

# pDRIVE-hGFAP

A plasmid with the native human GFAP promoter

Catalog # pdrive-hgfap

For research use only

Version # 05D08-SV

## PRODUCT INFORMATION

### Content:

- 1 disk of lyophilized GT100 *E. coli* bacteria transformed by pDRIVE-hGFAP  
GT100 genotype is: *F*-, *mcrA*,  $\Delta$ (*mrr-hsdRMS-mcrBC*),  $\Delta$ *O80lacZ* $\Delta$ *M15*,  $\Delta$ *lacX74*, *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 are *Sda* I and *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, *Afl* III and *Sty* 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
Promoter	GFAP	Human	1673
5'UTR	GFAP	Human	14
Enhancer	-	-	-

### Glial Fibrillary Acidic Protein promoter

The glial fibrillary acidic protein (GFAP) is an intermediate filament protein found almost exclusively in astrocytes. It is expressed throughout postnatal life and is upregulated in response to almost any damage to the central nervous system, including Parkinson's disease. The promoter of the GFAP gene was shown to direct astrocyte-specific transcription *in vitro*, *in vivo*<sup>1</sup>, and in transgenic mice<sup>2</sup>.

## PLASMID FEATURES

- **LacZ gene** encodes  $\beta$ -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:

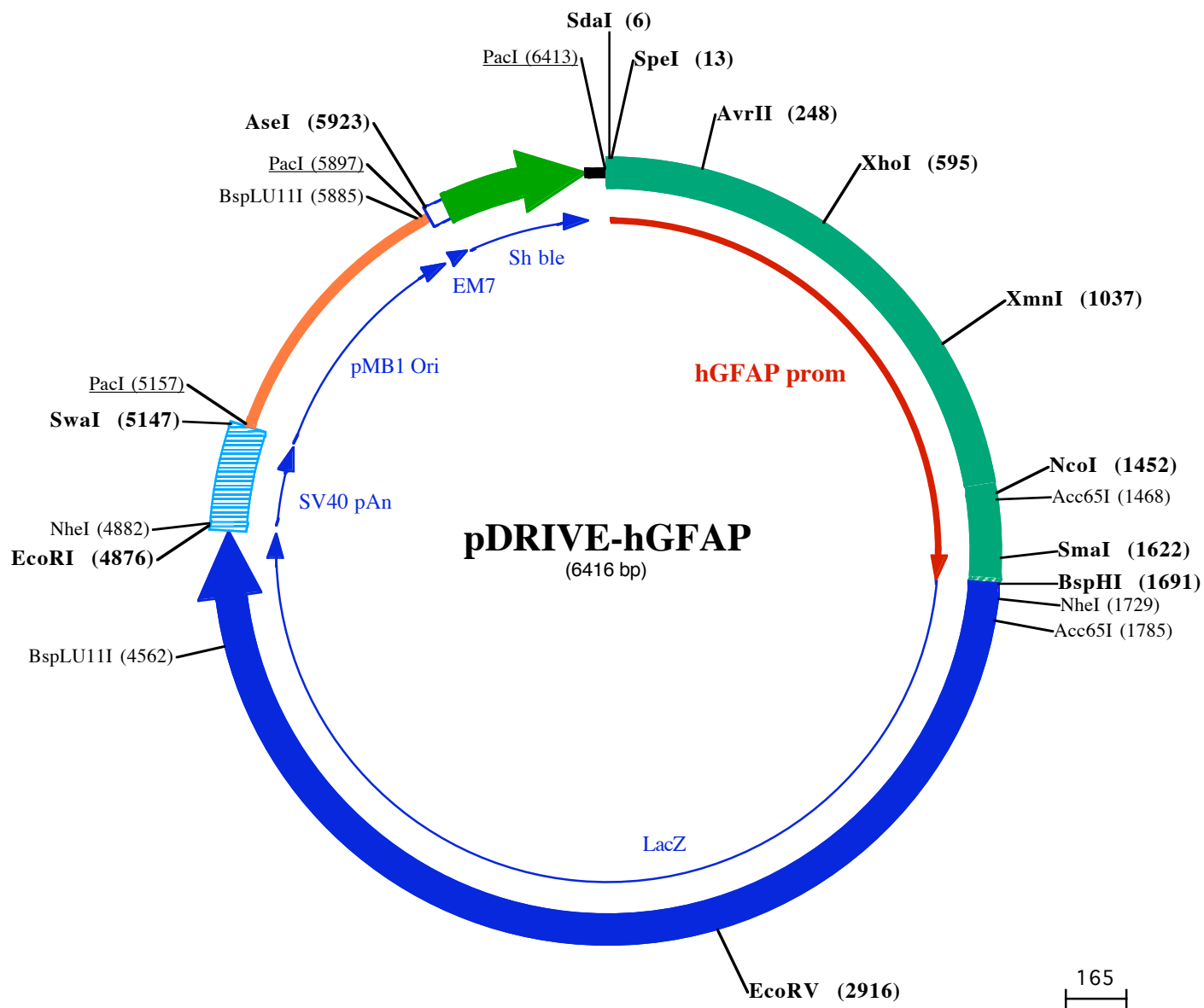
1. Vandier *et al.* 2000. Cancer Gene Ther 7:1120-6
2. Brenner *et al.* 1994. Neurosci. 14:1030-7

## TECHNICAL SUPPORT

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**SdaI (6)** **SpeI (13)**  
1 CCTGCAGGGCCCACTAGTCTGCAAGCAGACCTGGCAGCATTGGGCTGGCCGCCCCAGGGCCTCTCTTTCATGCCAGTGAATGACTCACCTTGGCACA

101 GACACAAATGTTGGGGTGGGCACAGTGCCTGCTTCCCGCCGACCCAGCCCTCAATGCCTTCGAGAAGCCATTGAGTAGGGGGCTTGCAATTGC

**AvrII (248)**  
201 ACCCCAGCCTGACAGCCTGGCATCTTGGGATAAAAAGCAGCACAGCCCTTAGGGGCTGCCCTTGCTGTGTGGGCCACCCGGGCTGGAGAACAAGGCTCT

301 ATTCAGCCTGTGCCAGGAAAGGGGATCAGGGGATGCCAGGCATGGACAGTGGGTGGCAGGGGGAGAGAGGGGCTGTCTGCTTCCAGAAAGTCCAAG

401 GACACAAATGGGTGAGGGGACTGGCAGGTTTCTGACCTGTGGACCAGAGTGGAGGGCGTAGATGGACCTGAAGTCTCCAGGGACAAACAGGGCCAGG

**XhoI (595)**  
501 TCTCAGGCTCTAGTTGGGCCAGTGGCTCCAGCGTTTCCAACCCATCCATCCCCAGAGTTTCTCCATCTCTCCAGGCTGATGTGTGGGAACTCGAG

601 GAAATAATCTCCAGTGGGAGACGGAGGGTGGCCAGGAAACGGGGCTGTACAGGAATAAAGACGAGCCAGCAGCCAGCTCATGCTAAACGGCTTTG

701 TGGAGCTGTCAAGGCTGGTCTCTGGGAGAGGACAGGGAGGCCAGACAAAGGGGTGACCTGGAGGGACAGATCCAGGGCTAAAGTCTCGATAA

801 GGCAAGAGAGTGGCCGCCCTTCTGCCCTATCAGGACCTCCACTGCCACATAGAGGCCATGATTGACCTTAGACAAAGGGCTGGTGTCCAATCCAGC

901 CCCAGCCCCAGAATCCAGGGAATGAATGGGCAGAGAGCAGGAATGGGACATCTGTGTTCAAGGGAAGGACTCCAGGAGTCTGCTGGGAATGAGGCC

**XmnI (1037)**  
1001 TAGTAGGAAATGAGGTGGCCCTTGGAGGTACAGAACAGGTTTATTCTTCGCCAAATTCAGCAGCTTGACAGCAGCTTACAGCTGAGTGAGATAATGCCT

1101 GGGTTATGAAATCAAAAAGTTGAAAGCAGTGCAGAGTCTCTGGTACAGCCCTCCTTCCTTTTTTTTTTTTTTTTTTTTTTTTTTTTITGGAGACAAGGCTCTC

1201 TCTCTGTTGCCAGGCTGGAGTGGCGAAACACAGCTCACTGCAGCCTCAACTACTGGGCTCAAGCAATCTCCAGCCTCAGCTCCAAAGTCTGGG

1301 ATTACAAGCATGAGCCACCCACTCAGCCCTTCTCCTTTTTAATTGTGCATAATAATTGTAAGTATTTCATCATGGTCCAACCAACCTTTTCTTGAC

**NotI (1452)** **Acc65I (1468)**  
1401 CCACCTTCTAGAGAGAGGGTCTCTTGGTCAGCGGTGAGGGCCAGCCCATGGTCTGGCTCCAGGTACCACCTGCCTCATGCAGGAGTTGGCGTGC

1501 CCAGGAAGCTCTGCCTCTGGGCACAGTACCTCAGTGGGTGAGGGGAGCTCTCCCATAGCTGGGCTGCGGCCAACCCACCCCTCAGGCTATGCCA

**SmaI (1622)** **BspHI (1691)**  
1601 GGGGGTGTGCCAGGGGACCCGGGCATCGCCAGTCTAGCCCCTCTTCAAAAGCCCTGCATCCAGGAGCGAGCAGAGCCAGAGCATCATGAGCGG

**NheI (1729)** **Acc65I (1785)**  
1701 TTCTCATCATCATCATCATGGTATGGCTAGCATGACTGGTGGACAGCAAATGGGTCGGGATCTGTACGACGATGACGATGATAGGTTACCTAAGGATCAG

1801 3>ySer His sHi sHi sHi sHi sHi sHi sGl yMe tAl aSer Me tThr Gl yGl yGl nGl nMe tGl yAr gAspLeu Tyr Asp Asp Asp Asp Lys Val P roLys Asp Gl n

1901 37>Leu Gl yVal Asp Pro Val Val Leu Gl nArg Arg Asp Trp Gl uAsn P roGl yVal Thr Gl nLeu Asn Arg Leu Al aAl aHi sP roP roPhe Al aSer Trp A

2001 70>r gAsn Ser Gl uGl uAl aArg Thr Asp Arg P roSer Gl nGl nLeu Arg Ser Leu Asn Gl yGl u Trp Arg Phe Al a Trp Phe P roAl aP roGl uAl aVal P r

2101 103>oGl uSer Trp Leu Gl uCys Asp Leu P roGl uAl aAsp Thr Val Val P roSer Asn Trp Gl nMe tHi sGl yTyr Asp Al aP roI l eTyr Thr Asn Val

2201 137>Thr Tyr P roI l eThr Val l Asn P roP roPhe Val P roThr Gl uAsn P roThr Gl yCys Tyr Ser Leu Thr Phe Asn Val Asp Gl uSer Trp Leu Gl nGl uG

2301 170>I yGl nThr Arg l l eI l ePhe Asp Gl yVal l Asn Ser Al aPhe Hi sLeu Trp Cys Asn Gl yArg Trp Val Gl yTyr Gl yGl nAsp Ser Arg Leu P roSer Gl

2401 203>uPhe Asp Leu Ser Al aPhe Leu Arg Al aGl yGl uAsn Arg Leu Al aVal Me tVal l eu Arg Trp Ser Asp Gl ySer Tyr Leu Gl uAsp Gl nAsp Me tTrp

2501 237>Arg Me tSer Gl y l ePhe Arg Asp Val Ser Leu Leu Hi sLys P roThr Thr Gl n l eSer Asp Phe Hi sVal l eA Thr Arg Phe Asn Asp Asp Phe Ser A

2601 270>r gAl aVal l eu Gl uAl aGl uVal l eGl nMe tCys Gl yGl uLeu Arg Asp Tyr Leu Arg Val Thr Val Ser Leu Trp Gl nGl yGl uThr Gl nVal l eA Ser Gl

2701 303>yThr Al aP roPhe Gl yGl yGl u l eI l eAsp Gl uArg Gl yGl yTyr Al aAsp Arg Val Thr Leu Arg Leu Asn Val Gl uAsn P roLys Leu Trp Ser Al a

2801 337>Gl u l eP roAsn Leu Tyr Arg Al aVal Val Gl uLeu Hi sThr Al aAsp Gl yThr Leu l eGl uAl aGl uAl aCys Asp Val Gl yPhe Arg Gl uVal l eArg l

2901 370> l eGl uAsn Gl yLeu Leu Leu Asn Gl yLys P roLeu Leu l eArg Gl yVal l eAsn Arg Hi sGl uHi sHi sP roLeu Hi sGl yGl nVal Me tAsp Gl uGl

**EcoRV (2916)**  
2901 GACGATGGTGCAGATCTGCTGTATGAAGCAGAACAACCTTAAACCCGCTGGCTGTTTCGATTATCCGAACCATCCGCTGGGTACACGCTGTGGCAG

3001 403>nThr Me tVal l eLeuLeuMe tLys Gl nAsn Asn Phe Asn Al aVal l eArg Cys Ser Hi sTyr P roAsn Hi sP roLeu Trp Tyr Thr Leu Cys Asp

3101 437>Arg Tyr Gl yLeu Tyr Val Val l Asp Gl uAl aAsn l l eGl uThr Hi sGl yMe tVal l eP roMe tAsn Arg Leu Thr Asp Asp P roArg Trp Leu P roAl aMe tS

3201 470>er Gl uArg Val Thr Arg Me tVal l eGl nArg Asp Arg Asn Hi sP roSer Val l l eI l eTyr Ser Leu Gl yAsn Gl uSer Gl yHi sGl yAl aAsn Hi sAsp l

3301 503>aLeu Tyr Arg Trp l l eLys Ser Val Asp P roSer Arg P roVal l eN Tyr Gl uGl yGl yAl aAsp Thr Thr Al aThr Asp l l eI l eCys P roMe tTyr

537>Al aArg Val l Asp Gl uAsp Gl nP roPhe P roAl aVal l eP roLys Trp Ser l l eLys Lys Trp Leu Ser Leu P roGl yGl uThr Arg P roLeu l l eLeu Cys G

3401 AATACGCCACGCGATGGGTAACAGTCTTGGCGTTTCGCTAAATACTGGCAGCGTTCCTGTCAGTATCCCGTTTACAGGGCGGCTTCGTCTGGGACTG  
570 I uTyrAl aHi sAl aMetGl yAsnSer LeuGl yGl yPheAl aLysTyrTrpGl nAl aPheArgGl nTyrProArgLeuGl nGl yGl yPheVal TrpAspTr  
3501 GGTGGATCAGTCGCTGATTAATATGATGAAAACGGCAACCCGTTGGTCGGCTTACGGCGGTGATTTTGGCGATACGCCAACGATCGCCAGTTCTGTATG  
603 pVal AspGl nSer LeuI l eLysTyrAspGl uAsnGl yAsnProTrpSerAl aTyrGl yGl yAspPheGl yAspThr P roAsnAspArgGl nPheCysMet  
3601 AACGGTCTGGTCTTTGGCGAACGACGCGCATCCAGCTGACGGAAGCAAACACAGCAGCAGTTCCTCCAGTTCCTGTTTATCCGGGCAAAACCATCG  
637 AsnGl yLeuVal l PheAl aAspArgThr P roHi sP roAl aLeuThr Gl uAl aLysHi sGl nGl nPhePheGl nPheArgLeuSer Gl yGl nThr l l eG  
3701 AAGTGACCAGCGAATACCTGTTCCGTCATAGCGATAACGAGCTCCTGCAGCTGGATGGTGGCGCTGGATGGTAAGCCGCTGGCAAGCGGTGAAGTGCCCTC  
670 I uVal l Thr Ser Gl uTyrLeuPheArgHi sSerAspAsnGl uLeuLeuHi sTrpMetVal Al aLeuAspGl yLysP roLeuAl aSer Gl yGl uVal l P roLe  
3801 GGATGTCGCTCCACAAGGTAACAGTTGATTGAACCTGCCTGAACCTACCGCAGCCGAGAGCGCCGGCAACTCTGGCTCACAGTACCGCTGATGCAACCG  
703 uAspVal Al aP roGl nGl yLysGl nLeuI l eGl uLeuP roGl uLeuP roGl nP roGl uSer Al aGl yGl nLeuTrpLeuThr Val l ArgVal l Val l Gl nP ro  
3901 AACGCGACCCGATGGTCAGAAGCCGGGCACATCAGCGCTGGCAGCAGTGGCGTCTGGCGGAAAACCTCAGTGTGACGCTCCCCGCCGCTCCCACGCCA  
737 AsnAl aThrAl aTrpSer Gl uAl aGl yHi s l l eSerAl aTrpGl nGl nTrpArgLeuAl aGl uAsnLeuSer Val l Thr LeuP roAl aAl aSer Hi sAl a l  
4001 TCCCGCATCGCTCCACAAGGTAACAGTTTGTGACTGCTGAGCTGGTAATAGCGTTCGCAATTTAACCGCAGTCAGGCTTCTTCCAGGCAAAACCATCGAT  
770 l eP roHi sLeuThr Thr Ser Gl uMetAspPheCys l l eGl uLeuGl yAsnLysArgT rpGl nPheAsnArgGl nSer Gl yPheLeuSer Gl nMetTrp l l  
4101 TGGCGATAAAAAACAACTGCTGACGCCGCTGCGCATCAGTTACCCGCTGACCGCTGGATAACGACATTGGCGTAAGTGAAGCGACCCGATTGACCCCT  
803 eGl yAspLysLysGl nLeuLeuThr P roLeuArgAspGl nPheThr ArgAl aP roLeuAspAsnAsp l l eGl yVal l Ser Gl uAl aThr Arg l l eAspP ro  
4201 AACGCTGGGTCGAACGCTGGAAGCGCGGCCATTACAGCCGAAAGCAAGCAGCTTGTTCAGTGCACGGCAGATACCTTGTGATGCGGTGATGCGGCGGATTA  
837 AsnAl aTrpVal l Gl uArgTrpLysAl aAl aGl yHi sTyrGl nAl aGl uAl aAl aLeuLeuGl nCysThr Al aAspThr LeuAl aAspAl aVal l Leu l l eT  
4301 CGACCGCTCAGCGTGGCAGCATCAGGGGAAAACCTTATTTATCAGCCGGAAAACCTACCGGATTGATGGTAGTGGTCAAATGGCGATTACCGTTGATGT  
870 hr Thr Al aHi sAl aTrpGl nHi sGl nGl yLysThr LeuPhe l l eSerArgLysThr TyrArg l l eAspGl ySer Gl yGl nMeTAl a l l eThr Val l AspVa  
4401 TGAAGTGGCGAGCGATACACCGCATCCGGCGGATTGGCTGAACTGCCAGCTGGCGCAGGTAGCAGAGCGGGTAAACTGGCTCGGATAGGGCCGCAA  
903 l Gl uVal Al aSerAspThr P roHi sP roAl aArg l l eGl yLeuAsnCysGl nLeuAl aGl nVal Al aAl aGl uArgVal l AsnTrpLeuGl yLeuGl yP roGl n  
BspLU11I (4562)  
4501 GAAAATATCCCGACCGCTTACTGCCGCTGTTTTGACCGCTGGGATCTGCCATTGTCCAGACATGTATACCCCGTACGCTTCCCGAGCGAAAACGGTC  
937 Gl uAsnTyrP roAspArgLeuThr Al aAl aCysPheAspArgTrpAspLeuP roLeuSerAspMetTyrThr P roTyrVal l PheP roSer Gl uAsnGl yL  
4601 TGGCTGCGGGACGCGCAATTGAATTATGGCCACACAGTGGCGCGGCACTTCCAGTTCAACATCAGCCGCTACAGTCAACAGCAACTGATGAAAC  
970 euArgCysGl yThrArgGl uLeuAsnTyrGl yP roHi sGl nTrpArgGl yAspPheGl nPheAsn l l eSerArgTyrSer Gl nGl nLeuMetGl uTh  
4701 CAGCCATCGCATCTGCTGCACGCGGAAGGACATGGCTGAATATCGACGGTTCCATATGGGGATTGGTGGCGACGACTCCTGGAGCCCGTCAGTA  
1003 r Ser Hi sArgHi sLeuLeuHi sAl aGl uGl uGl yThr TrpLeuAsn l l eAspGl yPheHi sMetGl y l l eGl yGl yAspAspSer TrpSer P roSer Val  
NheI (4882)  
EcoRI (4876)  
4801 TCGCGGAATTACAGCTGAGCGCGGTCGCTACCATTACAGTTGGTCTGGTGTCAAATAATAATCTAGTCGAGAATTCGCTAGCTCGCATGATAAG  
1037 SerAl aGl uLeuGl nLeuSerAl aGl yArgTyrHi sTyrGl nLeuVal l TrpCysGl nLys●●●  
4901 ATACATTGATGATTTGGACAAACCAACTAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTGAAATTTGTG  
ATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAACCAAGTTAACAAACAACAATTGCATTCAATTTATGTTTCAGGTTACAGGGGAGGTGTGGGA  
PacI (5157)  
SwaI (5147)  
5101 GGTTTTTTAAAGCAAGTAAACCTCTACAAATGTGGTAGATCCATTTAAATGTAAATTAAGTACCATGACCAAAATCCCTTAACGTGAGTTTTCGTTCC  
ACTGAGCGTCAGACCCCGTAGAAAAGATCAAAGGATCTTCTTGAGATCCTTTTTTCTGCGCGTAATCTGCTGCTTGCAAAACAAAAAACACCGCTACC  
5201 AGCGGTGGTTTTGTTGCGGATCAAGAGCTACCAACTCTTTTTCCGAAGGTAAGTGGCTTACGAGAGCGCAGATACCAAATACTGTTCTTCTAGTGTAG  
5301 CCGTAGTTAGCCACCACCTCAAGAAGCTCTGTAGACCCGCTACATACCTCGCTCTGTAATCTGTTACCAAGTGGCTGCTGCCAGTGGCGATAAGTCGT  
5401 GTCTTACCGGTTGGACTCAAGACGATAGTTACCGGATAAGGCGCAGCGGTGGGCTGAACGGGGGTTCTGTGCACACAGCCAGCTTGGAGCGAACGAC  
5501 CTACACCGAACTGAGATACTACAGCGTGAGCTATGAGAAAGCGCCAGCTTCCGAAAGGAGAAAGCGGACAGGTATCCGGTAAGCGGACGGTCCGA  
5601 ACAGGAGAGCGCAGGAGGCTTCCAGGGGAAACGCCTGGTATCTTTATAGTCTGCTGGGTTTTGCCACCTCTGACTTGAGCGTCGATTTTTGTGAT  
5701 GCTCGTCAGGGGGCGGAGCCTATGAAAAACGCCAGCAACGCGCCCTTTTTACGGTTCTGCGCTTTTGTGCGCTTTTGTCCACATGTTCTTAATTA  
PacI (5897)  
BspLU11I (5885)  
5801 ATTTTTCAAAGTAGTTGACAATTAATCATCGGCATAGTATATCGGCATAGTATAATACGACTCACTATAGGAGGGCCATCATGGCCAAGTTGACCAGT  
AseI (5923)  
1 MetAl aLysLeuThr Ser A  
6001 CTGTCCAGTGTCTACAGCCAGGGATGTGGCTGGAGCTGTTGAGTTCTGGACTGACAGTTGGGGTCTCCAGAGATTTGTGGAGGATGACTTTGCAGG  
7 I aVal l P roVal l LeuThr Al aArgAspVal l Al aGl yAl aVal l Gl uPheTrpThrAspArgLeuGl yPheSerArgAspPheVal l Gl uAspAspPheAl aGl  
6101 TGTGGTCAGAGATGATGTACCCTGTTCTATCTCAGCAGTCCAGGACAGGTGGTGCCTGACAACACCTGGCTTGGGTGTGGGTGAGAGGACTGGATGAG  
40 yVal l Val l ArgAspAspVal l ThrLeuPhe l l eSerAl aVal l Gl nAspGl nVal l Val l P roAspAsnThrLeuAl aTrpVal l TrpVal l ArgGl yLeuAspGl u  
6201 CTGTATGCTGAGTGGAGTGGTGTCTCCACCAACTTCAGGGATGCCAGTGGCCCTGCCATGACAGAGATTGGAGAGCAGCCCTGGGGAGAGAGTTTG  
74 LeuTyrAl aGl uTrpSer Gl uVal l Val l Ser ThrAsnPheArgAspAl aSer Gl yP roAl aMetThr Gl u l l eGl yGl uGl nP roTrpGl yArgGl uPheA  
6301 CCCTGAGAGACCCAGCAGGCAACTGTGTGCACTTTGTGGCAGAGGAGCAGGACTGAGGATAAGAATTGAGTTTCAGAAAAGGGGCTGAGTGGCCCTT  
107 l aLeuArgAspP roAl aGl yAsnCysVal l Hi sPheVal l Al aGl uGl uGl nAsp●●●  
PacI (6413)  
6401 TTTTCAACTTAATTA