAGCCTCTACTTGAATCC  
 1197 TTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTGTGCCAATGTGCATTAGCTGTTTGCAGCCTCACCTCTTTTCATGGAGTTTAAAGATATAGT

**SapI (1318)** **SspI (1375)** **SwaI (1389)**  
 1297 TATTTTCCCAAGTTTGAAGTACTGCTCTTCATTTCTTTATGTTTTAAATGCACTGACCTCCACATTCCCTTTTGTAGTAAATATTCAGAAATAATTTAA  
 1397 TACATCATTGCAATGAAAATAAATGTTTTTTATAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAAC  
 1497 AAAGGAACCTTTAATAGAAATTGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCCTGGTGTACTTGAGGGGATGAGTTCTCAATGGTGGTTTTGAC  
 141▶ • N R T Y K L P I L E E I T T K V

**SacI (1650)** **BstXI (1679)**  
 1597 CAGCTTGCCATTCTCAATGAGCACAAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTCTGCACATGCCACAGGGGCTGACCACCCTGATGGATCTG  
 124▶ L K G N M E I L V F C D P A Y D S I L E R C M G C P S V V R I S R  
 1697 TCCACCTCATCAGAGTAGGGGTGCCTGACAGCCCAATGGTGTCAAAGTCTTCTGCCGTTGCTCACAGCAGACCCCAATGGCAATGGCTTCAGCACAGA  
 90▶ D V E D S Y P H R V A V I T D F D K Q G N S V A S G I A I A E A C V

**StuI (1814)**  
 1797 CAGTGACCCTGCCAATGTAGGCCTCAATGTGGACAGCAGAGATGATCTCCCCAGTCTTGGTCTGATGGCCGCCCGACATGGTGTCTTGTCTCATA  
 57▶ T V R G I Y A E I H V A S I I E G T K T R I A A G V H H K N D E Y

**BspHI (1964)** **BbsI (1960)**  
 1897 GAGCATGGTGTCTTCTCAGTGGCGACCTCCACCAGCTCCAGATCCTGCTGAGAGATGTTGAAGGTTCTTCATGATGGCTCCTCctgtcaggagagggaaa  
 24▶ L M T I K E T A V E V L E L D Q Q S I N F T K M

**AseI (2048)** **PstI (2067)**  
 1996 gagaagaaggtagtacaattgCTATAGTGAGTTGATTATACTATGCTTATGATTAATTGTCAAACCTAGGGCTGCAgggttcatatgcccacttttcc

**HindIII (2175)** **SacII (2190)**  
 2095 tgcactgccccatctcctgcccacccctttcccaggcatagacagtcagtgacttacCAAACCTCACAGGAGGGAGAAGGCAGAAGCTTGAGACAGACCCCG

**NgoMIV (2246)** **StuI (2275)**  
 2195 GGGACCGCCGAACCTGCGAGGGGACGTGGCTAGGGCGGCTCTTTTATGGTGCGCCGGCCCTCGGAGGCAGGGGCTCGGGGAGGCTAGCGGCCAATCTG

**BspEI (2333)**  
 2295 CGGTGGCAGGAGGGCGGGCCGAAGGCCGTGCTGACCAATCCGGAGCACATAGGAGTCTCAGCCCCCGCCCCAAAGCAAGGGGAAGTCACGCGCTGTA

**SpeI (2440)** **Bsp120I (2432)**  
 2395 GCGCCAGCGTGTGTGAAATGGGGGCTTGGGGGGTGGGGCCCTGACTAGTCAAACAAACTCCATTGACGTCAATGGGGTGGAGACTTGGAAATCCC

2495 CGTGAGTCAAACCGCTATCCACGCCATTGATGTACTGCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGTACTGCCAAGTAGGAA **SnaBI (2568)**

---

2595 AGTCCCATAAGGTCATGTACTGGGCATAATGCCAGGCGGGCCATTTACCGTCATTGACGTCAATAGGGGGCGTACTTGGCATATGATACACTTGATGTAC **NdeI (2673)**

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2695 TGCCAAGTGGGCAGTTTACCGTAAATACTCCACCCATTGACGTCAATGGAAAGTCCCTATTGGCGTTACTATGGGAACATACGTCATTATTGACGTCAAT

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2795 GGGCGGGGTCGTTGGCGGTCAGCCAGGCGGGCCATTTACCGTAAGTTATGTAACGCCTGCAGGTTAATTAAGAACATGTGAGCAAAAGGCCAGCAAAA **PstI (2852)** **SdaI (2851)** **PacI (2859)** **BspLU11I (2869)**

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2895 GGCCAGGAACCGTAAAAAGCCGCGTTGCTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAAAATCGACGCTCAAGTCAGAGGTGGCGA

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2995 AACCCGACAGGACTATAAAGATACCAGGCGTTTTCCCTGGAAGCTCCCTCGTGCGCTCCTGTTCCGACCCTGCCGTTACCGGATACCTGTCCGCT

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3095 TTCTCCCTTCGGGAAGCGTGCGCTTTTTCATAGCTCACGCTGTAGGTATCTCAGTTCGGGTAGGTCGTTCCGCTCCAAGCTGGGCTGTGTGCACGAACC **ApaLI (3183)**

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3195 CCCCCTTCAGCCCACCGCTGCGCCTTATCCGGTAACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAAC

---

3295 AGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTC

---

3395 TGCTGAAGCCAGTTACCTTCGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAACAAACCACCGCTGGTAGCGGTGGTTTTTTTGTGTTGCAAGCAGCAGAT

---

3495 TACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGTCTGACGCTCAGTGGAACGAAACTCACGTTAAGGGATTTTGGTCATG

---

3595 GCTAGTTAATTAACATTTAAATCAGCGGCCGAATAAAATATCTTTATTTTTCATTACATCTGTGTGTTGGTTTTTTGTGTGAATCGTAACTAACATACGC **EagI (3619)** **PacI (3599)** **SwaI (3608)** **NotI (3618)**

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3695 TCTCCATCAAACAAAACGAAACAAAACAACTAGCAAATAGGCTGTCCCAGTGCAAGTGCCAGGTGCCAGAACATTTCTCTATCGAA

# Blasticidin

Selection antibiotic; cell culture tested

Catalog code: ant-bl-05, ant-bl-1, ant-bl-5, ant-bl-5b

<http://www.invivogen.com/blastcidin>

For research use only

Version 20J13-MM

## PRODUCT INFORMATION

### Contents

Blasticidin hydrochloride is supplied as a sterile filtered solution at 10 mg/ml in HEPES buffer. It is available in 4 pack sizes:

- ant-bl-05: 5 x 1 ml (50 mg)
- ant-bl-1: 10 x 1 ml (100 mg)
- ant-bl-5: 50 x 1 ml (500 mg)
- ant-bl-5b: 1 x 50 ml (500 mg)

### Storage and stability

- Blasticidin is shipped at room temperature. Upon receipt it should be stored at 4 °C or at -20 °C. Avoid repeated freeze-thaw cycles.  
- The expiry date is specified on the product label.

**Note:** Blasticidin is stable for 2 weeks at room temperature.

## QUALITY CONTROL

Each lot is thoroughly tested to ensure the absence of lot-to-lot variation.

- Purity: ≥95% (HPLC)
- Endotoxin level: < 1 EU/mg
- Physicochemical characterization (pH, appearance)
- Cell culture tested: potency validated in blasticidin-sensitive and blasticidin-resistant mammalian cell lines
- Non-cytotoxicity of trace contaminants: absence of long-term effects confirmed in blasticidin-resistant cells

## BACKGROUND

Blasticidin is a selection antibiotic that acts on both eukaryotic and prokaryotic cells. It is a peptidyl nucleoside antibiotic isolated from the culture broth of *Streptomyces griseochromogenes*. It specifically inhibits protein synthesis in both prokaryotes and eukaryotes by inhibiting peptide bond formation in the ribosomal machinery. Three blasticidin resistance genes have been cloned and sequenced: an acetyl transferase gene, *bls* from a blasticidin producer strain<sup>1</sup>, and two deaminase genes, *bsr* gene from *Bacillus cereus*<sup>2</sup>, and *BSD* gene from *Aspergillus terreus*<sup>3</sup>.

Both *bsr* and *BSD* genes are used as dominant selectable markers for gene transfer experiments in mammalian and plant cells. Although blasticidin was developed as a selection agent for mammalian cells, it can also be used in *E. coli*.

## GENERAL GUIDELINES

Successful transfection is influenced by many factors. The health and viability of the cell line, the quality of the nucleic acid used, the transfection reagent, the duration of transfection, and the presence or absence of serum can all play a part.

## SAFETY CONSIDERATIONS

Blasticidin is a harmful compound. Refer to safety data sheet for handling instructions.

## SELECTION CONDITIONS

### - *Escherichia coli*

*E. coli* is poorly sensitive to blasticidin, but transformants resistant to blasticidin can be selected on low salt LB agar medium (pH 8) supplemented with 100 µg/ml blasticidin. High pH enhances the activity of blasticidin.

### - Mammalian cells

The working concentration of blasticidin for mammalian cell lines varies from 1 to 10 µg/ml, in a few cases up to 30 µg/ml. In a starting experiment we recommend to determine optimal concentrations of antibiotic required to kill your host cell line. After treatment, cell death occurs rapidly, allowing the selection of transfected cells with plasmids carrying the *bsr* or *BSD* genes in as little as 7 days post-transfection. Suggested concentrations of blasticidin for selection in some examples of mammalian cells are listed below.

Cell line	Medium	Blasticidin conc.	Ref.
CHO (Chinese hamster ovarian cells)	DMEM	5-10 µg/ml	4, 5
HEK293 (Human embryonic kidney cells)	DMEM	5-15 µg/ml	6, 7
HeLa (Human uterine cells)	DMEM	2.5-10 µg/ml	8, 9
Neuro2a (Mouse neuroblasts)	DMEM	30 µg/ml	10
THP-1 (Human monocytes)	RMPI	10 µg/ml	11

1. Perez-Gonzalez J. et al., 1990. Cloning and characterization of the gene encoding a blasticidin S acetyltransferase from *Streptovorticillum* sp. Gene. 86:129-34.
2. Izumi M. et al., 1991. Blasticidin S-resistance gene (*bsr*): A novel selectable marker for mammalian cells. Exp.Cell Res.197:229-33.
3. Kimura M. et al., 1994. Blasticidin S deaminase gene from *Aspergillus terreus* (*BSD*): a new drug resistance gene for transfection of mammalian cells. Biochim. Biophys. Acta. 1219:653-9.
4. Dorgham K. et al., 2009. An engineered CX3CR1 antagonist endowed with anti-inflammatory activity. J Leukoc Biol. 86(4):903-11.
5. LeBon L. et al., 2014. Fringe proteins modulate Notch-ligand cis and trans interactions to specify signalling states. eLife Sci. 3:e02950.
6. Tomecki R. et al., 2014. Multiple myeloma-associated hDIS3 mutations cause perturbations in cellular RNA metabolism and suggest hDIS3 PIN domain as a potential drug target. Nucleic Acids Res. 42:1270-90.
7. Edbauer D. et al., 2004. Co-expression of nicastrin and presenilin rescues a loss of function mutant of APH-1.J Biol Chem. 279:37311-5.
8. Khandelia P. et al., 2011. Streamlined platform for short hairpin RNA interference and transgenesis in cultured mammalian cells. PNAS 108:12799-804.
9. Lee HK. et al., 2007. Application of beta-lactamase enzyme complementation to the high-throughput screening of toll-like receptor signaling inhibitors. Mol Pharmacol. 72:868-75.
10. Matsumoto G. et al., 2011. Serine 403 phosphorylation of p62/SQSTM1 regulates selective autophagic clearance of ubiquitinated proteins. Mol Cell. 44:279-89.
11. Schepetkin IA. et al., 2009. Immunomodulatory activity of oenothin B isolated from *Epilobium angustifolium*. J Immunol. 183:6754-66.

## TECHNICAL SUPPORT

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## RELATED PRODUCTS

Product	Description	Catalog Code
<b>Other selection antibiotics</b>		
G418	Selection antibiotic for the <i>neo</i> gene	ant-gn-1
Hygromycin B Gold	Selection antibiotic for the <i>hph</i> gene	ant-hg-1
Puromycin	Selection antibiotic for the <i>pac</i> gene	ant-pr-1
Zeocin™	Selection antibiotic for the <i>Sh ble</i> gene	ant-zn-1
<b>Plasmids encoding the <i>bsr</i> gene</b>		
pMOD2-Blast	Plasmid encoding a synthetic <i>bsr</i> gene	pmod2-blast
pSELECT-blasti-LacZ	LacZ-expression plasmid selectable with blasticidin	psetb-lacz
pSELECT-blasti-mcs	Expression plasmid selectable with blasticidin	psetb-mcs
pUNO1-bsr	Expression plasmid selectable with blasticidin	puno1-bsr

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