

pDRIVE-h β -Actin-RU5'

A plasmid with a composite promoter consisting of the human β -Actin promoter and HTLV 5' UTR

Catalog # pdrive-hbactru5

For research use only

Version # 05E03-SV

PRODUCT INFORMATION

Content:

- 1 disk of lyophilized GT100 *E. coli* bacteria transformed by pDRIVE-h β -Actin-RU5'
- GT100 genotype is: *F*-, *mcrA*, Δ (*mrr-hsdRMS-mcrBC*), Φ 80*lacZ* Δ M15, *AlacX74*, *recA1*, *endA1*.

- 4 pouches of *E. coli* Fast-Media® Zeo

Shipping and storage:

- Products are shipped at room temperature.
- Transformed bacteria should be stored at -20°C. Bacteria are stable up to one year when properly stored.
- Store *E. coli* Fast-Media® Zeo at room temperature. Fast-Media® pouches are stable 18 months when stored properly.

Quality control:

- Plasmid construct has been confirmed by restriction analysis and sequencing.
- Bacteria have been lyophilized, and their viability upon resuspension has been verified.
- Promoter activity has been confirmed by transient transfection of 293 cells as well as other selected cell lines.

GENERAL PRODUCT USE

pDRIVE is an expression plasmid containing a native or composite promoter of interest. pDRIVE may be used to:

- **Subclone a promoter of interest into another vector.** Unique restriction sites are present at each end of the promoter allowing convenient excision. The 5' sites include *Sda* I, *Pst* I, and/or *Spe* I. *Sda* I is compatible with *Nsi* I and *Pst* I. *Spe* I is compatible with *Avr* II, *Nhe* I and *Xba* I. The 3' restriction site is *Nco* I which includes the ATG start codon, and is compatible with *Bsp*H I and *Bsp*LU11 I.

- **Compare the activity of different promoters** in transient transfection experiments. Each pDRIVE promoter drives the expression of the *LacZ* reporter gene which allows for testing of the promoter's activity in transient transfection experiments. Furthermore, the *LacZ* gene is flanked by unique restriction sites (*Nco* I and *Eco*R I) for easy replacement with a different gene of interest.

PROMOTER CHARACTERISTICS

Element	Name	Origin	Size bp
Core promoter	β -actin	Human	1454
5'UTR	HTLV	Viral	267
Enhancer	-	-	-

β -Actin promoter

Beta-actin is a highly conserved protein ubiquitously expressed in all eukaryotic cells as a component of the cytoskeleton and as a mediator of internal cell motility. A 1.2-kb fragment of the β -actin 5' flanking region is sufficient for efficient transcription¹. This 1.2-kb fragment contains a TATA box, a CCAAT box and two highly conserved elements. This fragment was shown to drive high levels of expression of a transgene *in vitro*². The R segment and part of the U5 sequence (R-U5') of the HTLV Type 1 Long Terminal Repeat³ has been coupled to the β -Actin promoter to enhance stability of DNA and RNA. This modification not only increases steady state transcription, but also significantly increases translation efficiency possibly through mRNA stabilization.

PLASMID FEATURES

- **LacZ gene** encodes β -galactosidase an enzyme that catalyzes the hydrolysis of X-Gal, producing a blue precipitate that can be easily visualized under a microscope.
- **SV40 pAn:** The Simian Virus 40 late polyadenylation signal enables efficient cleavage and polyadenylation reactions resulting in high levels of steady-state mRNA.
- **pMB1 Ori** is a minimal *E. coli* origin of replication with the same activity as the longer Ori.
- **EM7** is a bacterial promoter that enables the constitutive expression of the antibiotic resistance gene in *E. coli*.
- **Sh ble** gene confers zeocin resistance therefore allowing the selection of transformed *E. coli* carrying a pDRIVE plasmid.
Note: Stable transfection of clones cannot be performed due to the absence of an eukaryotic promoter upstream of the Sh ble gene.

METHODS

Growth of pDRIVE-transformed bacteria:

Use sterile conditions to do the following:

- 1- Resuspend the lyophilized *E. coli* by adding 1 ml of LB medium in the tube containing the disk. Let sit for 5 minutes. Mix gently by inverting the tube several times.
- 2- Streak bacteria taken from this suspension on a zeocin LB agar plate prepared with the *E. coli* Fast-Media® Zeo agar provided (see below).
- 3- Place the plate in an incubator at 37°C overnight.
- 4- Isolate a single colony and grow the bacteria in TB supplemented with zeocin using the Fast-Media® Zeo liquid provided (see below).
- 5- Extract the pDRIVE plasmid DNA using the method of your choice.
Note: For long-term storage of the pDRIVE-transformed bacteria, prepare a 20% glycerol stock of the bacteria grown in the overnight liquid culture and freeze at -80°C.

Selection of bacteria with *E. coli* Fast-Media Zeo:

E. coli Fast-Media® Zeo is a **new, fast and convenient** way to prepare liquid and solid media for bacterial culture by using only a microwave. *E. coli* Fast-Media® Zeo is a TB (liquid) or LB (solid) based medium with zeocin, and contains stabilizers.

E. coli Fast-Media® Zeo can be ordered separately (catalog code # fas-zn-1, fas-zn-s).

Method:

- 1- Pour the contents of a pouch into a clean borosilicate glass bottle or flask.
- 2- Add 200 ml of distilled water to the flask
- 3- Heat in a microwave on MEDIUM power setting (about 400Watts), until bubbles start appearing (approximately 3 minutes). **Do not heat a closed container. Do not autoclave Fast-Media®.**
- 4- Swirl gently to mix the preparation. **Be careful, the bottle and media are hot, use heatproof pads or gloves and care when handling.**
- 5- Reheat the media for 30 seconds and gently swirl again. Repeat as necessary to completely dissolve the powder into solution. But be careful to avoid overboiling and volume loss.
- 6- Let agar medium cool to 45°C before pouring plates. Let liquid media cool to 37°C before seeding bacteria.
Note: Do not reheat solidified Fast-Media® as the antibiotic will be permanently destroyed by the procedure.

References:

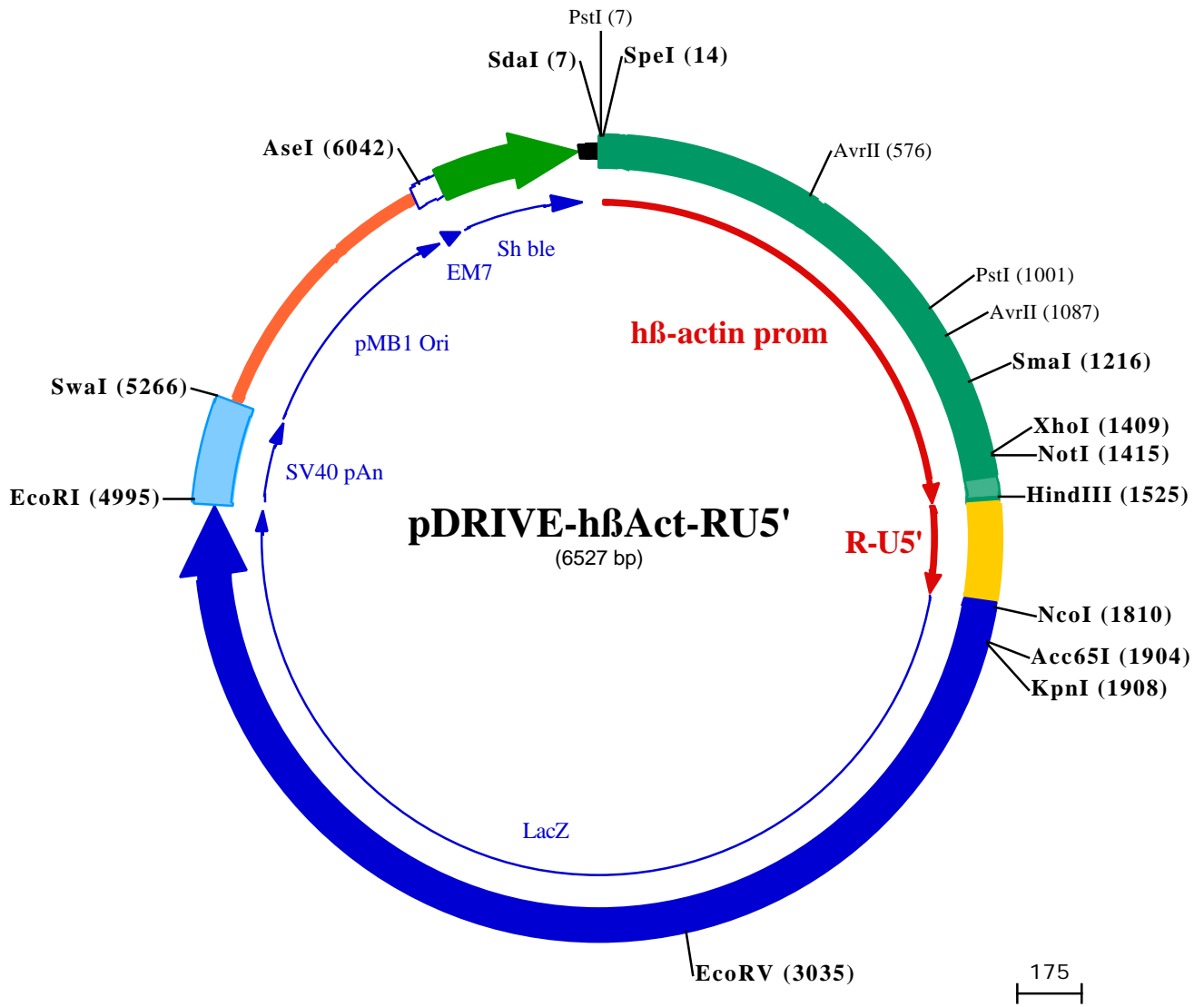
1. Sugiyama H. *et al.* 1988. Strong transcriptional promoter in the 5' upstream region of the human beta-actin gene. *Gene* 65(1):135-9
2. Muller SR. *et al.* 1990. Efficient transfection and expression of heterologous genes in PC12 cells. *DNA Cell Biol* 9(3):221-9
- 3- Takebe *et al.* (1988). *Mol. Cell Biol.* 1: 466-472

TECHNICAL SUPPORT

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PstI (7)
SdaI (7) **SpeI (14)**
 1 CCTGCAGGGCCCACTAGTTCCTATGCTCTTATATGGACTCATCTTTGCTATTGCGACACACTCAATGAACACCTACTACGGCTGCAAAGAGCCCCG

101 AGGCCTGAGGTGCCCCACCTCACCCTCTTCTATTTTTGTGTAAAAATCCAGCTTCTTGTCAACCCTCAAGGAGGGGGAGGAGGAAGGCAGGT

201 TCCTCTAGGCTGAGCCGAATGCCCTCTGTGGTCCCACGCCACTGATCGCTGCATGCCACCACCTGGGTACACACAGTCTGTGATTCCCGGAGCAGAAC

301 GGACCCTGCCACCCGGTCTTGTGTGCTACTCAGTGGACAGACCAAGCAAGAAAGGGTGACAAGGACAGGGTCTTCCCAGGCTGGCTTTGAGTTCTTA

401 GCACCGCCCCGCCCAATCCTCTGTGGCACATGGAGTCTTGGTCCCCAGAGTCCCCAGCGGCCTCCAGATGGTCTGGGAGGGCAGTTCAGTGTGGCT

501 CGGCATAGCAGACATAACAACGGACGGTGGGCCAGACCCAGGCTGTGTAGACCAGCCCCCGCCCGCAGTGCCTAGGTACCCACTAACGCCCCAGG

AvrII (576)

601 CCTGGTCTTGGCTGGGCGTACTGTTACCCTCAAAGCAGGCAGCTCCAGGGTAAAAGGTGCCCTGCCCTGTAGAGCCCACCTTCTTCCCAGGGCTGGC

701 GCTGGGTAGTGTGTAGCCTTCATCACGGGCCACCTCCAGCCACTGGACCGCTGGCCCTGCCCTGTCTGGGGAGTGTGGTCTCGACTTCTAAGTGG

801 CCGCAAGCCACCTGACTCCCCAACACCACACTTACCTCTCAAGCCAGGTCTCTCCCTAGTGACCACCCAGCACATTTAGCTAGCTGAGCCCCACAG

901 CCAGAGTCTCAGGCCCTGCTTTCAGGGCAGTTGCTCTGAAGTCGGCAAGGGGGAGTACTGCCTGGCCACTCCATGCCCTCCAAGAGCTCCTTCTGCA

PstI (1001)

1001 GGAGCGTACAGAACCCAGGGCCTGGCACCCGTGCAGACCCTGGCCACCCACCTGGGCGCTCAGTGCACAAGAGATGTCCACACCTAGGATGTCCCGC

AvrII (1087)

1101 GGTGGGTGGGGGCCGAGAGACGGGCGGGGCGAGCCCTGGCCATGCGGGCCGAACCGGGCACTGCCAGCGTGGGGCGGGGGCCAGGGCCG

1201 GCGCCCCAGCCCCCGGCCAGACCCCAAGGGCGCAACGCCAAACTCTCCTCCTCTTCTCAATCTCGCTCTGCTCTTTTTTTTTTTCGCA

SmaI (1216)

1301 AAAGGAGGGGAGAGGGGGTAAAAAATGCTGCACTGTGCGGCAAGCCGGTGAAGTGGCGGGCCCAATCAGCGTGCGCCGTTCCGAAAGTTGCT

1401 TTTATGGCTCGAGCGGCGGGCGCCCTATAAACCCAGCGGGCGGACGGCCACCACCGCCGAGACCGCTCGCCCGCGAGCACAGAGCCTCGC

NotI (1415)
XhoI (1409)

1501 CTTTCCGATCCCGCCCGTCCAAAGCTTCGAGGGGCTCGCATCTCTCCTTACCGCGCCCGCCCTACCTGAGGCCGCATCCACGCCGTTGAGTGC

HindIII (1525)

1601 CGTTCTGCGCCCTCCCGCCTGTGGTGCCTCTGAACTGGTCCGCCCTTAGGTAAGTTAAAGCTCAGGTGAGACCGGGCCTTTGTCCGGCGCTCCCT

1701 TGGAGCCTACCTAGACTACCGCGCTCTCCACGCTTTGCCCTGACCCTGCTTCAACTCTACGTCTTTGTTTCGTTTCTGTTCTGCGCGTTACAGAT

1801 CCAAGCCACCATGGGGGTTCTCATCATCATCATCATGGTATGGTAGCATGACTGGTGACAGCAAATGGGTGGGATCTGTACGACGATGACGAT

NcoI (1810)

1901 AAGGTACCTAAGGATCAGCTTGGAGTTGATCCCGCTGTTTACAACGTCGTGACTGGGAAAACCTGGCGTTACCCAACCTAATCGCCTTGCAGCACATC

KpnI (1908)
Acc65I (1904)

2001 CCCTTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTCCCAACAGTTGCGCAGCCTGAATGGCGAATGGCGCTTTGCCTGGTTCC

2101 GGCACCAGAAGCGGTGCCGAAAGCTGGCTGGAGTGGATCTTCTGAGGCCGATCTGCTGCTGCCCTCAAACCTGGCAGATGCACGGTTACGATGGC

2201 CCCATCTACACCAACGTAACCTATCCATTACGGTCAATCCCGCTTTGTTCCACGGAGAATCCGACGGTGTACTCGCTCACATTTAATGTTGATG

2301 AAAGCTGGCTACAGGAAGGCCAGACGCGAATATTTTTGATGGCGTTAACTCGGCTTTCATCTGTGGTGAACGGGGCTGGTCCGTTACGGCCAGGA

2401 CAGTCGTTTGGCCTGTAATTTGACCTGAGCGCATTTTTACGCGCCGGAGAAAACCGCCTCGCGGTGATGGTGCTGCGTTGGAGTGACGGCAGTTATCTG

2501 GAAGATCAGGATATGTGGCGGATGAGCGGCATTTTCCGTGACGCTCGTTGCTGCATAAACCGACTACACAAATCAGCGATTTCCATGTTGCCACTCGCT

2601 TTAATGATGATTTACGCCGCGCTGACTGGAGGCTGAAGTTCAGATGTGCGCGGAGTTGCGTGACTACCTACGGGTAACAGTTTCTTTATGGCAGGGTGA

2701 AACGCAGGTCCGACGGCCAGCCGCTTTCGGCGGTGAAATATCGATGAGCGTGGTGGTTATGCCGATCGCGTCACACTACGCTGAACGTCGAAAAC

2801 CCGAAACTGTGGAGCGCGAAATCCCGAATCTCTATCGTGGTGGTTGAACGTCACACCGCGACGGCAGCTGATTGAAGCAGAAGCTGCGATGTGC

2901 GTTCCGCGAGGTGCGGATGAAAATGGTCTGCTGCTGAACGGCAAGCCGTTGCTGATTGAGGCGTTAACCGTACAGGATCATCTCTGCATGG

3001 TCAGGTACATGGATGAGCAGACGATGGTGCAGGATATCCTGCTGATGAAGCAGAACTTTAACGCCGTGGCCTGTTCCGATTATCCGAACCTCCGCTG

EcoRV (3035)

3101 TGTACAGCTGTGACCCGCTACCGCTGTATGTGGTGAAGCAATATGAAACCCAGGCATGGTGCATGAATCGTCTACCGATGATCCGC

3201 TrpTyrThrLeuCysAspArgTyrGlyLeuTyrValValAspGluAlaAsnIeGluThrHisGlyMetValProMetAsnArgLeuThrAspAspProA

3201 GCTGGCTACCGCGATGAGCGAACCGCTAACCGAATGGTGACGCGGATCGTAATCACCCGAGTGTGATCATCTGGTCGCTGGGAATGAATCAGGCCA
464 rgTrpLeuProAlaMetSerGluArgValThrArgMetValGlnArgAspArgAsnHisProSerVal I IeI leTrpSerLeuGlyAsnGluSerGlyHi
3301 CGGCGCTAATCACGACCGCTGTATCGCTGGATCAAATCTGTCCGATCTTCCCGCCCGGTGCAGTATGAAGCGCGCGGAGCCGACACCACGGCCACCGAT
497 sGlyAlaAsnHisAspAlaLeuTyrArgTrpI leLysSerValAspProSerArgProValGlnTyrGluGlyGlyAlaAspThrThrAlaThrAsp
3401 ATTATTTGCGCGATGTACGCGCGCTGGATGAAGACCAGCCCTTCCCGCTGTGCCAAATGGTCCATCAAAAAATGGCTTTCGCTACCTGGAGAGACGC
531 I IeI leCysProMetTyrAlaArgValAspGluAspGlnProPheProAlaValProLysTrpSerI leLysLysTrpLeuSerLeuProGlyGluThrA
3501 GCCCGCTGATCCTTTGCGAATACGCCACGCGATGGGTAACAGTCTTGGCGGTTTCGCTAAATACTGGCAGGCGGTTTCGTCAGTATCCCCGTTTACAGGG
564 rgProLeuI leLeuCysGluTyrAlaHisAlaMetGlyAsnSerLeuGlyGlyPheAlaLysTyrTrpGlnAlaPheArgGlnTyrProArgLeuGlnG
3601 CGGCTTCGTCTGGGACTGGGTGGATCAGCTCGTGAATAATATGATGAAAACGGCAACCCGTTGGTCCGCTTACGGCGGTGATTTGGCGATACGCCGAAC
597 yGlyPheValTrpAspTrpValAspGlnSerLeuI leLysTyrAspGluAsnGlyAsnProTrpSerAlaTyrGlyGlyAspPheGlyAspThrProAsn
3701 GATCGCCAGTTCGTATGAACGGTCTGGTCTTTGCCAGCCGACGCGCATCCAGCGCTGACGGAAGCAAACACCAGCAGCAGTTCCTCCAGTTCGGTT
631 AspArgGlnPheCysMetAsnGlyLeuValPheAlaAspArgThrProHisProAlaLeuThrGluAlaLysHisGlnGlnPhePheGlnPheArgL
3801 TATCCGGCAAACCATCGAAGTGACCAGCGAATACCTGTTCCGTCATAGCGATAACGAGCTCCTGCAGTGGTGGCGCTGGATGGTAAGCCGCTGGC
664 euSerGlyGlnThrI leGluValThrSerGluTyrLeuPheArgHisSerAspAsnGluLeuHisTrpMetValAlaLeuAspGlyLysProLeuAl
3901 AAGCGGTGAAGTGCTCTGGATGTCGCTCCACAAGGTAACAGTTGATTGAACTGCCTGAACACTCCGCAGCCGGAGAGCGCCGGCAACTCTGGCTACA
697 aSerGlyGluValProLeuAspValAlaProGlnGlyLysGlnLeuI leGluLeuProGluLeuProGlnProGluSerAlaGlyGlnLeuTrpLeuThr
4001 GTACGCGTAGTGCAACCGACCGCAGCCGATGGTCAAGAAGCCGGGCACATCAGCGCCTGGCAGCAGTGGCGTCTGGCGGAAAACCTCAGTGTGACGCTCC
731 ValArgValValGlnProAsnAlaThrAlaTrpSerGlyAlaGlyHisI leSerAlaTrpGlnTyrArgLeuAlaGluAsnLeuSerValThrLeuP
4101 CCGCCGCTCCACGCCATCCCGCATCTGACCACCAGCGAAATGGATTTTGCATCGAGCTGGGTAATAAGCGTTGGCAATTTAACGCCAGTACGGCTT
764 roAlaAlaSerHisAlaI leProHisLeuThrThrSerGluMetAspPheCysI leGluLeuGlyAsnLysArgTrpGlnPheAsnArgGlnSerGlyPh
4201 TCTTTCACAGATGTGGATTGGCGATAAAAAACAACCTGCTGACGCCGCTGCGCGATCAGTTCACCCGTCACCCTGGATAACGACATTGGCGTAAGTGA
797 eLeuSerGlnMetTrpI leGlyAspLysLysGlnLeuLeuThrProLeuArgAspGlnPheThrArgAlaProLeuAspAsnAspI leGlyValSerGlu
4301 GCGACCCGATTGACCCTAACGCCCTGGGTCCAAGCTGGAAGCGCGGCGCATTACCAGCGCAAGCAGCGTTGTTGCAGTGCACGGCAGATACACTTG
831 AlaThrArgI leAspProAsnAlaTrpValGluArgTrpLysAlaAlaGlyHisTyrGlnAlaGluAlaAlaLeuLeuGlnCysThrAlaAspThrLeuA
4401 CTGATGCGGTGCTGATTACGACCGCTCACGCGTGGCAGCATCAGGGGAAAACCTTATTTATCAGCCGAAAACCTACCGGATTGATGGTAGTGGTCAAAT
864 laAspAlaValLeuI leThrThrAlaHisAlaTrpGlnHisGlnGlyLysThrLeuPheI leSerArgLysThrTyrArgI leAspGlySerGlyGlnMe
4501 GCGGATTACCGTTGAGTTGAAGTGGCGAGCATACACCGCATCCGCGCGGATGGCTGAACTGCCAGCTGGCGAGGTAGCAGAGCGGGTAACTGG
897 tAlaI leThrValAspValGluValAlaSerAspThrProHisProAlaArgI leGlyLeuAsnCysGlnLeuAlaGluValAlaGluArgValAsnTrp
4601 CTCGGATTAGGGCCGAAGAAAACCTATCCGACCGCTTACTGCCGCTGTTTTGACCGCTGGGATCTGCCATTGTCAGACATGTATACCCCGTACGCT
931 LeuGlyLeuGlyProGlnGluAsnTyrProAspArgLeuThrAlaAlaCysPheAspArgTrpAspLeuProLeuSerAspMetTyrThrProTyrValP
4701 TCCCGAGCGAAAACGGTCTGCGCTGCGGGACGCGGAATGAATTATGGCCACACCAGTGGCGGGCGACTTCCAGTTCACATCAGCCGCTACAGTCA
964 heProSerGluAsnGlyLeuArgCysGlyThrArgGluLeuAsnTyrGlnProHisGlnTrpArgGlyAspPheGlnPheAsnI leSerArgTyrSerGI
4801 ACAGCAACTGATGAAACAGCCATCGCCATCTGCTGCACGCGGAAGAAGGCACATGGCTGAATATCGACGGTTTCCATATGGGGATTGGTGGCGACGAC
997 nGlnGlnLeuMetGluThrSerHisArgHisLeuLeuHisAlaGluGluGlyThrTrpLeuAsnI leAspGlyPheHisMetGlyI leGlyGlyAspAsp
EcoRI (4995)
4901 TCCTGGAGCCCGTCACTATCGCGGAATTACAGCTGAGCGCGGCTCGTACCATTACCAGTGGTCTGGTGTCAAAAATAATAATCTAGTCGAGAATTCG
1031 SerTrpSerProSerValSerAlaGluLeuGlnLeuSerAlaGlyArgTyrHisTyrGlnLeuValTrpCysGlnLys•••
5001 CTAGCTCGACATGATAAGATAACATTGATGAGTTTGGACAAACCACTAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCT
5101 TTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAAACAAGTTAACAACAACAATTGCATTTCATTTTATGTTTCAGGT
SwaI (5266)
5201 TCAGGGGAGGTGTGGGAGGTTTTTTAAAGCAAGTAAAACCTCTACAAATGTGGTAGATCCATTTAAATGTTAATTAAGTCCATGACCAAAATCCCTT
5301 AACGTGAGTTTTCTGTTCCACTGAGCGTCAGACCCCGTAGAAAAGATCAAAGGATCTTCTTGAGATCCTTTTTTCTGCGCGTAATCTGCTGCTTGAAC
5401 AAAAAACCACCGCTACCAGCGGTGGTTTTGTTGCCGATCAAGAGCTACCAACTCTTTTTCCGAAGGTAAGTGGCTTCAGCAGAGCGCAGATACCAAT
5501 ACTGTTCTTCTAGTGTAGCCGTAGTTAGGCCACCACTTCAAGAAGTCTGTAGCACCCTACATACCTCGCTCTGCTAATCCTGTTACCAGTGGCTGCTG
5601 CCAGTGGCGATAAGTCTGCTTACCAGGTTGGACTCAAGACGATAGTTACCGGATAAGGGCAGCGGTGCGGCTGAACGGGGGTTCTGTGCACACAGCC
5701 CAGCTGGAGCGAACGACCTACACCGAAGTACCTACAGCGTGAAGTATGAGAAAGCGCCAGCTTCCCGAAGGGAGAAAGGGGACAGGTATCCG
5801 GTAAGCGGAGGTCGGAACAGGAGAGCGCAGGAGGCTTCCAGGGGAAACGCCTGGTATCTTTATAGTCTGCGGTTTCCGCCACTCTGACTTG
5901 AGCGTCGATTTTTGTGATGCTCGTACGGGGGCGGAGCCTATGGAACCAAGCAGCAACCGCGCTTTTACGGTTCCTGGCCTTTTGTGCGCTTTTGC
AseI (6042)
6001 TCACATGTTCTTAATTAATTTTCAAAAGTAGTTGACAATTAATCATCGGCATAGTATATCGGCATAGTATAATACGACTCACTATAAGGAGGCCATCA
6101 TGGCCAAGTTGACCAGTGTCTCCAGTGTCCAGCCAGGGATGTGGCTGGAGCTGTTGAGTCTGGACTGACAGGTTGGGGTTCTCCAGAGATTTTGT
1 etAlaLysLeuThrSerAlaValProValLeuThrAlaArgAspValAlaGlyAlaValGluPheTrpThrAspArgLeuGlyPheSerArgAspPheVa
6201 GAGGATGACTTTGACGGTGTGGTCAGAGATGATGCACCTGTTTCATCTCAGCAGCTCAGGACCGGTTGGCTGACAAACCCCTGGCTGGGTGTGG
34 IGluAspAspPheAlaGlyValValArgAspAspValThrLeuPheI leSerAlaValGlnAspGlnValValProAspAsnThrLeuAlaTrpValTrp
6301 GTGAGAGGACTGATGAGCTGTATGCTGAGTGGAGTGGAGTGGTCTCCACCAACTTCAGGGATGCCAGTGGCCCTGCCATGACAGAGATTGGAGAGCAGC
68 ValArgGlyLeuAspGluLeuTyrAlaGluTrpSerGluValValSerThrAsnPheArgAspAlaSerGlyProAlaMetThrGluI leGlyGluGlnP
6401 CTTGGGGAGAGGTTTGGCTGAGAGACCCAGCAGCACTGTGTGCACTTTTGGCAGGAGGAGGACTGAGGATAAGAATTGTAACAAAAACCC
101 roTrpGlyArgGluPheAlaLeuArgAspProAlaGlyAsnCysValHisPheValAlaGluGlnAsp•••
6501 GCCCGCGCGGGTTTTTTGTTAATTA