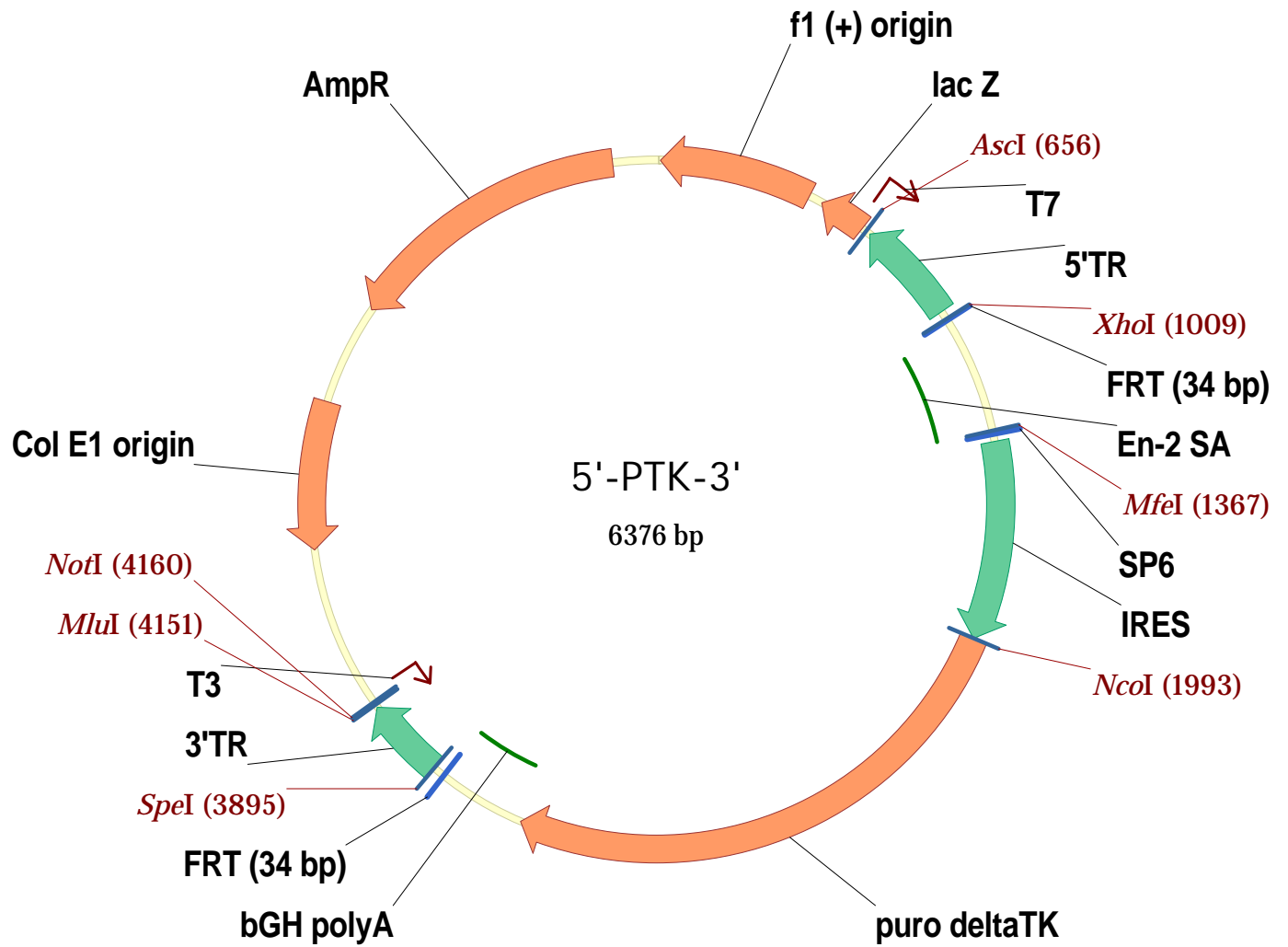


5' - PTK - 3'



5'-PTK-3'

General Description

DNA '5'-PTK-3'
Currently local object. Original author: s
Created: 07/25/07 03:11PM
Last Modified: 07/25/07 03:11PM
length: 6376 bp
storage type: Basic
form: Circular

Standard Fields

Original Author

Comments

Annotations

Feature Map

CDS (2 total)

puro deltaTK

Start: 1994 End: 3595
Original Location Description:
1994..3595

AmpR

Start: 5390 End: 6247 (Complementary)
Original Location Description:
complement(5390..6247)

D-Segment (1 total)

lac Z

Start: 500 End: 642 (Complementary)
Original Location Description:
complement(500..642)

Misc. Feature (5 total)

5'TR

Start: 670 End: 983 (Complementary)
Original Location Description:
complement(670..983)

FRT (34 bp)

Start: 1014 End: 1047 (Complementary)
Original Location Description:
complement(1014..1047)

IRES

Start: 1400 End: 1991
IRES from EMCV
Original Location Description:
1400..1991

FRT (34 bp)

Start: 3860 End: 3893 (Complementary)
Original Location Description:

complement(3860..3893)

3'TR

Start: 3900 End: 4141

Original Location Description:
3900..4141

PolyA Signal (1 total)

bGH polyA

Start: 3623 End: 3847

Original Location Description:
3623..3847

Primer (1 total)

SP6

Start: 1378 End: 1396 (Complementary)

Original Location Description:
complement(1378..1396)

Promoter Prokaryotic (2 total)

T7

Start: 624 End: 642

Original Location Description:
624..642

T3

Start: 4190 End: 4204 (Complementary)

Original Location Description:
complement(4190..4204)

Replication Origin (2 total)

f1 (+) origin

Start: 3 End: 459 (Complementary)

Original Location Description:
complement(3..459)

Col E1 origin

Start: 4647 End: 5087 (Complementary)

Original Location Description:
complement(4647..5087)

Splicing Signal (1 total)

En-2 SA

Start: 1049 End: 1364

Original Location Description:
1049..1364

Restriction/Methylation Map

Ascl: 1 site

GGCGGCCG
CGCGGCGG

N1: 656

MfeI: 1 site

GAATTC
GTTAA

N1: 1367

MluI: 1 site

ACCGGT
TGCGCA

N1: 4151

5'-PTK-3'

NcoI: 1 site

CCATGG
GGTAC

N1: 1993

NotI: 1 site

GCGGCCGC
CGCCGCGC

N1: 4160

SpeI: 1 site

ACTAGT
TGATCA

N1: 3895

XhoI: 1 site

CTCGAG
GAGCTC

N1: 1009

Restriction Fragments



6376: 5'-PTK-3': NotI(4160) - NotI(4160)

1	CTAAATTGTA	AGCGTTAATA	TTTTGTAA	ATTTCGCTTA	AATTTTGT	AAATCAGCTC
	GATTTAACAT	TCGCAATTAT	AAAACAATTT	TAAGCGCAAT	TTAAAAACAA	TTTAGTCGAG
61	ATTTTTTAAC	CAATAGGCCG	AAATCGGCAA	AATCCCTTAT	AAATCAAAAG	AATAGACCGA
	TAAAAAATTG	GTTATCCGGC	TTTAGCCGTT	TTAGGGAATA	TTTAGTTTTT	TTATCTGGCT
121	GATAGGGTTG	AGTGTGTTC	CAGTTTGGAA	CAAGAGTCCA	CTATTAAAGA	ACGTGGACTC
	CTATCCCAAC	TCACAACAAG	GTCAAACCTT	GTTCTCAGGT	GATAATTTCT	TGCACCTGAG
181	CAACGTCAAA	GGGCGAAAAA	CCGTCTATCA	GGGCGATGGC	CCACTACGTG	AACCATCACC
	GTTGCAGTTT	CCCGCTTTTT	GGCAGATAGT	CCCGCTACCG	GGTGATGCAC	TTGGTAGTGG
241	CTAATCAAGT	TTTTTGGGGT	CGAGGTGCCG	TAAAGCACTA	AATCGGAACC	CTAAAGGGAG
	GATTAGTTCA	AAAAACCCCA	GCTCCACGGC	ATTTCTGTAT	TTAGCCTTGG	GATTTCCCTC
301	CCCCCGATTT	AGAGCTTGAC	GGGGAAAGCC	GGCGAACGTG	GCGAGAAAGG	AAGGGAAGAA
	GGGGGCTAAA	TCTCGAACTG	CCCCTTTCGG	CCGCTTGAC	CGCTCTTTCC	TTCCCTTCTT
361	AGCGAAAGGA	GCGGGCGCTA	GGGCGCTGGC	AAGTGTAGCG	GTCACGCTGC	GCGTAACCAC
	TCGCTTTCCT	CGCCCGCGAT	CCCGCGACCG	TTCACATCGC	CAGTGCACG	CGCATTGGTG
421	CACACCCGCC	GCGCTTAATG	CGCCGCTACA	GGGCGCGTCC	CATTTCGCCAT	TCAGGCTGCG
	GTGTGGGCGG	CGCGAATTAC	GCGGCGATGT	CCCGCGCAGG	GTAAGCGGTA	AGTCCGACGC
481	CAACTGTTGG	GAAGGGCGAT	CGGTGCGGGC	CTCTTCGCTA	TTACGCCAGC	TGGCGAAAGG
	GTTGACAACC	CTTCCCGCTA	GCCACGCCCC	GAGAAGCGAT	AATGCGGTGC	ACCGCTTTCC
541	GGGATGTGCT	GCAAGGCGAT	TAAGTTGGGT	AACGCCAGGG	TTTTCCCAGT	CACGACGTTG
	CCCTACACGA	CGTTCGCTA	ATTCAACCCA	TTGCGGTCCC	AAAAGGGTCA	GTGCTGCAAC
601	TAAAACGACG	GCCAGTGAGC	GCGCGTAATA	CGACTCACTA	TAGGGCGAAT	TGGGGCGCGC
	ATTTTGCTGC	CGGTCACCTG	CGCGCATTAT	GCTGAGTGAT	ATCCCGCTTA	ACCCCGCGCG
661	Ascl CATTCTAGAT	TAACCCTAGA	AAGATAGTCT	GCGTAAATTT	GACGCATGCA	TTCTTGAAAT
	GTAAGATCTA	ATTGGGATCT	TTCTATCAGA	CGCATTTTAA	CTGCGTACGT	AAGAACTTTA
721	ATTGCTCTCT	CTTTCTAAAT	AGCGCGAATC	CGTCGCTGTG	CATTTAGGAC	ATCTCAGTCG
	TAACGAGAGA	GAAAGATTTA	TCGCGCTTAG	GCAGCGACAC	GTAAATCCTG	TAGAGTCAGC
781	CCGCTTGGAG	CTCCCGTGAG	GCGTGCTTGT	CAATGCGGTA	AGTGTCACTG	ATTTTGAAC
	GGCGAACCTC	GAGGGCACTC	CGCACGAACA	GTTACGCCAT	TCACAGTGAC	TAAACTTGA
841	ATAACGACCG	CGTGAGTCAA	AATGACGCAT	GATTATCTTT	TACGTGACTT	TTAAGATTTA
	TATTGCTGGC	GCACTCAGTT	TTACTGCGTA	CTAATAGAAA	ATGCACTGAA	AATTCTAAAT
901	ACTCATACGA	TAATTATATT	GTTATTTTCAT	GTTCTACTTA	CGTGATAACT	TATTATATAT
	TGAGTATGCT	ATTAATATAA	CAATAAAGTA	CAAGATGAAT	GCACTATTGA	ATAATATATA
961	ATATTTTCTT	GTTATAGATA	TCAACTAGAA	TGCTAGCATG	GGCCCATCTC	GAGGAAGTTC
	TATAAAAGAA	CAATATCTAT	AGTTGATCTT	ACGATCGTAC	CCGGGTAGAG	CTCCTTCAAG
1021	CTATACTTTC	TAGAGAATAG	GAACCTTCATT	GATGATCCCC	TAGTTTGTGA	TAGGCCTTTT
	GATATGAAAG	ATCTCTTATC	CTTGAAGTAA	CTACTAGGGG	ATCAAACACT	ATCCGGAAAA
1081	AGCTACATCT	GCCAATCCAT	CTCATTTTCA	CACACACACA	CACCACTTTC	CTTCTGGTCA
	TCGATGTAGA	CGGTTAGGTA	GAGTAAAAGT	GTGTGTGTGT	GTGGTGAAAG	GAAGACCAGT
1141	GTGGGCACAT	GTCCAGCCTC	AAGTTTATAT	CACCACCCCC	AATGCCCAAC	ACTTGTATGG
	CACCCGTGTA	CAGGTCGGAG	TTCAAATATA	GTGGTGGGGG	TTACGGGTG	TGAACATACC
1201	CCTTGGGCGG	GTCATCCCCC	CCCCACCCC	CAGTATCTGC	AACCTCAAGC	TAGCTTGGGT
	GGAACCCGCC	CAGTAGGGGG	GGGGGTGGGG	GTCATAGACG	TTGGAGTTTC	ATCGAACCCA
1261	GCGTTGGTTG	TGGATAAGTA	GCTAGACTCC	AGCAACCAGT	AACCTCTGCC	CTTTCTCCTC
	CGCAACCAAC	ACCTATTTCAT	CGATCTGAGG	TCGTTGGTCA	TTGGAGACGG	GAAAGAGGAG

1321	CATGACAACC	AGGTCCCAGG	TCCCGAAAAC	CAAAGAAGAA	GAACGCAATT	GGGGCCCCCTA
	GTACTGTTGG	TCCAGGGTCC	AGGGCTTTTG	GTTTCTTCTT	CTTGCGTTAA	CCCCGGGGAT
1381	TAGTGTACCC	TAAATAATTC	CGCCCCCCCC	TCTCCCTCCC	CCCCCCTAA	CGTTACTGGC
	ATCACAGTGG	ATTTATTAAG	GCGGGGGGGG	AGAGGGAGGG	GGGGGGGATT	GCAATGACCG
1441	CGAAGCCGCT	TGGAATAAGG	CCGGTGTGCG	TTTGTCTATA	TGTTATTTTC	CACCATATTG
	GCTTCGGCGA	ACCTTATTCC	GGCCACACGC	AAACAGATAT	ACAATAAAAG	GTGGTATAAC
1501	CCGTCTTTTG	GCAATGTGAG	GGCCCGGAAA	CCTGGCCCTG	TCTTCTTGAC	GAGCATTCCT
	GGCAGAAAAC	CGTTACACTC	CCGGGCCTTT	GGACCGGGAC	AGAAGAAGTG	CTCGTAAGGA
1561	AGGGGTCTTT	CCCCTCTCGC	CAAAGGAATG	CAAGGTCTGT	TGAATGTCGT	GAAGGAAGCA
	TCCCCAGAAA	GGGGAGAGCG	GTTTCCTTAC	GTTCCAGACA	ACTTACAGCA	CTTCCTTCGT
1621	GTTCTCTGG	AAGCTTCTTG	AAGACAAACA	ACGTCTGTAG	CGACCCTTTG	CAGGCAGCGG
	CAAGGAGACC	TTCGAAGAAC	TTCTGTTTGT	TGCAGACATC	GCTGGGAAAC	GTCCGTCGCC
1681	AACCCCCCAC	CTGGCGACAG	GTGCCTCTGC	GGCCAAAAGC	CACGTGTATA	AGATACACCT
	TTGGGGGGTG	GACCGCTGTC	CACGGAGACG	CCGGTTTTTCG	GTGCACATAT	TCTATGTGGA
1741	GCAAAGGCGG	CACAACCCCA	GTGCCACGTT	GTGAGTTGGA	TAGTTGTGGA	AAGAGTCAAA
	CGTTTCCGCC	GTGTTGGGGT	CACGGTGCAA	CACTCAACCT	ATCAACACCT	TTCTCAGTTT
1801	TGGCTCTCCT	CAAGCGTATT	CAACAAGGGG	CTGAAGGATG	CCCAGAAGGT	ACCCCATTTG
	ACCAGAGAGG	GTTTCGCATA	GTTGTTCCCC	GACTTCCTAC	GGGTCTTCCA	TGGGGTAACA
1861	ATGGGATCTG	ATCTGGGGCC	TCGGTGCACA	TGCTTTACAT	GTGTTTAGTC	GAGGTTAAAA
	TACCCTAGAC	TAGACCCCGG	AGCCACGTGT	ACGAAATGTA	CACAAATCAG	CTCCAATTTT
1921	AAACGTCTAG	GCCCCCGGAA	CCACGGGGAC	GTGGTTTTTC	TTTGAAAAAC	ACGATGATAA
	TTTGCAGATC	CGGGGGGCTT	GGTGCCCCTG	CACCAAAGG	AAACTTTTTG	TGCTACTATT
1981	TATGGCCACA	ACCATGGGGA	CCGAGTACAA	GCCCACGGTG	CGCCTCGCCA	CCCGCGACGA
	ATACCGGTGT	TGGTACCCCT	GGCTCATGTT	CGGGTGCCAC	GCGGAGCGGT	GGGCGCTGCT
2041	CGTCCCCCGG	GCCGTACGCA	CCCTCGCCGC	CGCGTTCGCC	GACTACCCCG	CCACGCGCCA
	GCAGGGGGCC	CGGCATGCGT	GGGAGCGGCG	GCGCAAGCGG	CTGATGGGGC	GGTGCGCGGT
2101	CACCGTCGAC	CCGGACCGCC	ACATCGAGCG	GGTCACCGAG	CTGCAAGAAC	TCTTCTCAC
	GTGGCAGCTG	GGCCTGGCGG	TGTAGCTCGC	CCAGTGGCTC	GACGTTCTTG	AGAAGGAGTG
2161	GCGCGTCGGG	CTCGACATCG	GCAAGGTGTG	GGTCGCGGAC	GACGGCGCCG	CGGTGGCGGT
	CGCGCAGCCC	GAGCTGTAGC	CGTTCCACAC	CCAGCGCCTG	CTGCCGCGGC	GCCACCGCCA
2221	CTGGACCACG	CCGGAGAGCG	TCGAAGCGGG	GGCGGTGTTC	GCCGAGATCG	GCCC CGCAT
	GACCTGGTGC	GGCCTCTCGC	AGCTTCGCCC	CCGCCACAAG	CGGCTCTAGC	CGGGCGCGTA
2281	GGCCGAGTTG	AGCGGTTCCC	GGCTGGCCGC	GCAGCAACAG	ATGGAAGGCC	TCCTGGCGCC
	CCGGCTCAAC	TCGCCAAGGG	CCGACCGGCG	CGTCGTTGTC	TACCTTCCGG	AGGACCGCGG
2341	GCACCGGCCC	AAGGAGCCCG	CGTGGTTCCT	GGCCACCGTC	GGCGTCTCGC	CCGACCACCA
	CGTGGCCGGG	TTCCTCGGGC	GCACCAAGGA	CCGGTGGCAG	CCGCAGAGCG	GGCTGGTGGT
2401	GGGCAAGGGT	CTGGGCAGCG	CCGTCGTGCT	CCCCGGAGTG	GAGGCGGCCG	AGCGCGCCGG
	CCCGTTCCCA	GACCCGTGCG	GGCAGCACGA	GGGGCCTCAC	CTCCGCCGGC	TCGCGCGGCC
2461	GGTGCCCGCC	TTCCTGGAGA	CCTCCGCGCC	CCGCAACCTC	CCCTTCTACG	AGCGGCTCGG
	CCACGGGCGG	AAGGACCTCT	GGAGGCGCGG	GGCGTTGGAG	GGGAAGATGC	TCGCCGAGCC
2521	CTTACCGTTC	ACCGCCGACG	TCGAGGTGCC	CGAAGGACCG	CGCACCTGGT	GCATGACCCG
	GAAGTGGCAG	TGGCGGCTGC	AGCTCCACGG	GCTTCTTGGC	GCGTGACCA	CGTACTGGGC
2581	CAAGCCCGGT	GCCGGATCCA	TGCCCACGCT	ACTGCGGGTT	TATATAGACG	GTCCTCACGG
	GTTCGGGCCA	CGGCCTAGGT	ACGGGTGCGA	TGACGCCCAA	ATATATCTGC	CAGGAGTGCC
2641	GATGGGGAAA	ACCACCACCA	CGCAACTGCT	GGTGGCCCTG	GGTTCGCGCG	ACGATATCGT
	CTACCCCTTT	TGGTGGTGGT	GCGTTGACGA	CCACCGGGAC	CCAAGCGCGC	TGCTATAGCA

2701	CTACGTACCC	GAGCCGATGA	CTTACTGGCA	GGTGCTGGGG	GCTTCCGAGA	CAATCGCGAA
	GATGCATGGG	CTCGGCTACT	GAATGACCGT	CCACGACCCC	CGAAGGCTCT	GTTAGCGCTT
2761	CATCTACACC	ACACAACACC	GCCTCGACCA	GGGTGAGATA	TCGGCCGGGG	ACGCGGCGGT
	GTAGATGTGG	TGTGTTGTGG	CGGAGCTGGT	CCCACTCTAT	AGCCGGCCCC	TGCGCCGCCA
2821	GGTAATGACA	AGCGCCCAGA	TAACAATGGG	CATGCCTTAT	GCCGTGACCG	ACGCCGTTCT
	CCATTACTGT	TCGCGGGTCT	ATTGTTACCC	GTACGGAATA	CGGCACTGGC	TGCGGCAAGA
2881	GGCTCCTCAT	ATCGGGGGGG	AGGCTGGGAG	CTCACATGCC	CCGCCCCCGG	CCCTCACCTT
	CCGAGGAGTA	TAGCCCCCCC	TCCGACCCTC	GAGTGTACGG	GGCGGGGGCC	GGGAGTGGGA
2941	CATCTTCGAC	CGCCATCCCA	TCGCCGCCCT	CCTGTGCTAC	CCGGCCGCGC	GATACCTTAT
	GTAGAAGCTG	GCGGTAGGGT	AGCGGCGGGA	GGACACGATG	GGCCGGCGCG	CTATGGAATA
3001	GGGCAGCATG	ACCCCCCAGG	CCGTGCTGGC	GTTTCGTGGC	CTCATCCCGC	CGACCTTGCC
	CCCCTCGTAC	TGGGGGGTCC	GGCACGACCG	CAAGCACCGG	GAGTAGGGCG	GCTGGAACGG
3061	CGGCACAAAC	ATCGTGTGG	GGGCCCTTCC	GGAGGACAGA	CACATCGACC	GCCTGGCCAA
	GCCGTGTTTG	TAGCACAACC	CCCGGGAAGG	CCTCCTGTCT	GTGTAGCTGG	CGGACCGGTT
3121	ACGCCAGCGC	CCCGGCGAGC	GGCTTGACCT	GGCTATGCTG	GCCGCGATTG	GCCGCGTTTA
	TGCGGTTCGC	GGGCCGCTCG	CCGAACTGGA	CCGATACGAC	CGGCGCTAAG	CGGCGCAAAT
3181	CGGGCTGCTT	GCCAATACGG	TGCGGTATCT	GCAGGGCGGC	GGGTCGTGGC	GGGAGGATTG
	GCCCGACGAA	CGGTTATGCC	ACGCCATAGA	CGTCCCGCCG	CCCAGCACCG	CCCTCCTAAC
3241	GGGACAGCTT	TCGGGGACGG	CCGTGCCGCC	CCAGGGTGCC	GAGCCCCAGA	GCAACGCGGG
	CCCTGTGCAA	AGCCCCTGCC	GGCACGGCGG	GGTCCCACGG	CTCGGGGTCT	CGTTGCGCCC
3301	CCCACGACCC	CATATCGGGG	ACACGTTATT	TACCCTGTTT	CGGGCCCCCG	AGTTGCTGGC
	GGGTGCTGGG	GTATAGCCCC	TGTGCAATAA	ATGGGACAAA	GCCCGGGGGC	TCAACGACCG
3361	CCCCAACGGC	GACCTGTACA	ACGTGTTTGC	CTGGGCCTTG	GACGTCTTGG	CCAAACGCCT
	GGGGTTGCCG	CTGGACATGT	TGCACAAACG	GACCCGGAAC	CTGCAGAACC	GGTTTGCGGA
3421	CCGTCCCATG	CACGTCTTTA	TCCTGGATTA	CGACCAATCG	CCCGCCGGCT	GCCGGGACGC
	GGCAGGGTAC	GTGCAGAAAT	AGGACCTAAT	GCTGGTTAGC	GGGCGGCCGA	CGGCCCTGCG
3481	CCTGCTGCAA	CTTACCTCCG	GGATGGTCCA	GACCCACGTC	ACCACCCCCG	GCTCCATACC
	GGACGACGTT	GAATGGAGGC	CCTACCAGGT	CTGGGTGCAG	TGGTGGGGGC	CGAGGTATGG
3541	GACGATCTGC	GACCTGGCGC	GCACGTTTGC	CCGGGAGATG	GGGGAGGCTA	ACTGAGCTCT
	CTGCTAGACG	CTGGACCGCG	CGTGCAAACG	GGCCCTCTAC	CCCCTCCGAT	TGACTCGAGA
3601	AGAGCTCGCT	GATCAGCCTC	GACTGTGCCT	TCTAGTTGCC	AGCCATCTGT	TGTTTGCCCC
	TCTCGAGCGA	CTAGTCGGAG	CTGACACGGA	AGATCAACGG	TCGGTAGACA	ACAAACGGGG
3661	TCCCCCGTGC	CTTCCTTGAC	CCTGGAAGGT	GCCACTCCCA	CTGTCCTTTC	CTAATAAAAT
	AGGGGGCACG	GAAGGAACTG	GGACCTTCCA	CGGTGAGGGT	GACAGGAAAG	GATTATTTTA
3721	GAGGAAATTG	CATCGCATTG	TCTGAGTAGG	TGTCATTCTA	TTCTGGGGGG	TGGGGTGGGG
	CTCCTTTAAC	GTAGCGTAAC	AGACTCATCC	ACAGTAAGAT	AAGACCCCCC	ACCCACCCCC
3781	CAGGACAGCA	AGGGGGAGGA	TTGGGAAGAC	AATAGCAGGC	ATGCTGGGGA	TGCGGTGGGC
	GTCCTGTCGT	TCCCCCTCCT	AACCCTTCTG	TTATCGTCCG	TACGACCCCT	ACGCCACCCG
3841	TCTATGGCTT	CTGAGGCGGG	AAGTTCCTAT	ACTTTCTAGA	GAATAGGAAC	TTCACCTAGT
	AGATACCGAA	GACTCCGCCC	TTCAAGGATA	TGAAAGATCT	CTTATCCTTG	AAGTGATCAA
3901	AAAAGTTTTG	TTACTTTTATA	GAAGAAATTT	TGAGTTTTTG	TTTTTTTTTTA	ATAAATAAAT
	TTTTCAAAAC	AATGAAATAT	CTTCTTTTAA	ACTCAAAAAC	AAAAAAAAAAT	TATTTATTTA
3961	AAACATAAAT	AAATTGTTTG	TTGAATTTAT	TATTAGTATG	TAAGTGTAAG	TATAATAAAA
	TTTGTATTTA	TTTAACAAAC	AACTTAAATA	ATAATCATAC	ATTCACATTT	ATATTATTTT
4021	CTTAATATCT	ATTCAAATTA	ATAAATAAAC	CTCGATATAC	AGACCGATAA	AACACATGCG
	GAATTATAGA	TAAGTTTAAT	TATTTATTTG	GAGCTATATG	TCTGGCTATT	TTGTGTACGC
4081	TCAATTTTAC	GCATGATTAT	CTTTAACGTA	CGTCACAATA	TGATTATCTT	TCTAGGGTTA
	AGTTAAAATG	CGTACTAATA	GAAATTGCAT	GCAGTGTTAT	ACTAATAGAA	AGATCCCAAT

Spel
~~~~~

|      |             |                                                                                   |                                                                                   |            |             |            |
|------|-------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------|-------------|------------|
|      |             |  |  |            |             |            |
| 4141 | ATCTAGTATA  | CGCGTATGCG                                                                        | GCCGCTTAAT                                                                        | TAATCCAGCT | TTTGTTCCTT  | TTAGTGAGGG |
|      | TAGATCATAT  | GCGCATACGC                                                                        | CGGCGAATTA                                                                        | ATTAGGTCGA | AAACAAGGGA  | AATCACTCCC |
| 4201 | TTAATTGCGC  | GCTTGGCGTA                                                                        | ATCATGGTCA                                                                        | TAGCTGTTTC | CTGTGTGAAA  | TTGTTATCCG |
|      | AATTAACGCG  | CGAACCGCAT                                                                        | TAGTACCAGT                                                                        | ATCGACAAAG | GACACACTTT  | AACAATAGGC |
| 4261 | CTCACAATTC  | CACACAACAT                                                                        | ACGAGCCGGA                                                                        | AGCATAAAGT | GTAAAGCCTG  | GGGTGCCTAA |
|      | GAGTGTTAAG  | GTGTGTTGTA                                                                        | TGCTCGGCCT                                                                        | TCGTATTTCA | CATTTTCGGAC | CCCACGGATT |
| 4321 | TGAGTGAGCT  | AACTCACATT                                                                        | AATTGCGTTG                                                                        | CGCTCACTGC | CCGCTTTCCA  | GTCGGGAAAC |
|      | ACTCACTCGA  | TTGAGTGTA                                                                         | TTAACGCAAC                                                                        | GCGAGTGACG | GGCGAAAGGT  | CAGCCCTTTG |
| 4381 | CTGTGCGTCC  | AGCTGCATTA                                                                        | ATGAATCGGC                                                                        | CAACGCGCGG | GGAGAGGCGG  | TTTGCGTATT |
|      | GACAGCACGG  | TCGACGTAAT                                                                        | TACTTAGCCG                                                                        | GTTGCGCGCC | CCTCTCCGCC  | AAACGCATAA |
| 4441 | GGGCGCTCTT  | CCGCTTCCTC                                                                        | GCTCACTGAC                                                                        | TCGCTGCGCT | CGGTCGTTCG  | GCTGCGGCGA |
|      | CCC GCAGAA  | GGCGAAGGAG                                                                        | CGAGTGACTG                                                                        | AGCGACGCGA | GCCAGCAAGC  | CGACGCCGCT |
| 4501 | GCGGTATCAG  | CTCACTCAAA                                                                        | GGCGGTAATA                                                                        | CGGTTATCCA | CAGAATCAGG  | GGATAACGCA |
|      | CGCCATAGTC  | GAGTGAGTTT                                                                        | CCGCCATTAT                                                                        | GCCAATAGGT | GTCTTAGTCC  | CCTATTGCGT |
| 4561 | GGAAAGAACA  | TGTGAGCAAA                                                                        | AGGCCAGCAA                                                                        | AAGGCCAGGA | ACCGTAAAAA  | GGCCGCGTTG |
|      | CCTTTCTTGT  | ACACTCGTTT                                                                        | TCCGGTCGTT                                                                        | TTCCGGTCCT | TGGCATTTTT  | CCGGCGCAAC |
| 4621 | CTGGCGTTTT  | TCCATAGGCT                                                                        | CCGCCCCCTT                                                                        | GACGAGCATC | ACAAAAATCG  | ACGCTCAAGT |
|      | GACCGCAAAA  | AGGTATCCGA                                                                        | GGCGGGGGGA                                                                        | CTGCTCGTAG | TGTTTTTAGC  | TGCGAGTTCA |
| 4681 | CAGAGGTGGC  | GAAACCCGAC                                                                        | AGGACTATAA                                                                        | AGATACCAGG | CGTTTTCCCC  | TGGAAGCTCC |
|      | GTCTCCACCG  | CTTTGGGCTG                                                                        | TCCTGATATT                                                                        | TCTATGGTCC | GCAAAGGGGG  | ACCTTCGAGG |
| 4741 | CTCGTGCGCT  | CTCCTGTTCC                                                                        | GACCCTGCCG                                                                        | CTTACCGGAT | ACCTGTCCGC  | CTTTCTCCCT |
|      | GAGCACGCGA  | GAGGACAAGG                                                                        | CTGGGACGGC                                                                        | GAATGGCCTA | TGGACAGGCG  | GAAAGAGGGA |
| 4801 | TCGGAAGCG   | TGGCGCTTTC                                                                        | TCATAGCTCA                                                                        | CGCTGTAGGT | ATCTCAGTTC  | GGTGTAGGTC |
|      | AGCCCTTCGC  | ACCGCGAAAG                                                                        | AGTATCGAGT                                                                        | GCGACATCCA | TAGAGTCAAG  | CCACATCCAG |
| 4861 | GTTCGCTCCA  | AGCTGGGCTG                                                                        | TGTGCACGAA                                                                        | CCCCCGTTTC | AGCCCGACCG  | CTGCGCCTTA |
|      | CAAGCGAGGT  | TCGACCCGAC                                                                        | ACACGTGCTT                                                                        | GGGGGGCAAG | TCGGGCTGGC  | GACGCGGAAT |
| 4921 | TCCGGTAACT  | ATCGTCTTGA                                                                        | GTCCAACCCG                                                                        | GTAAGACACG | ACTTATCGCC  | ACTGGCAGCA |
|      | AGGCCATTGA  | TAGCAGAACT                                                                        | CAGGTTGGGC                                                                        | CATTCTGTGC | TGAATAGCGG  | TGACCGTCGT |
| 4981 | GCCACTGGTA  | ACAGGATTAG                                                                        | CAGAGCGAGG                                                                        | TATGTAGGCG | GTGCTACAGA  | GTTCTTGAAG |
|      | CGGTGACCAT  | TGTCCTAATC                                                                        | GTCTCGCTCC                                                                        | ATACATCCGC | CACGATGTCT  | CAAGAACTTC |
| 5041 | TGGTGGCCTA  | ACTACGGCTA                                                                        | CACTAGAAGG                                                                        | ACAGTATTTG | GTATCTGCGC  | TCTGCTGAAG |
|      | ACCACCGGAT  | TGATGCCGAT                                                                        | GTGATCTTCC                                                                        | TGTCATAAAC | CATAGACGCG  | AGACGACTTC |
| 5101 | CCAGTTACCT  | TCGGAAAAAG                                                                        | AGTTGGTAGC                                                                        | TCTTGATCCG | GCAAACAAAC  | CACCGCTGGT |
|      | GGTCAATGGA  | AGCCTTTTTT                                                                        | TCAACCATCG                                                                        | AGAAGTAGGC | CGTTTGTTTG  | GTGGCGACCA |
| 5161 | AGCGGTGGTT  | TTTTTGTTTG                                                                        | CAAGCAGCAG                                                                        | ATTACGCGCA | GAAAAAAGG   | ATCTCAAGAA |
|      | TCGCCACCAA  | AAAAACAAAC                                                                        | GTTCGTGCTC                                                                        | TAATGCGCGT | CTTTTTTTTCC | TAGAGTTCTT |
| 5221 | GATCCTTTGA  | TCTTTTCTAC                                                                        | GGGGTCTGAC                                                                        | GCTCAGTGGA | ACGAAAACTC  | ACGTTAAGGG |
|      | CTAGGAAACT  | AGAAAAGATG                                                                        | CCCCAGACTG                                                                        | CGAGTCACCT | TGCTTTTGAG  | TGCAATTCCC |
| 5281 | ATTTTGGTCA  | TGAGATTATC                                                                        | AAAAAGGATC                                                                        | TTCACCTAGA | TCCTTTTAAA  | TTAAAAATGA |
|      | TAAAACCAGT  | ACTCTAATAG                                                                        | TTTTTCCTAG                                                                        | AAGTGGATCT | AGGAAAATTT  | AATTTTACT  |
| 5341 | AGTTTTTAAAT | CAATCTAAAG                                                                        | TATATATGAG                                                                        | TAAACTTGGT | CTGACAGTTA  | CCAATGCTTA |
|      | TCAAAATTTA  | GTTAGATTTT                                                                        | ATATATACTC                                                                        | ATTTGAACCA | GACTGTCAAT  | GGTTACGAAT |
| 5401 | ATCAGTGAGG  | CACCTATCTC                                                                        | AGCGATCTGT                                                                        | CTATTTTCGT | CATCCATAGT  | TGCCTGACTC |
|      | TAGTCACTCC  | GTGGATAGAG                                                                        | TCGCTAGACA                                                                        | GATAAAGCAA | GTAGGTATCA  | ACGGACTGAG |
| 5461 | CCCGTCGTGT  | AGATAACTAC                                                                        | GATACGGGAG                                                                        | GGCTTACCAT | CTGGCCCCAG  | TGCTGCAATG |
|      | GGGCAGCACA  | TCTATTGATG                                                                        | CTATGCCCTC                                                                        | CCGAATGGTA | GACCGGGGTC  | ACGACGTTAC |
| 5521 | ATACCGCGAG  | ACCCACGCTC                                                                        | ACCGGCTCCA                                                                        | GATTTATCAG | CAATAAACCA  | GCCAGCCGGA |
|      | TATGGCGCTC  | TGGGTGCGAG                                                                        | TGGCCGAGGT                                                                        | CTAAATAGTC | GTTATTTGGT  | CGGTGCGCCT |



|      |            |            |            |             |            |             |
|------|------------|------------|------------|-------------|------------|-------------|
| 5581 | AGGGCCGAGC | GCAGAAGTGG | TCCTGCAACT | TTATCCGCCT  | CCATCCAGTC | TATTAATTGT  |
|      | TCCCGGCTCG | CGTCTTCACC | AGGACGTTGA | AATAGGCGGA  | GGTAGGTCAG | ATAATTAACA  |
| 5641 | TGCCGGGAAG | CTAGAGTAAG | TAGTTCGCCA | GTTAATAGTT  | TGCGCAACGT | TGTTGCCATT  |
|      | ACGGCCCTTC | GATCTCATTC | ATCAAGCGGT | CAATTATCAA  | ACGCGTTGCA | ACAACGGTAA  |
| 5701 | GCTACAGGCA | TCGTGGTGTC | ACGCTCGTCG | TTTGGTATGG  | CTTCATTGAG | CTCCGGTTCC  |
|      | CGATGTCCGT | AGCACCACAG | TGCGAGCAGC | AAACCATAACC | GAAGTAAGTC | GAGGCCAAGG  |
| 5761 | CAACGATCAA | GGCGAGTTAC | ATGATCCCCC | ATGTTGTGCA  | AAAAAGCGGT | TAGCTCCTTC  |
|      | GTTGCTAGTT | CCGCTCAATG | TACTAGGGGG | TACAACACGT  | TTTTTCGCCA | ATCGAGGAAG  |
| 5821 | GGTCCTCCGA | TCGTTGTCAG | AAGTAAGTTG | GCCGCAGTGT  | TATCACTCAT | GGTTATGGCA  |
|      | CCAGGAGGCT | AGCAACAGTC | TTCATTCAAC | CGGCGTCACA  | ATAGTGAGTA | CCAATACCGT  |
| 5881 | GCACTGCATA | ATTCTCTTAC | TGTCATGCCA | TCCGTAAGAT  | GCTTTTCTGT | GACTGGTGAG  |
|      | CGTGACGTAT | TAAGAGAATG | ACAGTACGGT | AGGCATTCTA  | CGAAAAGACA | CTGACCACTC  |
| 5941 | TACTCAACCA | AGTCATTCTG | AGAATAGTGT | ATGCGGCGAC  | CGAGTTGCTC | TTGCCCCGCG  |
|      | ATGAGTTGGT | TCAGTAAGAC | TCTTATCACA | TACGCCGCTG  | GCTCAACGAG | AACGGGCCCGC |
| 6001 | TCAATACGGG | ATAATACCGC | GCCACATAGC | AGAACTTTAA  | AAGTGCTCAT | CATTGGAAAA  |
|      | AGTTATGCCC | TATTATGGCG | CGGTGTATCG | TCTTGAAATT  | TTCACGAGTA | GTAACCTTTT  |
| 6061 | CGTTCTTCGG | GGCGAAAAC  | CTCAAGGATC | TTACCGCTGT  | TGAGATCCAG | TTGATGTAA   |
|      | GCAAGAAGCC | CCGCTTTTGA | GAGTTCCTAG | AATGGCGACA  | ACTCTAGGTC | AAGCTACATT  |
| 6121 | CCCACTCGTG | CACCCAAC   | ATCTTCAGCA | TCTTTTACTT  | TCACCAGCGT | TTCTGGGTGA  |
|      | GGGTGAGCAC | GTGGGTTGAC | TAGAAGTCGT | AGAAAATGAA  | AGTGGTCGCA | AAGACCACT   |
| 6181 | GCAAAAACAG | GAAGGCAAAA | TGCCGCAAAA | AAGGGAATAA  | GGGCGACACG | GAAATGTTGA  |
|      | CGTTTTTGTG | CTTCCGTTTT | ACGGCGTTTT | TTCCCTTATT  | CCCGCTGTGC | CTTTACAAC   |
| 6241 | ATACTCATA  | TCTTCCTTTT | TCAATATTAT | TGAAGCATTT  | ATCAGGGTTA | TTGTCTCATG  |
|      | TATGAGTATG | AGAAGGAAAA | AGTTATAATA | ACTTCGTAAA  | TAGTCCCAAT | AACAGAGTAC  |
| 6301 | AGCGGATACA | TATTTGAATG | TATTTAGAAA | AATAAACAAA  | TAGGGGTTCC | GCGCACATTT  |
|      | TCGCCTATGT | ATAAACTTAC | ATAAATCTTT | TTATTTGTTT  | ATCCCCAAGG | CGCGTGAAAA  |
| 6361 | CCCCGAAAAG | TGCCAC     |            |             |            |             |
|      | GGGGCTTTTC | ACGGTG     |            |             |            |             |