



125

PvuI (7) SgfI (6) MfeI (82) EcoNI (96)  
 1 GGATCTGGATCGCTCCGGTGCCCGTCAGTGGCAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA  
 101 GAGAAGGTGGCGCGGGTAAACTGGAAAGTGATGTCGTGTAAGTGGCTCCGCCTTTTCCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

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Psp1406I (203) HindIII (245) EcoNI (287) Bsu36I (291)  
 201 GTGAACGTTCTTTTTTCGCAACGGGTTTGGCCGAGAACACAGCTGAAGCTTCGAGGGGCTCGCATCTCTCTTACACGCGCCCGCCCTACCTGAGGGCC  
 301 GCCATCCACGCGGTTGAGTGCCTTCTGCCGCTCCCGCCTGTGGTGCCTCTGAAGTGCCTCGCGCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

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NgoMI (441) NaeI (441)  
 401 GGGCCTTTGTCCGGCGCTCCCTTGGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTCTCAACTCTACGTCTTTGTTTCGTTT

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KasI (535) AgeI (552) BspLU11I (560) XmaI (579)  
 501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGGGCGCTACCTGAGATCACCGGTCAACATGTGCGGGCTTCGACGACCCGGGCATTTTCTACAGCGA  
 13> M S G F D D P G I F Y S D

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PvuI (699) MscI (791)  
 601 CAGCTTCGGTGGCGACCCCGGTGCGGAAGAGGGCCAGGCCGCAAGTGCACATGCAGAGGCGATTCAAGGAGTTCTGAGACAGTACCGAGTGGGCACC  
 13> S F G G D P G A E E G Q A R K S Q L Q R R F K E F L R Q Y R V G T  
 701 GATCGCACGGGCTTACCTTCAAGTACAGAGATGAACTCAAGCGGCATTACAACCTGGTGAATACTGGATCGAGGTGGAGATGGAGGACCTGGCCAGTT
 47> D R T G F T F K Y R D E L K R H Y N L G E Y W I E V E M E D L A S

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EagI (836) NgoMI (834) NaeI (834) BstEII (888)  
 801 TTGACGAGAACTGGCTGACCACTTGACATAAACAGCCGCGAGCACTTACAGCTGCTTGGAGAACTGCCAAGGAGTGGCAGATGAGGTGACCCGGCC  
 80> F D E E L A D H L H K Q P A E H L Q L L E E A A K E V A D E V T R P  
 901 CCGCCAGCTGGAGATGAGTGCCTCAAGACATCCAGGTGATGCTCAAGTGCAGATGCCAGCCGTCGAGCATTGCGATTCTGAAGTGCAGATGATGTCA  
 113> R P A G D E L L Q D I Q V M L K S D A S P S S I R I L K S D M M S

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SexAI (1001) DraIII (1000) StuI (1119) KasI (1169) BamHI (1188)  
 1001 CACCTGGTGAAGATCCCTGGCATCATCATTTCAGCCTCTGCGATCCGTGCCAAGGCTACTCGTATCTCCATTGAGTGGCCGAGTGGCCACAATACCTCA  
 147> H L V K I P G I I I S A S A V R A K A T R I S I Q C R S C H N T L  
 1101 CCAATATCGCCATGCGCCAGGCTAGAGGGCTATGCCCTTCCAGGAAGTGAATATGGATCAGGCTGGGCGCCCAAAGTGGCCACTGGATCATACTT  
 180> T N I A M R P G L E G Y A L P R K C N M D Q A G R P K C P L D P Y F  
 1201 CATCATGCCTGACAAGTGCAGTGTGTGGACTTCCAGACTCTGAAACTGCAGGAGCTGCCTGATGCGATCCCTCATGGTGGAGTGGCCAGGCACATGCAG  
 213> I M P D K C K C V D F Q T L K L Q E L P D A V P H G E M P R H M Q

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Asp718I (1313) Acc65I (1313) BstEII (1347)  
 1301 CTTTATTGTGACAGGTACCTGTGTGACAAGTTGTTCTGGGAACAGGGTCCACATCATGGGCATTTATTCCATCAAGAAGTTTGGCTTGAACCCAGCA  
 247> L Y C D R Y L C D K V V P G N R V T I M G I Y S I K K F G L N P S

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BspEI (1427) HindIII (1485)  
 1401 AGGGCCGGGACAGGGTAGGTGTGGGCATCCGGAGCTCGTACATCCGAGTGTGGGCATCCAGGTGGACACAGATGGCTCTGGCCGAAGCTTTGCTGGGT  
 280> K G R D R V G V G I R S S Y I R V L G I Q V D T D G S G R S F A G S  
 1501 TGTACGCCACAGGAAGAGGAGAAATTCGTGCGCTGGCTGCCCTCCCAACATATATGAGCTCATCTCAAGAGCATTTCCTCCATCTTTGGGGG  
 313> V S P Q E E E E F R R L A A L P N I Y E L I S K S I S P S I F G G

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EcoRV (1681) Eco32I (1681)  
 1601 ATGGATATGAAGAAGGCCATTGCCTGCCTGCTTTTTGGGGTTCGGAAGAGGCTCCAGATGGACTCACTGCGGAGGTGATATCAACTTGTCTGATGT  
 347> M D M K K A I A C L L F G G S R K R L P D G L T R R G D I N L L M

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BsrGI (1766)  
 1701 TGGGAGACCTGGTACAGCAAGTCTCAGCTTCTGAAGTTTGTGGAGAAGTGTCTCCATTGGGGTGTACACATCTGGGAAAGGTAGCAGTGTCTGG  
 380> L G D P G T A K S Q L L K F V E K C S P I G V Y T S G K G S S A A G

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SandI (1820) NcoI (1859)  
 1801 CTTGACTGCCTCAGTGATACGGGACCCCTCATCTCGAACTTCATCATGGAAGTGGAGCCATGGTCTGGCCGATGGTGGGGTTGTCTGTATTGATGAG  
 413> L T A S V I R D P S S R N F I M E G G A M V L A D G G V V C I D E  
 1901 TTTGACAAGATGCGGGAAGATGACCGTGTGCAATCCATGAGGCTATGGAGCAGCAGACCATCTCCATTGCTAAAGCTGGGATCACTACCACCTTGAAGT  
 447> F D K M R E D D R V A I H E A M E Q Q T I S I A K A G I T T T L N

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SspI (2068)  
 2001 CTCGCTGCTCTGTTCTGGCTGCAGCAACTCAGTGTGGCCGATGGGATGAGACAAAAGGGGAGGACAATATTGACTTCATGCCTACCATCTTGTCCCG  
 480> S R C S V L A A A N S V F G R W D E T K G E D N I D F M P T I L S R

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BsiBI (2109) NheI (2154) BspLU11I (2163) ApaLI (2186)  
 2101 ATTTGATATGATCTTCATCGTCAAAGATGAGCACAATGAGGAGAGGGACATGATGCTAGCCAAACATGTGATGACTCTGCATGTGAGTGCAGTGCACAG  
 513> F D M I F I V K D E H N E E R D M M L A K H V M T L H V S A L T Q

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MscI (2228) XmnI (2238)  
 2201 ACACAGGCTGTGGAGGGTGGATCGACCTGGCCAAAGATGAAGAAGTTCATTGCCTACTGCCGAGCGAGGTGTGGACCTCGGCTATCAGCAGAGGCAGCAG  
 547> T Q A V E G E I D L A K M K K F I A Y C R A R C G P R L S A E A A  
 2301 AGAAGCTGAAAAACCGCTACATCATCATCGGAGTGGGGCTCGTCAGCATGAGAGGGACAGTACCGCGTTCAGCATCCCCATCACTGTGGCGCAGCT  
 580> E K L K N R Y I I M R S G A R Q H E R D S D R R S S I P I T V R Q L

**FspI (2411)**  
 2401 GGAGGCTATTGTGCGCATTGCTGAGGCCCTCAGTAAGATGAAACTGCAGCCCTTTGCCACTGAGGCTGATGTAGAGGAGGCATTGAGACTGTTCCAGGTG  
 613▶ E A I V R I A E A L S K M K L Q P F A T E A D V E E A L R L F Q V

NheI (2528)  
**EcoRI (2522)**  
 2501 TCCACACTGGATGCTGCTTTGTGAATTCGCTAGCTCGACATGATAAGATACATTGATGAGTTTGGACAAACCACAACCTAGAATGCAGTGAAAAAATGCT  
 647▶ S T L D A A L •

**HpaI (2691)**  
 2601 TTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAAACCATTATAAGCTGCAATAAACAAAGTTAAACAAC

MfeI (2702) EcoRI (2787)  
 2701 AACCAATTGCATTCATTTTATGTTTCAGGTTTCAGGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAAACCTCTACAAATGTGGTATGGGAATTTCAAATA  
 2801 CAGCATAGCAAACCTTTAACCTCCAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCAT  
 2901 TAGCTGTTTGCAGCCTCACCTTCTTTTATGAGTTTAAGATATAGTGATTTTCCCAAGGTTTGAAGTACTGCTCTTCATTTCTTTATGTTTAAATGCACT

SspI (3026) SwaI (3040)  
 3001 GACCTCCACATTCCTTTTTAGTAAAAATTCAGAAAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTTTTATTAGGCAGAATCCAGATGCTC  
 3101 AAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGGAACCTTTAATAGAAATTTGGACAGCAAGAAAGCGAGCTTCTAGCTTTAG  
 3201 TTCCTGGTGTACTTGAGGGGGATGAGTTCTCAATGGTGGTTTTGACCAGCTTGCCATTCATCTCAATGAGCACAAGCAGTCAGGAGCATAGTCAGAGA  
 139▶ N R T Y K L P I L E E I T T K V L K G N M E I L V F C D P A Y D S I  
 3301 TGAGCTCTCTGCACATGCCACAGGGGCTGACCACCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCTGACAGCCACAATGGTGTCAAAGTCCTT  
 106▶ L E R C M G C P S V V R I S R D V E D S Y P H R V A V I T D F D K

StuI (3465)  
 3401 CTGCCGTTGCTCACAGCAGACCCAATGGCAATGGCTTCAGCAGACAGTACCCTGCCAATGTAGGCCTCAATGTGGACAGCAGAGATGATCTCCCA  
 73▶ Q G N S V A S G I A I A E A C V T V R G I Y A E I H V A S I I E G  
 3501 GTCTTGGTCTGATGGCCGCCGACATGGTGTCTGTTGCTCATAGAGCATGGTATCTTCTCAGTGGCGACCTCCACCAGCTCCAGATCCTGCTGAG  
 39▶ T K T R I A A G V H H K N D E Y L M T I K E T A V E V L E L D Q Q S

XmnI (3607) BspHI (3615) VspI (3673)  
 3601 AGATGTTGAAGGCTTCTATGATGCCCTCTATAGTGAGTCGTATTATACTATGCCGATATACTATGCCGATGATTAATTGTCAAACACAGCGTGGATGGC  
 6▶ I N F T K M AseI (3673)  
 3701 GTCTCCAGCTTATCTGACGGTTCACATAACGAGCTCTGCTTATATAGACCTCCACCGTACACGCCTACCGCCATTTGCGTCAATGGGGCGGAGTTGTT

SpeI (3828)  
 3801 ACGACATTTTGAAAGTCCCGTTGATTTACTAGTCAAAACAACTCCCATGACGTCAATGGGGTGGAGACTTGAAATCCCGTGAGTCAAACCGCTA

SnaBI (3956) Eco105I (3956)  
 3900 TCCACGCCATTGATGTAAGTCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGTAAGTCCCAAGTAGGAAAGTCCCATAAAGTCCATG

NdeI (4061)  
 4000 TACTGGGCATAATGCCAGGCGGGCATTACCCTGATTGACGTCAATAGGGGGCTACTTGGCATATGATACACTTGTACTGCAAGTGGGCAGTTT  
 4100 ACCGTAATACTCCACCCATTGACGTCAATGAAAGTCCCTATTGGCGTTACTATGGGAACATACGTCATTATTGACGTCAATGGGCGGGGGTCTGTTGGG

SdaI (4239) PacI (4247) BspLU11I (4257)  
 4200 CGGTCAGCCAGGCGGGCATTACCCTGAAAGTTATGTAACGCCTG C A G G T T A A T T A A G A A C A T G T G A G C A A A A G G C C A G A A A G G C C A G G A A C C G T A A  
 4298 AAAGGCCGCGTTGCTGGCGTTTTTCCATAGGCTCCGCCCTGACGAGCATCACAATAATCGACGCTCAAGTCAAGTCAAGGTTGGCGAAACCCGACAGGACTA  
 4398 TAAAGATACCAGGCGTTTCCCTGGAAGCTCCCTCGTGCCTCTCTGTTCCGACCTGCGCTTACCAGTACCTGTCGCTTTTCTCCCTCGGGAA

ApaLI (4571)  
 4498 GCGTGGCGCTTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCAAGCTGGGCTGTGTGCACGAACCCCCGTTCCAGCCGA  
 4598 CCGCTGCGCTTATCCGTAAGTATCGTCTTGTAGTCCAAACCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCG  
 4698 AGGTATGTAGGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTA  
 4798 CCTTCGAAAAAGAGTTGGTAGCTTTGATCCGGCAAACAAACCACCGCTGGTAGCGGTGTTTTTTTTGTTTGAAGCAGCAGATTACGCGCAGAAAAA

PacI (4987) SwaI (4996)  
 4898 AGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGTCTGACGCTCAGTGGAAACGAAAACCTCACGTTAAGGGATTTTGGTCAATGGCTAGTTAATTAACA

EagI (5007)  
 NotI (5006)  
 4998 TTTAAATC AGCGGCCGCAATAAAATATCTTTATTTTTCATTACATCTGTGTGTTGGTTTTTTGTTGTAATCGTAACATAACATACGCTCTCCATCAAACAA  
 5098 AACGAAACAAAACAACTAGCAAATAGGCTGTCCCGAGTGAAGTGCAGGTGCCAGAACATTTCTCTATCGAA