



Research article

Double energy profile of pBR322 plasmid

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Appendix: Sequence of plasmid pBR322

Region 1

```
1 ttctcatggt tgacagctta tcatcgataa gctttaatgc gtagtttat cacagttaa  
61 ttgctaacgc agtcaggcac cgtgt
```

Region 2

```
atgaa atctaacaat gcgctcatcg tcatcctcgg  
121 caccgtcacc ctggatgctg taggcatagg cttggttatg ccggtactgc cgggcctctt  
181 gcgggatata gtccattccg acagcatcgc cagtcactat ggcgtgctgc tagcgtata  
241 tgcgttgatg caatttctat ggcgaccgt tctcggagca ctgtccgacc gctttggcgg  
301 ccgcccagtc ctgctcgctt cgctacttgg agccactatc gactacgcga tcatggcgac  
361 cacaccgctc ctgtggatcc tctacgccgg acgcatcgtg gccggcatca ccggcgccac  
421 aggtgcggtt gctggcgctt atatgcgcca catcaccgat ggggaagatc gggctcgcca  
481 cttcgggctc atgagcgctt gtttcggcgt gggatggtg gcaggccccg tggccggggg  
541 actgttgggc gccatctcct tgcattgacc attccttgcg gcggcggtgc tcaacggcct  
601 caacctacta ctgggctgct tcctaataca ggagtcgcat aaggagagc gtcgaccgat  
661 gcccttgaga gccttcaacc cagtcagctc cttccggtgg gcgcggggca tgactatcgt  
721 cgccgcactt atgactgtct tctttatcat gcaactcgta ggacaggtgc cggcagcgt  
781 ctgggtcatt ttcggcgagg accgctttcg ctggagcgcg acgatgatcg gcctgtcgt  
841 tgcggtatcc ggaatcttgc acgccctcgc tcaagccttc gtcactggte ccgccacaa  
901 acgtttcggc gagaagcagg ccattatcgc cggcatggcg gccgacgcgc tgggctacgt  
961 cttgctggcg ttcgcgacgc gaggctggat ggccttcccc attatgatcc ttctcgttc
```

1021 cggcggcatc gggatgcccg cgttgaggc catgctgtcc aggcaggtag atgacgacca
 1081 tcagggacag cttcaaggat cgctcgcggc tcttaccagc ctaacttcga tcaactggacc
 1141 gctgatcgtc acggcgatth atgccgcctc ggcgagcaca tggaaacgggt tggcatggat
 1201 tgtaggcgcc gccctatacc ttgtctgctt ccccgcggtg cgtcgcgggtg catggagccg
 1261 ggccacctcg acctga

Region 3

atgg aagccggcgg cacctcgcta acggattcac cactccaaga
 1321 attggagcca atcaattctt ggggagaact gtgaatgcmc aaaccaacc ttggcagaac
 1381 atatccatcg cgtccgccat ctccagcagc cgcacgcggc gcatctcggg cagcgttggg
 1441 tcctggccac ggggtgcgat gatcgtgctc ctgctgctga ggaccgggt aggctggcgg
 1501 ggttgccctta ctggtagca gaatgaatca ccgatacgcg agcgaacgtg aagcgactgc
 1561 tgctgcaaaa cgtctgcgac ctgagcaaca acatgaatgg tcttcggttt cctgttttcg
 1621 taaagtctgg aaacgcggaa gtcagcgccc tgcaccatta tgttccggat ctgcatcgca
 1681 ggatgctgct ggctaccctg tggaaacacct acatctgtat taacgaagcg ctggcattga
 1741 cctgagtgga tttttctctg gtcccgcgc atccataccg ccagttgttt accctcacia
 1801 cgttccagta accgggatg ttcacatca gtaaccgta tctgagcat cctctctcgt
 1861 ttcacggta tcattacccc catgaacaga aatcccctt acacggaggc atca

Region 4

gtgacc
 1921 aacaggaia aaaccgccct taacatggc cgctttatca gaagccagac attaacgctt
 1981 ctggagaia tcaacgagct ggacgcggat gaacaggcag acatctgtga atcgcttca
 2041 gaccagctg atgagcttta ccgagctgc ctgcgcgctt tccgtgatga cggtgaaac
 2101 ctctga

Region 5

caca tgcagctccc ggagacggtc acagcttgtc tgtaagcggg tgcggggagc
 2161 agacaagccc gtcagggcgc gtcagcgggt gttggcgggt gtcggggcgc agccatgacc
 2221 cagtcacgta gcatagcgg agtgtatact ggcttaacta tgcggcatca gagcagattg
 2281 tactgagagt gcaccatatg cgggtgtgaaa taccgcacag atgcgtaagg agaaaatacc
 2341 gcatcaggcg ctcttccgct tcctcgtca ctgactcgtc gcgctcggtc gttcggctgc
 2401 ggcgagcggg atcagctcac tcaaaggcgg taatacgggt atccacagaa tcaggggata
 2461 acgcaggaaa gaacatgtga gcaaaaggcc agcaaaaggc caggaaccgt aaaaaggcgc
 2521 cgttgctggc gtttttccat aggctccgcc cccctgacga gcatcacia aatcgacgct
 2581 caagtcaag gtggcgaia ccgacaggac tataaagata ccaggcgttt cccctggaa
 2641 gctccctcgt gcgctctcct gttccgacc tgcgcttac cggatacctg tccgccttc
 2701 tcccttcggg aagcgtggcg ctttctcata gctcagctg taggtatctc agttcgggtg
 2761 aggtcgttcg ctccaagctg ggctgtgtgc acgaacccc cgttcagccc gaccgctgcg
 2821 ccttatccgg taactatcgt cttgagtcca acccggtaa agacgactta tccactcgg
 2881 cagcagccac tggtaacagg attagcagag cgaggtatgt aggcgggtgct acagagttct
 2941 tgaagtggg gcctaactac ggctacacta gaaggacagt atttggtatc tgcgctctgc
 3001 tgaagccagt taccttcgga aaaagagttg gtagctcttg atccggcaia caaacaccg
 3061 ctggtagcgg tggttttttt gtttgcaag agcagattac gcgcaiaa aaagatctc

3121 aagaagatcc tttgatcttt tctacggggt ctgacgctca gtggaacgaa aactcacgtt
 3181 aagggatctt ggtcatgaga ttatcaaaaa ggatcttcac ctgatcctt ttaaattaaa
 3241 aatgaagttt taaatcaatc taaagtatat atgagtaaac ttggtctgac ag

Region 6

ttaccaat
 3301 gcttaatcag tgaggcacct atctcagcga tctgtctatt tcgttcatcc atagttgcct
 3361 gactccccgt cgtgtagata actacgatac gggagggtt accatctggc cccagtgtg
 3421 caatgatacc gcgagacca cgctcaccgg ctccagattt atcagcaata aaccagccag
 3481 cgggaaggc cgagcgaga agtggctctg caactttatc cgcctccatc cagtctatta
 3541 attgttgccg ggaagctaga gtaagtagtt cgccagttaa tagtttgccg aacgttggtg
 3601 ccattgctgc aggcacgtg gtgtcacgct cgtcgtttgg tatggcttca ttcagctccg
 3661 gttcccacg atcaaggcga gttacatgat ccccatggt gtgcaaaaaa gcggttagct
 3721 ccttcggtcc tccgatcgtt gtcagaagta agttggccgc agtggtatca ctcatggtta
 3781 tggcagcact gcataattct cttactgtca tgccatccgt aagatgcttt tctgtgactg
 3841 gtgagtactc aaccaagtca ttctgagaat agtgtatgcg gcgaccgagt tgctcttgc
 3901 cggcgtaac acgggataat accgcgccac atagcagaac ttaaaagtg ctcatcattg
 3961 gaaaacgttc ttcggggcga aaactctcaa ggatcttacc gctgttgaga tccagttcga
 4021 tgtaaccac tcgtgcacc aactgatctt cagcatcttt tactttcacc agcgtttctg
 4081 ggtgagcaaa aacaggaagg caaatgccg caaaaaggg aataaggcg acacgaaat
 4141 gttgaatact cat

Region 7

actcttc ctttttcaat attattgaag catttatcag ggttattgct
 4201 tcatgagcgg atacatattt gaatgtattt agaaaaataa acaaataggg gttccgcga
 4261 catttccccg aaaagtcca cctgacgtct aagaaacct tattatcatg acattaacct
 4321 ataaaaatag gcgtatcacg aggccctttc gtcttcaaga a



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