



**PvuI (7)**  
**SgfI (6)** **EcoNI (96)**  
1 GGATCTGCGATCGCTCCGGTGCCCGTCAGTGGGCAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTCGGCAATTGAACGGGTGCCTA  
101 GAGAAGGTGGCGCGGGTAAACTGGAAAGTGATGTCGTGTAAGTGGTCCGCCTTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

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**Psp1406I (203)** **HindIII (245)** **Bsu36I (291)**  
**EcoNI (287)**  
201 GTGAACGTTCTTTTTCGCAACGGGTTTGGCCGACAGTGAAGCTTCGAGGGGCTCGCATCTCTCTTACACGGCCCGCCCTACCTGAGGCC  
301 GCCATCCACGCGGTTGAGTGCAGTCTGCCGCTCCCGCTGTGGTGCCTCTGAAGTGCCTCCGCGTCTAGGTAAGTTAAAGCTCAGGTCGAGACC

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**NgoMIV (441)**  
401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCCTACCTAGACTCAGCCGGCTCTCCACGCTTGTGCTGACCTGCTTGTCTCAACTCTACGCTTTTGTTCGTTT

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**KasI (535)** **AgeI (552)** **NcoI (560)** **BstEII (555)**  
501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGGCGCTACCTGAGATCACCGGTACCATGGAGCGGGGCTGCTGCTCCGCGTCCCGGGCTGCT  
1▶ M E A A V A A P R P R L L

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**XmaI (645)** **BsrGI (682)**  
601 CCTCTCGTGTGGCGGGCGGGCGGGCGGGCGGGCGGGCGCTGCTCCCGGGGGCAGCGGCTTACAGTGTCTGCCACCTCTGTACAAAAGACAATTTT  
13▶ L L V L A A A A A A A A L L P G A T A L Q C F C H L C T K D N F

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**XhoI (797)**  
701 ACTTGTGTGACAGATGGGCTCTGCTTGTCTGTCTGTACAGAGACCACAGACAAGTTATACACAACAGCATGTGTATAGCTGAAATTGACCTTAATTCCTC  
47▶ T C V T D G L C F V S V T E T T D K V I H N S M C I A E I D L I P

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**ApaLI (818)**  
801 GAGATAGCCGTTTGTATGTGCACCCCTTCAAAAAGGCTGTGACTACAACATATTGCTGCAATCAGGACCATTGCAATAAAATAGAAGTTCCAAC  
80▶ R D R P F V C A P S S K T G S V T T T Y C C N Q D H C N K I E L P T

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**PvuII (941)**  
901 TACTGTAAGTCATCACCTGGCCTTGGTCTGTGGAAGTGGCAGCTGTATTGCTGGACCAGTGTGCTTCTGCTGCATCTCACTCATGTTGATGGTCTAT  
113▶ T V K S S P G L G P V E L A A V I A G P V C F V C I S L M L M V Y

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**EcoO109I (1046)**  
1001 ATCTGCCACAACCGCACTGTCAATCACCATCGAGTCCAAATGAAGAGGACCCTTCATTAGATCGCCCTTTATTTTCAGAGGGTACTACGTTGAAAGACT  
147▶ I C H N R T V I H H R V P N E E D P S L D R P F I S E G T T L K D

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**Tth111I (1113)**  
1101 TAATTTATGATATGACAACGTCAGGTTCTGGCTCAGGTTTACCATTGCTTGTTCAGAGAACAATTGCGAGAAGTATTGTGTTACAAGAAAGCATTGGCAA  
180▶ L I Y D M T T S G S G S G L P L L V Q R T I A R T I V L Q E S I G K

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**XbaI (1267)** **Psp1406I (1277)**  
1201 AGGTCGATTTGGAGAAGTTGGAGAGGAAAGTGGCGGGGAGAAGAAGTTGCTGTAAAGATATTCTCCTCTAGAGAAGAAGCTTCTGTTCCGTGAGGCA  
213▶ G R F G E V W R G K W R G E E V A V K I F S S R E E R S W F R E A  
1301 GAGATTTATCAAAGTGAATGTTACGTCATGAAACATCCTGGGATTTATAGCAGCAGACAATAAAGACAATGGTACTTGGACTCAGCTCTGGTTGGTGT  
247▶ E I Y Q T V M L R H E N I L G F I A A D N K D N G T W T Q L W L V

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**BamHI (1417)** **BsrBI (1491)**  
1401 CAGATTATCATGAGCATGGATCCCTTTTGTATTACTTAAACAGATACACAGTACTGTGGAAGGAATGATAAACTTGTCTGTCCACGGCGAGCGGCT  
280▶ S D Y H E H G S L F D Y L N R Y T V T V E G M I K L A L S T A S G L

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**Acc65I (1525)**  
1501 TGCCCATCTTCATGAGATTGTTGGTACCCAAGGAAAGCCAGCCATTGCTCATAGAGATTTGAAATCAAAGAATATCTTGGTAAAGAAGAAATGGAAGT  
313▶ A H L H M E I V G T Q G K P A I A H R D L K S K N I L V K K N G T

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**DraIII (1672)**  
1601 TGCTGTATTGACAGCTTAGGACTGGCAGTAAGACATGATTCAGCCACAGATACCATTGATATTGCTCCAAACACAGAGTGGGAACAAAAAGGTACATGG  
347▶ C C I A D L G L A V R H D S A T D T I D I A P N H R V G T K R Y M  
1701 CCCCTGAAGTTCTCGATGATCCATAAATATGAAACATTTGAAATCCTTCAAACGTGCTGACATCTATGCAATGGGCTTAGTATTCTGGGAAATTTGCTCG  
380▶ A P E V L D D S I N M K H F E S F K R A D I Y A M G L V F W E I A R

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**EcoRI (1817)**  
1801 ACGATGTTCCATTGGTGGAAATTCATGAAGATTACCAACTGCCTTATTATGATCTTGTACCTTCTGACCCATCAGTTGAAGAAATGAGAAAAGTTGTTGT  
413▶ R C S I G G I H E D Y Q L P Y Y D L V P S D P S V E E M R K V V C

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**BstXI (1924)**  
1901 GAACAGAAGTTAAGGCCAAATATCCCAAACAGATGGCAGAGCTGTGAAGCCTTGGAGTAATGGCTAAAATTATGAGAGAATGTTGGTATGCCAATGGAG  
447▶ E Q K L R P N I P N R W Q S C E A L R V M A K I M R E C W Y A N G  
2001 CAGCTAGGCTTACAGCATTGGGATTAAGAAAACATTATCGCAACTCAGTCAACAGGAAGGCATCAAATGTAATTTCTACAGCTTTGCTGAACTCTCCT  
480▶ A A R L T A L R I K K T L S Q L S Q Q E G I K M •

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**MscI (2110)** **NheI (2104)**  
2101 TTTTGCTAGCTGGCCAGACATGATAAGATACATTGATGAGTGGACAAAACCAACTAGAAATGCAGTGAAAAAAATGCTTTATTTGTGAAATTTGTGAT

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**HpaI (2242)**  
2201 GCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAACAAGTTAAACAACAACAAATGCATTCATTTATGTTTCAGGTTCCAGGGGAGGTGTGGGAGG

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**EcoRI (2338)**  
2301 TTTTTAAAGCAAGTAAACCTCTACAAATGTGGTATGGAAATCTAAAATACAGCATAGCAAACCTTTAACCTCAAATCAAGCCTCTACTTGAATCCTT  
2401 TTCTGAGGGATGAATAAGGCATAGGCATCAGGGCTGTTGCCAATGTGCATTAGCTGTTTGACGCCCTCACCTTCTTCATGGAGTTAAGATATAGTGTA

2501 TTTTCCAAGTTTGAAGTAGCTCTTCATTTCTTTATGTTTTAAATGCACTGACCTCCACATTCCCTTTTTAGTAAAATATTCAGAAAATAATTTAAATA  
SspI (2577) SwaI (2591)

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2601 CATCATTGCAATGAAAATAAATGTTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAA  
EcoO109I (2652)

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2701 AGGAACCTTTAATAGAAATTGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCTGGTGTACTTGAGGGGGATGAGTTCCTCAATGGTGGTTTTGACCA  
141 • N R T Y K L P I L E E I T T K V L

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2801 GCTTGCCATTCTCAATGAGCACAAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTGACATGCCACAGGGGTGACCACCCTGATGGATCTGTC  
 123 K G N M E I L V F C D P A Y D S I L E R C M G C P S V V R I S R D  
 2901 CACCTCATCAGAGTAGGGGTGCCTGACAGCCACAATGGTGTCAAAGTCTTCTGCCCGTTGCTCACAGCAGACCCAATGGCAATGGCTTCAGCACAGACA  
 90 V E D S Y P H R V A V I T D F D K Q G N S V A S G I A I A E A C V  
StuI (3016)

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3001 GTGACCCTGCCAATGTAGGCCTCAATGTGACAGCAGAGATGATCTCCCAGTCTTGGTCTGATGGCCGCCGACATGGTCTTGTGTCCTCATAGA  
 56 T V R G I Y A E I H V A S I I E G T K T R I A A G V H H K N D E Y L  
BbsI (3162)

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3101 GCATGGTGATCTTCTCAGTGGCGACCTCCACCAGCTCCAGATCTGCTGAGAGATGTTGAAGGTCTTCATGATGGCCCTCTATAGTGAGTCGTATTATA  
 23 M T I K E T A V E V L E L D Q Q S I N F T K M  
XmnI (3158)

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3201 CTATGCCGATATACTATGCCGATGATTAATTGTCAAACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTTCACTAAACGAGCTCTGCTTATATAGAC  
AseI (3224) SacI (3281)

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3301 CTCCCACCGTACACGCCTACCGCCATTTGCGTCAATGGGGCGGAGTTGTTACGACATTTTGAAAGTCCCGTTGATTTACTAGTCAAAAACAACTCCCA  
SpeI (3379)

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3401 TTGACGTCAATGGGGTGGAGACTTGAAATCCCGTGAGTCAAACCGTATCCACGCCATTGATGTAAGTCCAAAACCGCATCATCATGGTAATAGCGA  
SnaBI (3507)

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3501 TGACTAATACGTAGATGTACTGCCAAGTAGGAAAGTCCATAAGGTCATGTACTGGGCATAATGCCAGGCGGGCCATTTACCGTCATTGACGTCAATAGG  
NdeI (3612)

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3601 GGGCGTACTTGGCATATGATACACTTGATGTACTGCCAAGTGGGCAGTTTACCGTAAATACTCCACCCATTGACGTCAATGAAAGTCCCTATTGGCGTT  
PacI (3798)

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3701 ACTATGGGAACATACGTCAATTATTGACGTCAATGGGCGGGGGTCTGTTGGGCGGTGAGCCAGGCGGGCCATTTACCGTAAGTTATGTAACGCTGAGGTT  
PstI (3791) SdaI (3790)

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3801 AATTAAGAACATGTGAGCAAAGGCCAGCAAAGGCCAGGAACCGTAAAAAGGCCGTTGCTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCAT  
BspLU11I (3808)

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3901 CACAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTCCCCCTGGAAGCTCCCTCGTGCCTCTCCTGTT  
ApaLI (4122)

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4001 CGACCCTGCCGCTTACCGGATACCTGTCCGCTTTCTCCCTTCGGGAAGCGTGGCGCTTTCTCATAGCTCAGCTGTAGGTATCTCAGTTCGGTGTAGGT  
EagI (4558)

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4101 CGTTCGCTCCAAGCTGGGCTGTGTGCACGAACCCCGTTGAGCCGACCGCTGCGCCTTATCCGGTAACTATCGTCTTGAGTCCAACCCGGTAAGACAC  
PacI (4538) SwaI (4547) NotI (4557)

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4201 GACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTCTTGAAGTGGTGGCCTAACTACGGCT  
 4301 AACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAACAAACCACCGCTGG  
 4401 TAGCGGTGGTTTTTTTGTGTTGCAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGGTCTGACGCTCAGTGG  
EagI (4558)

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4501 AACGAAAACCTCACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATCAGCGGCCCAATAAAATATCTTTATTTTTCATTACATCTGTGTGT  
PacI (4538) SwaI (4547) NotI (4557)

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4601 TGGTTTTTTGTGTGAATCGTAACATAACGCTCTCCATCAAACAAAACGAAACAAAACAACTAGCAAAATAGGCTGTCCCAGTGCAAGTGCAGGT  
 4701 GCCAGAACATTTCTATCGAA