

## mPB-L3-ERT2

### General Description

DNA 'mPB-L3-ERT2'

Expression vector containing the mPB-L3-ERT2 transposase coding sequence in a pcDNA3 backbone

Currently local object. Original author: s

Created: 04/16/07 05:29PM

Last Modified: 07/11/07 12:27PM

length: 8230 bp

storage type: Basic

form: Circular

### Standard Fields

Original Source Database: GenBank

Modification Date in the Original DB: 16-APR-2007

### Original Author

s

### Comments

### Annotations

### Feature Map

#### CDS (5 total)

##### mPB

Start: 953 End: 2734

Optimized piggyBac transposase CDS Non-Stop

Original Location Description:

953..2734

##### L3

Start: 2735 End: 2806

Linker-3

Original Location Description:

2735..2806

##### ERT2

Start: 2807 End: 3754

ERT2 CDS

Original Location Description:

2807..3754

##### Neo(R)

Start: 4935 End: 5729

Original Location Description:

4935..5729

##### Amp(R)

Start: 7234 End: 8094 (Complementary)

Original Location Description:

complement(7234..8094)

#### PolyA Signal (2 total)

##### bGH polyA

Start: 3802 End: 4033

Original Location Description:

3802..4033

### SV40 pA

Start: 5903 End: 6033  
Original Location Description:  
5903..6033

### Promoter Eukaryotic (2 total)

#### CMV promoter

Start: 232 End: 819  
Original Location Description:  
232..819

#### SV40 early promoter

Start: 4530 End: 4899  
Original Location Description:  
4530..4899

### Replication Origin (2 total)

#### f1 origin

Start: 4096 End: 4524  
Original Location Description:  
4096..4524

#### pUC origin

Start: 6416 End: 7089 (Complementary)  
Original Location Description:  
complement(6416..7089)

### Restriction/Methylation Map

#### BamHI: 2 sites



N1: 908  
N2: 1195

#### BglII: 4 sites



N1: 13  
N2: 1477  
N3: 1690  
N4: 3232

#### Clal: 0 sites



#### EcoRI: 1 site



N1: 939

#### EcoRV: 0 sites



#### HindIII: 2 sites



N1: 890  
N2: 2980

#### KpnI: 1 site



N1: 900

#### NotI: 1 site



N1: 2737

#### SacI: 3 sites



N1: 819

## mPB-L3-ERT2

N2: 906

N3: 3810

SacII: 0 sites

ccgcgg  
ggcgcc

Sall: 3 sites

ctcgac  
cagctg

N1: 33

N2: 6041

N3: 8229

XbaI: 2 sites

cttaga  
agatct

N1: 3098

N2: 3768

XhoI: 1 site

ctcgag  
gagctc




N1: 3756

### Restriction Fragments

5413: mPB-L3-ERT2: XhoI(3756) - EcoRI(939)

2817: mPB-L3-ERT2: EcoRI(939) - XhoI(3756)

## mPB-L3-ERT2

											
1	GACGGATCGG	GAGATCTCCC	GATCCCCTAT	GGTCGACTCT	CAGTACAATC	TGCTCTGATG	CCGCATAGTT	AAGCCAGTAT	CTGCTCCCTG	CTTGTGTGTT	
	CTGCCTAGCC	CTCTAGAGGG	CTAGGGGATA	CCAGCTGAGA	GTCATGTTAG	ACGAGACTAC	GGCGTATCAA	TTCGGTCATA	GACGAGGGAC	GAACACACAA	
101	GGAGGTCGCT	GAGTAGTGCG	CGAGCAAAAT	TTAAGCTACA	ACAAGGCAAG	GCTTGACCGA	CAATTGCATG	AAGAATCTGC	TTAGGGTTAG	GCGTTTTGCG	
	CCTCCAGCGA	CTCATCACGC	GCTCGTTTTA	AATTCGATGT	TGTTCCGTTT	CGAACTGGCT	GTTAACGTAC	TTCTTAGACG	AATCCCAATC	CGCAAAACGC	
201	CTGCTTCGCG	ATGTACGGGC	CAGATATACG	CGTTGACATT	GATTATTGAC	TAGTTATTAA	TAGTAATCAA	TTACGGGGTC	ATTAGTTCAT	AGCCCATATA	
	GACGAAGCGC	TACATGCCCC	GTCTATATGC	GCAACTGTAA	CTAATAACTG	ATCAATAATT	ATCATTAGTT	AATGCCCCAG	TAATCAAGTA	TCGGGTATAT	
301	TGGAGTTCCG	CGTTACATAA	CTTACGGTAA	ATGGCCCGCC	TGGCTGACCG	CCCAACGACC	CCCGCCCATT	GACGTCAATA	ATGACGTATG	TTCCCATAGT	
	ACCTCAAGGC	GCAATGTATT	GAATGCCATT	TACCGGGCGG	ACCGACTGGC	GGGTTGCTGG	GGGCGGGTAA	CTGCAGTTAT	TACTGCATAC	AAGGGTATCA	
401	AACGCCAATA	GGGACTTTCC	ATTGACGTCA	ATGGGTGGAC	TATTTACGGT	AAACTGCCCC	CTTGGCAGTA	CATCAAGTGT	ATCATATGCC	AAGTACGCCC	
	TTGCGGTTAT	CCCTGAAAGG	TAAGTGCAGT	TACCCACCTG	ATAAATGCCA	TTTGACGGGT	GAACCGTCAT	GTAAGTTCACA	TAGTATACGG	TTTATGCGGG	
501	CCTATTGACG	TCAATGACGG	TAAATGGCCC	GCCTGGCATT	ATGCCCAGTA	CATGACCTTA	TGGGACTTTC	CTACTTGGCA	GTACATCTAC	GTATTAGTCA	
	GGATAACTGC	AGTTACTGCC	ATTTACCGGG	CGGACCGTAA	TACGGGTCAT	GTACTGGAAT	ACCCTGAAAAG	GATGAACCGT	CATGTAGATG	CATAATCAGT	
601	TCGCTATTAC	CATGGTGATG	CGGTTTTGGC	AGTACATCAA	TGGGCGTGGA	TAGCGGTTTG	ACTCACGGGG	ATTTCCAAGT	CTCCACCCCA	TTGACGTCAA	
	AGCGATAATG	GTACCACTAC	GCCAAAACCG	TCATGTAGTT	ACCCGCACCT	ATCGCCAAAAC	TGAGTGCCCC	TAAAGGTTCA	GAGGTGGGGT	AACTGCAGTT	
701	TGGGAGTTTG	TTTTGGCACC	AAAATCAACG	GGACTTTCCA	AAATGTCGTA	ACAACCTCCG	CCCATTTGACG	CAAATGGGCG	GTAGGCGTGT	ACGGTGGGAG	
	ACCTCAAAC	AAAACCGTGG	TTTTAGTTGC	CCTGAAAGGT	TTTACAGCAT	TGTTGAGGCG	GGGTAACCTG	GTTTACCCCG	CATCCGCACA	TGCCACCCCTC	
801											
	GTCTATATAA	GCAGAGCTCT	CTGGCTAACT	AGAGAACCCA	CTGCTTACTG	GCTTATCGAA	ATTAATACGA	CTCACTATAG	GGAGACCCAA	GCTTGGTACC	
	CAGATATATT	CGTCTCGAGA	GACCGATTGA	TCTCTTGGGT	GACGAATGAC	CGAATAGCTT	TAATTATGCT	GAGTGATATC	CCTCTGGGTT	CGAACCATGG	
901											
	GAGCTCGGAT	CCACTAGTAA	CGGCCGCCAG	TGTGCTGGAA	TTGCGCCGCCA	CCATGGGCGAG	CAGCCTGGAC	GACGAGCACA	TCCTGAGCGC	CCTGCTGCAG	
	CTCGAGCCTA	GGTGATCATT	GCCGGCGGTC	ACACGACCTT	AAGCGGCGGT	GGTACCCGTC	GTCGGACCTG	CTGCTCGTGT	AGGACTCGCG	GGACGACGTC	
1001	AGCGACGACG	AGCTGGTCGG	CGAGGACAGC	GACAGCGAGA	TCAGCGACCA	CGTGAGCGAG	GACGACGTGC	AGTCCGACAC	CGAGGAGGCC	TTTATCGACG	
	TCGCTGCTGC	TCGACCAGCC	GCTCCTGTGC	CTGTGCTCTT	AGTCGCTGGT	GCACTCGCTC	CTGCTGCACG	TCAGGCTGTG	GCTCCTCCGG	AAGTAGCTGC	
1101											
	AGGTGCACGA	GGTGCAGCCT	ACCAGCAGCG	GCTCCGAGAT	CCTGGACGAG	CAGAACGTGA	TCGAGCAGCC	CGGCAGCTCC	CTGGCCAGCA	ACAGGATCCT	
	TCCACGTGCT	CCACGTCGGA	TGGTCGTCGC	CGAGGCTCTA	GGACCTGCTC	GTCTTGCACT	AGCTCGTCGG	GCCGTCGAGG	GACCGGTCTG	TGTCCTAGGA	

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1201	GACCCTGCCC	CAGAGGACCA	TCAGGGGCAA	GAACAAGCAC	TGCTGGTCCA	CCTCCAAGAG	CACCAGGCGG	AGCAGGGTGT	CCGCCCTGAA	CATCGTGAGA
	CTGGGACGGG	GTCTCCTGGT	AGTCCCCGTT	CTTGTTCTGT	ACGACCAGGT	GGAGGTTCTC	GTGGTCCGCC	TCGTCCCACA	GGCGGGACTT	GTAGACTTCT
1301	AGCCAGAGGG	GCCCCACCAG	GATGTGCAGG	AACATCTACG	ACCCCTTGCT	GTGCTTCAAG	CTGTTCTTCA	CCGACGAGAT	CATCAGCGAG	ATCGTGAAGT
	TCGGTCTCCC	CGGGGTGGTC	CTACACGTCC	TTGTAGATGC	TGGGGGACGA	CACGAAGTTC	GACAAGAAGT	GGCTGCTCTA	GTAGTCGCTC	TAGCACTTCA
1401	GGACCAACGC	CGAGATCAGC	CTGAAGAGGC	GGGAGAGCAT	GACCGGCGCC	ACCTTCAGGG	ACACCAACGA	GGACGAGATC	TACGCCTTCT	TCGGCATCCT
	CCTGGTTGCG	GCTCTAGTCG	GACTTCTCCG	CCCTCTCGTA	CTGGCCGCGG	TGGAAGTCCC	TGTGGTTGCT	CCTGCTCTAG	ATGCGGAAGA	AGCCGTAGGA
1501	GGTGATGACC	GCCGTGAGGA	AGGACAACCA	CATGAGCACC	GACGACCTGT	TCGACAGATC	CCTGAGCATG	GTGTACGTGA	GCGTGATGAG	CAGGGACAGA
	CCACTACTGG	CGGCACTCCT	TCCTGTTGGT	GTACTCGTGG	CTGCTGGACA	AGCTGTCTAG	GGACTCGTAC	CACATGCACT	CGCACTACTC	GTCCCTGTCT
1601	TTCGACTTCC	TGATCAGATG	CCTGAGGATG	GACGACAAGA	GCATCAGGCC	CACCCTGCGG	GAGAACGACG	TGTTCACCCC	CGTGAGAAAG	ATCTGGGACC
	AAGCTGAAGG	ACTAGTCTAC	GGACTCCTAC	CTGCTGTTCT	CGTAGTCCGG	GTGGGACGCC	CTCTTGCTGC	ACAAGTGGGG	GCACTCTTTC	TAGACCCTGG
1701	TGTTTCATCCA	CCAGTGCAATC	CAGAACTACA	CCCCTGGCGC	CCACCTGACC	ATCGACGAGC	AGCTGCTGGG	CTTCAGGGGC	AGGTGCCCCCT	TCAGGATGTA
	ACAAGTAGGT	GGTCACGTAG	GTCTTGATGT	GGGGACCGCG	GGTGGACTGG	TAGCTGCTCG	TCGACGACCC	GAAGTCCCCG	TCCACGGGGA	AGTCCCTACAT
1801	TATCCCCAAC	AAGCCCAGCA	AGTACGGCAT	CAAGATCCTG	ATGATGTGCG	ACAGCGGCAC	CAAGTACATG	ATCAACGGCA	TGCCCTACCT	GGGCAGGGGC
	ATAGGGGTTG	TTCGGGTCGT	TCATGCCGTA	GTTCTAGGAC	TACTACACGC	TGTCGCCGTG	GTTTCATGTAC	TAGTTGCCGT	ACGGGATGGA	CCCGTCCCCG
1901	ACCCAGACCA	ACGGCGTGCC	CCTGGGCGAG	TACTACGTGA	AGGAGCTGTC	CAAGCCCGTC	CACGGCAGCT	GCAGAAACAT	CACCTGCGAC	AACTGGTTCA
	TGGGTCTGGT	TGCCGCACGG	GGACCCGCTC	ATGATGCACT	TCCTCGACAG	GTTCCGGCAG	GTGCCGTGCA	CGTCTTTGTA	GTGGACGCTG	TTGACCAAGT
2001	CCAGCATCCC	CCTGGCCAAG	AACCTGCTGC	AGGAGCCCTA	CAAGCTGACC	ATCGTGGGCA	CCGTGAGAAG	CAACAAGAGA	GAGATCCCCG	AGGTCCTGAA
	GGTCGTAGGG	GGACCGGTTT	TTGGACGACG	TCCTCGGGAT	GTTTCGACTGG	TAGCACCCGT	GGCACTCTTC	GTTGTTCTCT	CTCTAGGGGC	TCCAGGACTT
2101	GAACAGCAGG	TCCAGGCCCC	TGGGCACCAG	CATGTTCTGC	TTCGACGGCC	CCCTGACCCT	GGTGTCTTAC	AAGCCCAAGC	CCGCCAAGAT	GGTGTACCTG
	CTTGTCGTCC	AGGTCCGGGC	ACCCGTGGTC	GTACAAGACG	AAGCTGCCGG	GGGACTGGGA	CCACAGGATG	TTCGGGTTTC	GGCGGTTCTA	CCACATGGAC
2201	CTGTCCAGCT	GCGACGAGGA	CGCCAGCATC	AACGAGAGCA	CCGGCAAGCC	CCAGATGGTG	ATGTACTACA	ACCAGACCAA	GGCGGGCGTG	GACACCCTGG
	GACAGGTCGA	CGCTGCTCCT	GCGGTCGTAG	TTGCTCTCGT	GGCCGTTCCG	GGTCTACCAC	TACATGATGT	TGGTCTGGTT	CCCGCCGCAC	CTGTGGGACC
2301	ACCAGATGTG	CAGCGTGATG	ACCTGCAGCA	GAAAGACCAA	CAGGTGGCCC	ATGGCCCTGC	TGTACGGCAT	GATCAACATC	GCCTGCATCA	ACAGCTTCAT
	TGGTCTACAC	GTCGCACTAC	TGGACGTCGT	CTTTCTGGTT	GTCCACCGGG	TACCGGGACG	ACATGCCGTA	CTAGTTGTAG	CGGACGTAGT	TGTCGAAGTA
2401	CATCTACAGC	CACAACGTGA	GCAGCAAGGG	CGAGAAGGTG	CAGAGCCGGA	AAAAGTTCAT	GCGGAACCTG	TACATGAGCC	TGACCTCCAG	CTTCATGAGG
	GTAGATGTCT	GTGTTGCACT	CGTCGTTCCC	GCTCTTCCAC	GTCTCGGCCT	TTTTCAAGTA	CGCCTTGAGC	ATGTACTCGG	ACTGGAGGTC	GAAGTACTCC
2501	AAGAGGCTGG	AGGCCCCCAC	CCTGAAGAGA	TACCTGAGGG	ACAACATCAG	CAACATCCTG	CCCAACGAGG	TGCCCCGCAC	CAGCGACGAC	AGCACCAGGG
	TTCTCCGACC	TCCGGGGGTG	GGACTTCTCT	ATGGACTCCC	TGTTGTAGTC	GTTGTAGGAC	GGGTTGCTCC	ACGGGCCCGT	GTCGCTGCTG	TCGTGGCTCC

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2601	AGCCCGTGAT	GAAGAAGAGG	ACCTACTGCA	CCTACTGTCC	CAGCAAGATC	AGAAGAAAGG	CCAACGCCAG	CTGCAAGAAG	TGTAAGAAGG	TCATCTGCCG
	TCGGGCACTA	CTTCTTCTCC	TGGATGACGT	GGATGACAGG	GTCGTTCTAG	TCTTCTTTCC	GGTTGCGGTC	GACGTTCTTC	ACATTCTTCC	AGTAGACGGC
										
2701	GGAGCACAAC	ATCGACATGT	GCCAGAGCTG	TTTCGCGGCC	GCCAAGCTGG	GCGGCGGCGC	CCCCGCCGTG	GGCGGCGGCC	CCAAGGCCGC	CGATAAAGGG
	CCTCGTGTTG	TAGCTGTACA	CGGTCTCGAC	AAAGCGCCGG	CGGTTTCGACC	CGCCGCCGCG	GGGGCGGCAC	CCGCCGCCGG	GGTTCCGGCG	GCTATTTCCC
2801	GCCGCATCTG	CTGGAGACAT	GAGAGCTGCC	AACCTTTGGC	CAAGCCCGCT	CATGATCAAA	CGCTCTAAGA	AGAACAGCCT	GGCCTTGTC	CTGACGGCCG
	CGGCGTAGAC	GACCTCTGTA	CTCTCGACGG	TTGGAAACCG	GTTCGGGCGA	GTACTAGTTT	GCGAGATTCT	TCTTGTCGGA	CCGGAACAGG	GACTGCCGGC
										
2901	ACCAGATGGT	CAGTGCCTTG	TTGGATGCTG	AGCCCCCAT	ACTCTATTCC	GAGTATGATC	CTACCAGACC	CTTCAGTGAA	GCTTCGATGA	TGGGCTTACT
	TGGTCTACCA	GTCACGGAAC	AACCTACGAC	TCGGGGGGTA	TGAGATAAAG	CTCATACTAG	GATGGTCTGG	GAAGTCACTT	CGAAGCTACT	ACCCGAATGA
										
3001	GACCAACCTG	GCAGACAGGG	AGCTGGTTCA	CATGATCAAC	TGGGCGAAGA	GGGTGCCAGG	CTTTGTGGAT	TTGACCCTCC	ATGATCAGGT	CCACCTTCTA
	CTGGTTGGAC	CGTCTGTCCC	TCGACCAAGT	GTAAGTCTTG	ACCCGCTTCT	CCCACGGTCC	GAAACACCTA	AACTGGGAGG	TACTAGTCCA	GGTGAAGAT
										
3101	GAATGTGCCT	GGCTAGAGAT	CCTGATGATT	GGTCTCGTCT	GGCGCTCCAT	GGAGCACCCA	GTGAAGCTAC	TGTTTGCTCC	TAACTTGCTC	TTGGACAGGA
	CTTACACGGA	CCGATCTCTA	GGACTACTAA	CCAGAGCAGA	CCGCGAGGTA	CCTCGTGGGT	CAGTTCGATG	ACAAACGAGG	ATTGAACGAG	AACCTGTCTT
										
3201	ACCAGGGAAA	ATGTGTAGAG	GGCATGGTGG	AGATCTTTCGA	CATGCTGCTG	GCTACATCAT	CTCGGTTCCG	CATGATGAAT	CTGCAGGGAG	AGGAGTTTGT
	TGGTCCCTTT	TACACATCTC	CCGTACCACC	TCTAGAAGCT	GTACGACGAC	CGATGTAGTA	GAGCCAAGGC	GTACTACTTA	GACGTCCCTC	TCCTCAAACA
3301	GTGCCTCAAA	TCTATTATTT	TGCTTAATTC	TGGAGTGTAC	ACATTTCTGT	CCAGCACCTT	GAAGTCTCTG	GAAGAGAAAG	ACCATATCCA	CCGAGTCCTG
	CACGGAGTTT	AGATAATAAA	ACGAATTAAG	ACCTCACATG	TGTAAAGACA	GGTCGTGGGA	CTTCAGAGAC	CTTCTCTTCC	TGGTATAGGT	GGCTCAGGAC
3401	GACAAGATCA	CAGACACTTT	GATCCACCTG	ATGGCCAAGG	CAGGCCTGAC	CCTGCAGCAG	CAGCACCAGC	GGCTGGCCCA	GCTCCTCCTC	ATCCTCTCCC
	CTGTTCTAGT	GTCTGTGAAA	CTAGGTGGAC	TACCGGTTCC	GTCCGGACTG	GGACGTCGTC	GTCGTGGTCG	CCGACCGGGT	CGAGGAGGAG	TAGGAGAGGG
3501	ACATCAGGCA	CATGAGTAAC	AAAGGCATGG	AGCATCTGTA	CAGCATGAAG	TGCAAGAACG	TGGTGCCCTT	CTATGACCTG	CTGCTGGAGG	CGGCGGACGC
	TGTAGTCCGT	GTACTCATTG	TTTCCGTACC	TCGTAGACAT	GTCGTACTTC	ACGTTCTTGC	ACCACGGGGA	GATACTGGAC	GACGACCTCC	GCCGCCTGCG
3601	CCACCGCCTA	CATGCGCCCA	CTAGCCGTGG	AGGGGCATCC	GTGGAGGAGA	CGGACCAAAG	CCACTTGGCC	ACTGCGGGCT	CTACTTCATC	GCATTCTTTG
	GGTGGCGGAT	GTACGCGGGT	GATCGGCACC	TCCCCGTAGG	CACCTCCTCT	GCCTGGTTTC	GGTGAACCGG	TGACGCCCGA	GATGAAGTAG	CGTAAGGAAC
										
3701	CAAAAGTATT	ACATCACGGG	GGAGGCAGAG	GGTTTCCCTG	CCACAGCTTG	ATGACTCGAG	CATGCATCTA	GAGGGCCCTA	TTCTATAGTG	TCACCTAAAT
	GTTTTTCATA	TGTAGTGCCC	CCTCCGTCTC	CCAAAGGGAC	GGTGTCGAAC	TACTGAGCTC	GTACGTAGAT	CTCCCGGGAT	AAGATATCAC	AGTGGATTTA

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	<div style="text-align: center;"></div>									
3801	GCTAGAGCTC CGATCTCGAG	GCTGATCAGC CGACTAGTCG	CTCGACTGTG GAGCTGACAC	CCTTCTAGTT GGAAGATCAA	GCCAGCCATC CGGTCGGTAG	TGTTGTTTGC ACAACAAACG	CCCTCCCCCG GGGAGGGGGC	TGCCTTCCTT ACGGAAGGAA	GACCCTGGAA CTGGGACCTT	GGTGCCACTC CCACGGTGAG
3901	CCACTGTCTT GGTGACAGGA	TTCCTAATAA AAGGATTATT	AATGAGGAAA TACTCTCTTT	TTGCATCGCA AACGTAGCGT	TTGTCTGAGT AACAGACTCA	AGGTGTCATT TCCACAGTAA	CTATTCTGGG GATAAGACCC	GGGTGGGGTG CCCACCCAC	GGGCAGGACA CCCGTCCTGT	GCAAGGGGGA CGTTCCCCCT
4001	GGATTGGGAA CCTAACCTTT	GACAATAGCA CTGTTATCGT	GGCATGCTGG CCGTACGACC	GGATGCGGTG CCTACGCCAC	GGCTCTATGG CCGAGATACC	CTTCTGAGGC GAAGACTCCG	GGAAAGAACC CCTTTCTTGG	AGCTGGGGCT TCGACCCCGA	CTAGGGGGTA GATCCCCCAT	TCCCCACGCG AGGGGTGCGC
4101	CCCTGTAGCG GGGACATCGC	GCGCATTAAG CGCGTAATTC	CGCGGCGGGT GCGCCGCCCA	GTGGTGTTTA CACCACCAAT	CGCGCAGCGT GCGCGTCGCA	GACCGCTACA CTGGCGATGT	CCTGCCAGCG GAACGGTTCG	CCCTAGCGCC GGGATCGCGG	CGCTCCTTTC GCGAGGAAAG	GCTTCTTTCC CGAAAGAAGG
4201	CTTCCTTTCT GAAGGAAAGA	CGCCACGTTT GCGGTGCAAG	GCCGGCTTTC CGGCCGAAAG	CCCGTCAAGC GGGCAGTTTC	TCTAAATCGG AGATTTAGCC	GGCATCCCTT CCGTAGGGAA	TAGGGTTCCG ATCCCAAGGC	ATTTAGTGCT TAAATCACGA	TTACGGCACC AATGCCGTGG	TCGACCCCAA AGCTGGGGTT
4301	AAAACCTTGAT TTTTGAACTA	TAGGGTGATG ATCCCACTAC	GTTACGCTAG CAAGTGCAATC	TGGGCCATCG ACCCGGTAGC	CCCTGATAGA GGGACTATCT	CGGTTTTTTCG GCCAAAAAGC	CCCTTTGACG GGGAAACTGC	TTGGAGTCCA AACCTCAGGT	CGTTCCTTAA GCAAGAAATT	TAGTGGACTC ATCACCTGAG
4401	TTGTTCCAAA AACAAGGTTT	CTGGAACAAC GACCTTGTTG	ACTCAACCCT TGAGTTGGGA	ATCTCGGTCT TAGAGCCAGA	ATTCTTTTGA TAAGAAAACT	TTTATAAGGG AAATATTCCC	ATTTTGGGGA TAAAACCCCT	TTTCGGCCTA AAAGCCGGAT	TTGGTTAAAA AACCAATTTT	AATGAGCTGA TTACTCGACT
4501	TTTAACAAAA AAATTGTTTT	ATTTAACGCG TAAATTGCGC	AATTAATTCT TTAATTAGA	GTGGAATGTG CACCTTACAC	TGTCAGTTAG ACAGTCAATC	GGTGTGGA CCACACCTTT	GTCCCCAGGC CAGGGGTCCG	TCCCCAGGCA AGGGGTCCGT	GGCAGAAGTA CCGTCTTCAT	TGCAAAGCAT ACGTTTCGTA
4601	GCATCTCAAT CGTAGAGTTA	TAGTCAGCAA ATCAGTCGTT	CCAGGTGTGG GGTCCACACC	AAAGTCCCCA TTTCAGGGGT	GGCTCCCCAG CCGAGGGGTC	CAGGCAGAAG GTCCGTCTTC	TATGCAAAGC ATACGTTTCG	ATGCATCTCA TACGTAGAGT	ATTAGTCAGC TAATCAGTCG	AACCATAGTC TTGGTATCAG
4701	CCGCCCCCTAA GGCGGGGATT	CTCCGCCCAT GAGGCGGGTA	CCCGCCCCCTA GGGCGGGGAT	ACTCCGCCCA TGAGGCGGGT	GTTCCGCCCA CAAGGCGGGT	TTCTCCGCCC AAGAGGCGGG	CATGGCTGAC GTACCGACTG	TAATTTTTTTT ATTAAAAAAA	TATTTATGCA ATAAATACGT	GAGGCCGAGG CTCCGGCTCC
4801	CCGCCTCTGC GGCGGAGACG	CTCTGAGCTA GAGACTCGAT	TTCCAGAAGT AAGGTCTTCA	AGTGAGGAGG TCACTCCTCC	CTTTTTTGGG GAAAAAACCT	GGCCTAGGCT CCGATCCGA	TTTGCAAAAA AAACGTTTTT	GCTCCCGGGA CGAGGGCCCT	GCTTGATATAT CGAACATATA	CCATTTTCGG GGTAAAAGCC
4901	ATCTGATCAA TAGACTAGTT	GAGACAGGAT CTCTGTCTTA	GAGGATCGTT CTCCTAGCAA	TCGCATGATT AGCGTACTAA	GAACAAGATG CTTGTTCTAC	GATTGCACGC CTAACGTGCG	AGGTTCTCCG TCCAAGAGGC	GCCGCTTGGG CGGCGAACCC	TGGAGAGGCT ACCTCTCCGA	ATTCGGCTAT TAAGCCGATA
5001	GACTGGGCAC CTGACCCGTG	AACAGACAAT TTGTCTGTTA	CGGCTGCTCT GCCGACGAGA	GATGCCGCCG CTACGGCGGC	TGTTCCGGCT ACAAGGCCGA	GTCAGCGCAG CAGTCGCGTC	GGGCGCCCGG CCC GCGGGC	TTCTTTTTTGT AAGAAAAACA	CAAGACCGAC GTTCTGGCTG	CTGTCCGGTG GACAGGCCAC
5101	CCCTGAATGA GGGACTTACT	ACTGCAGGAC TGACGTCTCT	GAGGCAGCGC CTCCGTCGCG	GGCTATCGTG CCGATAGCAC	GCTGGCCACG CGACCGGTGC	ACGGGCGTTC TGCCCGCAAG	CCTTGCGCAGC GAACGCGTCG	TGTGCTCGAC ACACGAGCTG	GTTGTCACTG CAACAGTGAC	AAGCGGGAAG TTCGCCCTTC
5201	GGACTGGCTG CCTGACCGAC	CTATTGGGCG GATAACCCGC	AAGTGCCGGG TTCACGGCCC	GCAGGATCTC CGTCCTAGAG	CTGTCATCTC GACAGTAGAG	ACCTTGCTCC TGGAACGAGG	TGCCGAGAAA ACGGCTCTTT	GTATCCATCA CATAGGTAGT	TGGCTGATGC ACCGACTACG	AATGCGGCGG TTACGCCGCC



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5301	CTGCATACGC	TTGATCCGGC	TACCTGCCCA	TTCGACCACC	AAGCGAAACA	TCGCATCGAG	CGAGCACGTA	CTCGGATGGA	AGCCGGTCTT	GTCGATCAGG
	GACGTATGCG	AAC TAGGCCG	ATGGACGGGT	AAGCTGGTGG	TTCGCTTTGT	AGCGTAGCTC	GCTCGTGCAT	GAGCCTACCT	TCGGCCAGAA	CAGCTAGTCC
5401	ATGATCTGGA	CGAAGAGCAT	CAGGGGCTCG	CGCCAGCCGA	ACTGTTTCGCC	AGGCTCAAGG	CGCGCATGCC	CGACGGCGAG	GATCTCGTCG	TGACCCATGG
	TACTAGACCT	GCTTCTCGTA	GTCCCCGAGC	GCGGTCGGCT	TGACAAGCGG	TCCGAGTTCC	GCGCGTACGG	GCTGCCGCTC	CTAGAGCAGC	ACTGGGTACC
5501	CGATGCCTGC	TTGCCGAATA	TCATGGTGGA	AAATGGCCGC	TTTTCTGGAT	TCATCGACTG	TGGCCGGCTG	GGTGTGGCGG	ACCGCTATCA	GGACATAGCG
	GCTACGGACG	AACGGCTTAT	AGTACCACCT	TTTACCGGCG	AAAAAGACCTA	AGTAGCTGAC	ACCGGCCGAC	CCACACCGCC	TGGCGATAGT	CCTGTATCGC
5601	TTGGCTACCC	GTGATATTGC	TGAAGAGCTT	GGCGGCGAAT	GGGCTGACCG	CTTCCTCGTG	CTTTACGGTA	TCGCCGCTCC	CGATTTCGAG	CGCATCGCCT
	AACCGATGGG	CACTATAACG	ACTTCTCGAA	CCGCCGCTTA	CCCGACTGGC	GAAGGAGCAC	GAAATGCCAT	AGCGGCGAGG	GCTAAGCGTC	GCGTAGCGGA
5701	TCTATCGCCT	TCTTGACGAG	TTCTTCTGAG	CGGGACTCTG	GGGTTCGAAA	TGACCGACCA	AGCGACGCC	AACCTGCCAT	CACGAGATTT	CGATTCCACC
	AGATAGCGGA	AGAACTGCTC	AAGAAGACTC	GCCCTGAGAC	CCCAAGCTTT	ACTGGCTGGT	TCGCTGCGGG	TTGGACGGTA	GTGCTCTAAA	GCTAAGGTGG
5801	GCCGCCTTCT	ATGAAAGGTT	GGGCTTCGGA	ATCGTTTTCC	GGGACGCCGG	CTGGATGATC	CTCCAGCGCG	GGGATCTCAT	GCTGGAGTTC	TTGCCCCACC
	CGGCGGAAGA	TACTTTCCAA	CCCGAAGCCT	TAGCAAAAGG	CCCTGCGGCC	GACCTACTAG	GAGGTCGCGC	CCCTAGAGTA	CGACCTCAAG	AAGCGGGTGG
5901	CCAAC TTGTT	TATTGCAGCT	TATAATGGTT	ACAAATAAAG	CAATAGCATC	ACAAATTTCA	CAAAATAAAGC	ATTTTTTTTCA	CTGCATTCTA	GTTGTGGTTT
	GGTTGAACAA	ATAACGTCGA	ATATTACCAA	TGTTTATTTT	GTTATCGTAG	TGTTTAAAGT	GTTTATTTTCG	TAAAAAAGT	GACGTAAGAT	CAACACCAAA
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6001	GTCCAAACTC	ATCAATGTAT	CTTATCATGT	CTGTATACCG	TCGACCTCTA	GCTAGAGCTT	GGCGTAATCA	TGGTCATAGC	TGTTTCCTGT	GTGAAATTGT
	CAGGTTTGAG	TAGTTACATA	GAATAGTACA	GACATATGGC	AGCTGGAGAT	CGATCTCGAA	CCGCATTAGT	ACCAGTATCG	ACAAAGGACA	CACTTTAACA
6101	TATCCGCTCA	CAATTCCACA	CAACATACGA	GCCGGAAGCA	TAAAGTGTA	AGCCTGGGGT	GCCTAATGAG	TGAGCTAACT	CACATTAATT	GCGTTGCGCT
	ATAGGCGAGT	GTTAAGGTGT	GTTGTATGCT	CGGCCCTCGT	ATTTACACATT	TCGGACCCCA	CGGATTACTC	ACTCGATTGA	GTGTAATTAA	CGCAACGCGA
6201	CACTGCCCCG	TTTCCAGTCG	GGAAACCTGT	CGTGCCAGCT	GCATTAATGA	ATCGGCCAAC	GCGCGGGGAG	AGGCGGTTTG	CGTATTGGGC	GCTCTTCCGC
	GTGACGGGCG	AAAGGTCAGC	CCTTTGGACA	GCACGGTCGA	CGTAATTACT	TAGCCGGTTG	CGCGCCCCTC	TCCGCCAAAC	GCATAACCCG	CGAGAAGGCG
6301	TTCTCTGCTC	ACTGACTCGC	TGCGCTCGGT	CGTTCGGCTG	CGGCGAGCGG	TATCAGCTCA	CTCAAAGGCG	GTAATACGGT	TATCCACAGA	ATCAGGGGAT
	AAGGAGCGAG	TGACTGAGCG	ACGCGAGCCA	GCAAGCCGAC	GCCGCTCGCC	ATAGTCGAGT	GAGTTTCCGC	CATTATGCCA	ATAGGTGTCT	TAGTCCCCTA
6401	AACGCAGGAA	AGAACATGTG	AGCAAAAGGC	CAGCAAAAGG	CCAGGAACCG	TAAAAAGGCC	GCGTTGCTGG	CGTTTTTCCA	TAGGCTCCGC	CCCCCTGACG
	TTGCGTCTTT	TCTTGTAAC	TCGTTTTCCG	GTCGTTTTCC	GGTCCTTGGC	ATTTTTTCCG	CGCAACGACC	GCAAAAAGGT	ATCCGAGGCG	GGGGGACTGC
6501	AGCATCACAA	AAATCGACGC	TCAAGTCAGA	GGTGGCGAAA	CCCGACAGGA	CTATAAAGAT	ACCAGGCGTT	TCCCCCTGGA	AGCTCCCTCG	TGCGCTCTCC
	TCGTAGTGTT	TTTAGCTGCG	AGTTCACTCT	CCACCGCTTT	GGGCTGTCTT	GATATTTCTA	TGGTCCGCAA	AGGGGGACCT	TCGAGGGAGC	ACGCGAGAGG
6601	TGTTCCGACC	CTGCCGCTTA	CCGATACCT	GTCCGCCTTT	CTCCCTTCGG	GAAGCGTGGC	GCTTTCTCAA	TGCTCACGCT	GTAGGTATCT	CAGTTCGGTG
	ACAAGGCTGG	GACGGCGAAT	GGCTATGGA	CAGGCGGAAA	GAGGGAAGCC	CTTCGCACCG	CGAAAGAGTT	ACGAGTGCGA	CATCCATAGA	GTCAAGCCAC
6701	TAGGTCGTTT	GCTCCAAGCT	GGGCTGTGTG	CACGAACCCC	CCGTTTCAGCC	CGACCGCTGC	GCCTTATCCG	GTAACATATCG	TCTTGAGTCC	AACCCGGTAA
	ATCCAGCAAG	CGAGGTTTCGA	CCCACACAC	GTGCTTGGGG	GGCAAGTCGG	GCTGGCGACG	CGGAATAGGC	CATTGATAGC	AGAACTCAGG	TTGGGCCATT

6801	GACACGACTT	ATCGCCACTG	GCAGCAGCCA	CTGGTAACAG	GATTAGCAGA	GCGAGGTATG	TAGGCGGTGC	TACAGAGTTC	TTGAAGTGGT	GGCCTAACTA
	CTGTGCTGAA	TAGCGGTGAC	CGTCGTCGGT	GACCATTGTC	CTAATCGTCT	CGCTCCATAC	ATCCGCCACG	ATGTCTCAAG	AACTTCACCA	CCGGATTGAT
6901	CGGCTACACT	AGAAGGACAG	TATTTGGTAT	CTGCGCTCTG	CTGAAGCCAG	TTACCTTCGG	AAAAAGAGTT	GGTAGCTCTT	GATCCGGCAA	ACAAACCACC
	GCCGATGTGA	TCTTCCTGTC	ATAAACCAT	GACGCGAGAC	GACTTTCGGT	AATGGAAGCC	TTTTTCTCAA	CCATCGAGAA	CTAGGCCGTT	TGTTTGGTGG
7001	GCTGGTAGCG	GTGGTTTTTT	TGTTTGCAAG	CAGCAGATTA	CGCGCAGAAA	AAAAGGATCT	CAAGAAGATC	CTTTGATCTT	TTCTACGGGG	TCTGACGCTC
	CGACCATCGC	CACCAAAAAA	ACAAACGTTT	GTCGTCTAAT	GCGCGTCTTT	TTTTCTCTAG	GTTCTTCTAG	GAAACTAGAA	AAGATGCCCC	AGACTGCGAG
7101	AGTGGAACGA	AAACTCACGT	TAAGGGATTT	TGGTCATGAG	ATTATCAAAA	AGGATCTTCA	CCTAGATCCT	TTTAAATTAA	AAATGAAGTT	TTAAATCAAT
	TCACCTTGCT	TTTGAGTGCA	ATTCCCTAAA	ACCAGTACTC	TAATAGTTTT	TCCTAGAAGT	GGATCTAGGA	AAATTTAATT	TTTACTTCAA	AATTTAGTTA
7201	CTAAAGTATA	TATGAGTAAA	CTTGGTCTGA	CAGTTACCAA	TGCTTAATCA	GTGAGGCACC	TATCTCAGCG	ATCTGTCTAT	TTCGTTTCATC	CATAGTTGCC
	GATTCATAT	ATACTCATTT	GAACCAGACT	GTCAATGGTT	ACGAATTAGT	CACTCCGTGG	ATAGAGTCGC	TAGACAGATA	AAGCAAGTAG	GTATCAACGG
7301	TGACTCCCCG	TCGTGTAGAT	AACTACGATA	CGGGAGGGCT	TACCATCTGG	CCCCAGTGCT	GCAATGATAC	CGCGAGACCC	ACGCTCACCG	GCTCCAGATT
	ACTGAGGGGC	AGCACATCTA	TTGATGCTAT	GCCCTCCCCG	ATGGTAGACC	GGGGTCACGA	CGTTACTATG	GCGCTCTGGG	TGCGAGTGGC	CGAGGTCTAA
7401	TATCAGCAAT	AAACCAGCCA	GCCGGAAGGG	CCGAGCGCAG	AAGTGGTCCT	GCAACTTTAT	CCGCCTCCAT	CCAGTCTATT	AATTGTTGCC	GGGAAGCTAG
	ATAGTCGTTA	TTTGGTCGGT	CGGCCTTCCC	GGCTCGCGTC	TTACCAGGA	CGTTGAAATA	GGCGGAGGTA	GGTCAGATAA	TTAACAACGG	CCCTTCGATC
7501	AGTAAGTAGT	TCGCCAGTTA	ATAGTTTGCG	CAACGTTGTT	GCCATTGCTA	CAGGCATCGT	GGTGTACACG	TCGTGCTTTG	GTATGGCTTC	ATTCAGCTCC
	TCATTTCATCA	AGCGGTCAAT	TATCAAACGC	GTTGCAACAA	CGGTAACGAT	GTCCGTAGCA	CCACAGTGCG	AGCAGCAAAC	CATACCGAAG	TAAGTCGAGG
7601	GGTTCCCAAC	GATCAAGGCG	AGTTACATGA	TCCCCCATGT	TGTGCAAAAA	AGCGGTTAGC	TCCTTCGGTC	CTCCGATCGT	TGTCAGAAAGT	AAGTTGGCCG
	CCAAGGGTTG	CTAGTTCCGC	TCAATGTACT	AGGGGGTACA	ACACGTTTTT	TCGCCAATCG	AGGAAGCCAG	GAGGCTAGCA	ACAGTCTTCA	TTCAACCGGC
7701	CAGTGTTATC	ACTCATGGTT	ATGGCAGCAC	TGCATAATTC	TCTTACTGTC	ATGCCATCCG	TAAGATGCTT	TTCTGTGACT	GGTGAGTACT	CAACCAAGTC
	GTCACAATAG	TGAGTACCAA	TACCGTCGTG	ACGTATTAAG	AGAATGACAG	TACGGTAGGC	ATTCTACGAA	AAGACACTGA	CCACTCATGA	GTTGGTTCAG
7801	ATTCTGAGAA	TAGTGTATGC	GGCGACCGAG	TTGCTCTTGC	CCGGCGTCAA	TACGGGATAA	TACCGCGCCA	CATAGCAGAA	CTTTAAAAGT	GCTCATCATT
	TAAGACTCTT	ATCACATACG	CCGCTGGGTC	AACGAGAACG	GGCCGCAGTT	ATGCCCTATT	ATGGCGCGGT	GTATCGTCTT	GAAATTTTCA	CGAGTAGTAA
7901	GGAAAACGTT	CTTCGGGGCG	AAAACCTCTA	AGGATCTTAC	CGCTGTTGAG	ATCCAGTTTCG	ATGTAACCCA	CTCGTGACCC	CAACTGATCT	TCAGCATCTT
	CCTTTTGCAA	GAAGCCCCGC	TTTTGAGAGT	TCCTAGAATG	GCGACAACTC	TAGGTCAAGC	TACATTGGGT	GAGCACGTGG	GTTGACTAGA	AGTCGTAGAA
8001	TTACTTTTCAC	CAGCGTTTCT	GGGTGAGCAA	AAACAGGAAG	GCAAAATGCC	GCAAAAAAGG	GAATAAGGGC	GACACGGAAA	TGTTGAATAC	TCATACTCTT
	AATGAAAGTG	GTCGCAAAGA	CCCACTCGTT	TTTGTCTTTC	CGTTTTACGG	CGTTTTTTCC	CTTATTCCCG	CTGTGCCTTT	ACAACTTATG	AGTATGAGAA
8101	CCTTTTTTCAA	TATTATTGAA	GCATTTATCA	GGGTTATTGT	CTCATGAGCG	GATACATATT	TGAATGTATT	TAGAAAAATA	AACAAATAGG	GTTTCCGCGC
	GGAAAAAGTT	ATAATAACTT	CGTAAATAGT	CCCAATAACA	GAGTACTCGC	CTATGTATAA	ACTTACATAA	ATCTTTTTTAT	TTGTTTATCC	CCAAGGCGCG
8201	ACATTTCCCC	GAAAAGTGCC	ACCTGACGTC							
	TGTAAAGGGG	CTTTTCACGG	TGGACTGCAG							

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