



**PvuI (7)**  
**SgfI (6)**  
 1 GGATCTGGATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA  
 101 GAGAAAGTGGCGGGGTAACCTGGAAAGTGTGTCTGTACTGGCTCCGCCTTTTCCGAGGGTGGGGGAGAACCGTATATAAGTGCAGTAGTCGCC

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**Psp1406I (203)** **Bsu36I (291)**  
 201 GTGAACGTTCTTTTTTCGCAACGGGTTTGGCCGAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCCTTACGCGCCCGCCCTACCTGAGGGCC  
 301 GCCATCCACGCGGTTGAGTCGCGTTTCTGCCGCCCTCCCGCTGTGGTGCCTCCTGAAGTGCCTCCGCGCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

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**NgoMIV (441)**  
 401 GGGCCTTTGTCCGGCGCTCCCTTGGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCTCAACTCTACGTCTTTGTTTCGTTT

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**KasI (535)** **AgeI (552)** **SphI (560)**  
 501 TCTGTTTCTGCGCCGTTACAGATCCAAGCTGTGACCGGGCGCTACCTGAGATCACCGGTGAGCATGCCAAGGATGGAAAGACATCAGTTCTGCTGTCTTCT  
 601 CCTCATTCTGATACTATTGACTCTGGTGAAGCCTTACCTTGACTGGCTGGGCATGGACCATCCCTGATTGCATCATAGCAGACAGTTTGTATTTCCTAAC  
 13▶ L I L I L L T L V S L T L T G W A W T I P D C I I A D S L L F P N  
 701 CTTTCTACTACATCCCATTCTGTACCTCGGCCAGGACTACACCTTTTGGCATCTTCTCTAATGTTAAAACTTAAATCAGACCCCTAAAAAGAGTGC  
 47▶ L S Y Y I P F C T S A P G L H L L A S C S N V K N L N Q T L K R V  
 801 CCAGAAATACAGAGGTAAGTCTGCTCCAGGGCATGGTCTTACTCTGCGAGCTAAGGCCTTTATTGCTTCCACTCCCTACAGCTTCTAAGGCTGCAATT  
 80▶ P R N T E V L C L Q G M V P T L P A K A F I R F H S L Q L L R L Q L  
 901 GAGTACAACCAAGTGTACATCTAGGACTTTTCAAGGACTGGACAGCTACAATACCTTTTTTTGATCATCATGCTCCCTGTTGCTAAGCTTGTTCCTC  
 113▶ S T T S V T S R T F Q G L D Q L Q Y L F F D H H A P C C L S L F L

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**SpeI (1090)**  
 1001 TCTCAAATTTGTTTTGAGTCTCTTAGATCCCTTAGTAGTCTTTCTTTCAAGGATACTGCCTGACTTATAGCCAAAGCATCTACTTGGCAACTAGTCTTA  
 147▶ S P N C F E S L R S L S S L S F Q G Y C L T Y S Q S I Y L P T S L  
 1101 GGCATCTAACTCTGAGGAATAGCTGTCTAACAAAGTTTCAAGGCTTCAAAGGCTCTTCCAGACCTTCTGCTGAGTACCTCCTACACCCAATACCAA  
 180▶ R H L T L R N S C L T K F Q D L Q R L F P D L L L S T S S T P N T K

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**SspI (1299)**  
 1201 ACCAGGGGACCCCTTTTAGAGATGCTGGATTTATCTTACAACCTTCAGCTGAAACAGGCAGGTGTCAGAGACTTGTATGGCCTCACACTCCATTCCCTA  
 213▶ P G A P F L E M L D L S Y N L Q L K Q A G V R D L Y G L T L H S L  
 1301 ATATTGGATGGTACCCCACTAAGAGCACTTGATCTCACAGACTCAGGACTGCTCCACTTGCACTTCTCTCCCTTGTGGGAAACAGGAATAGAAAAAGTGC  
 247▶ I L D G T P L R A L D L T D S G L L H L H F L S L V G T G I E K V

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**ApaLI (1430)**  
 1401 CTGCAAGTTTGAAGTCTGACTCTGAGCTTCTGCACTTGACCTTGGGAAAAACCAAATCCAAAACATCTTGGAAAATGGAGAAATCCCAGGTTATAAAGC  
 280▶ P A S L T G Y S E L R A L D L G K N Q I Q N I L E N G E I P G Y K A

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**BsaBI (1522)**  
**EcoRI (1504)** **BspHI (1518)**  
 1501 CCTGGAATTCCTTAGCCTTCATGATAACCATCTGCAAACTTCTACCAGGTTTCTACATACTTACCCAGCTTCAGAAGCTCAACCTATCTATGAAT  
 313▶ L E F L S L H D N H L Q T L P T R F L H T L P Q L Q K L N L S M N

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**BglII (1659)** **NcoI (1692)**  
 1601 AAGCTTGGACCAATCTTGGAGCTTCCAGAAGACTCTTTAGCACAACTTAAAGTGTCTAGATCTATCCATAATCAACTCTGTGATGTACCCCATGGGG  
 347▶ K L G P I L E L P E G L F S T N L K V L D L S H N Q L C D V P H G

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**PstI (1774)**  
**SdaI (1773)**  
 1701 CTTTCTCCCTTTTGTACAGCTCCAGGACTCTGGTTGAGTGGCAATAACATCTCCAGTTTATCCAATGAAAGCTGCAGGGACTGAGGCAGCTGAGGAC  
 380▶ A F S L L S Q L Q E L W L S G N N I S S L S N E S L Q G L R Q L R T

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**Scal (1827)**  
 1801 ACTAGACTTAAGTTGGAATCAAATTAAGTACTCAAACCAGGCTGGCTCTCTCATCTTCTGCTGACTACCTTGAACCTTCTGGGCACCTACTTAGAA  
 413▶ L D L S W N Q I K V L K P G W L S H L P A L T T L N L L G T Y L E

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**SandI (1923)**  
 1901 AATATCTTAGGCATACAACCTCAGGGTCCCAAGATGCTAAGGCATCTACAACCTGGGTTCTTATCCAATGCTGGACATATATCCTCCCTGGCCCCAACAC  
 447▶ N I L G I Q L Q G P K M L R H L Q L G S Y P M L D I Y P P W P P T  
 2001 TCCTTAGCTTAGAAATACAAGCAGAATCATGTATTGATTTATGATTACAGTGGACAGCCATTCTTATTCTTAGAGAACCTTACCTTAGAGACTTCCAT  
 480▶ L L S L E I Q A E S C I Q F M I H S G Q P F L F L E N L T L E T S I  
 2101 TCTATTACTAAAACAGACAACATCACAATTCATTTCCCTCCCTGCGTCCGCTCACCTTGGCTGAGTACAGTTTCTTCTCAACCACTCAACTTCCAG  
 513▶ L L L K P D N I T I H F P S L R R L T L R G Y S F I F S T S Q L Q  
 2201 AGATTCCTCCACAACAGCTTCCCTTCTGAGCACTTCTTATCTGGTGTGAAAACAGCTATGCAGTAGACCTTATCTATTGGGATGCCAGGCTAC  
 547▶ R F F P Q Q L P L L E H F F I W C E N S Y A V D L Y L F G M P R L

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**Scal (2341)**  
 2301 GTGTGCTAGAGCTGGGGTACCTTAACTTTTCTATGAGTCAAGTACTATGAAGCTAGAGATGCTATTGAAGGAGGTACCTCAGTTACAGGTAAGTGGCATT  
 580▶ R V L E L G Y L N F F Y E S S T M K L E M L L K E V P Q L Q V L A L  
 2401 GAGCCACCTGAATCTCAGGAACCTCTGTGTCCAGCTTAAAGAGCTTGCAGGACCTCAAACCTGCTGCTTCAACTTGAAGGGGCGCTGGAGATGAAC  
 613▶ S H L N L R N L S V S S F K S L Q D L K L L L F N S E R A L E M N  
 2501 AGCAACCTCCAGGATTTATCTCAGATGCCTCAGTACGTTTACTTCTGTATGTCACTTTACTTGGCAGTGTGAAGCTTCCAGTGGCTGGGATCTTGGG  
 647▶ S N L Q E F I P Q M P Q Y V Y F S D V T F T C Q C E A S W G L E S W

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**Bsp120I (2606)**  
 2601 CTACACGGGCCCCAACACATTTTATGGGCTGAAAAATCCATTTGCATAGCTAATGCCTCAGACTACTCCAAAACCTACTATTCTCTTTCCCTTGC  
 680▶ A T R A P N T F V Y G L E K S I C I A N A S D Y S K T L L F S F L A  
 2701 TACTAATGTCCACAGGTAAGTGTGTTTGGGCTTTCTCACCAGTTTCACTTCTGCTGCTTCTGTTGATTATCCTTCTGATTAGCTGTCTAAATGG  
 713▶ T N C P H G T E F W G F L T S F I L L L L L I I L P L I S C P K W

2801 TCCTGGCTTCATCACCTCTGGACTCTTTCACTTGTGGTGGAAATTATGTGGACATAGACTCAGAGGCCAATTCAACTATGATGTCTTTATATCCT  
747▶ S W L H H L W T L F H T C W W K L C G H R L R G Q F N Y D V F I S  
2901 ATTGTGAGGAGGATCAAGCTTGGGTGCTGGAAGAAGCTTCCAGTTCTGGAGAAAGCCCTCTGAAGGTGAAGGCTTGAAGTTGTGCTGCCTGCCAG  
780▶ Y C E E D Q A W V L E E L V P V L E K A P P E G E G L R L C L P A R  
3001 GGACTTTGGGATTGGAATGACAGGATGGAATCCATGATTGCCAGCATGGGCAAAAGCAGAGCCACCCTCTGTGTCTCACAGGACAGGCCTTAGCAAGT  
813▶ D F G I G N D R M E S M I A S M G K S R A T L C V L T G Q A L A S

XcmI (3128)

3101 CCCTGGTGAATCTAGAGTTACGACTGGCCACTTACCCTTGGTAGCCAGGCCTGGGACCACTCATCTCTGCTGTTGTTTCTGGAGCCCTTATAGGC  
847▶ P W C N L E L R L A T Y H L V A R P G T T H L L L L F L E P L D R  
3201 AGAGGCTCCATAGTTACCATCGCTATCCCGTTGGCTCCAGAAGGAGGACTATTTTATTGTTCCCAAGGAAAGTGGAGTGGAACTCTTTCTGTGAGCA  
880▶ Q R L H S Y H R L S R W L Q K E D Y F D L S Q G K V E W N S F C E Q

BamHI (3340)

NdeI (3380)

3301 ACTGAAGAGACGGCTCAGCAAAGCTGGACAAGAAAGAGATGGATCCTATCCCTATGATGTGCCAGACTATGCTGGCTATCCATATGATTTCTGATTAT  
913▶ L K R R L S K A G Q E R D G S Y P Y D V P D Y A G Y P Y D V P D Y

MscI (3443)

NheI (3437)

3401 GCTGGATACCCCTTATGATGTGCCAGACTATGCCTAAAGCTAGCTGGCCAGACATGATAAGATACATTGATGAGTTGGACAAACCACAAC TAGAATGCAG  
947▶ A G Y P Y D V P D Y A •

HpaI (3575)

3501 TGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAACAAAGTTAACAAACAATTGCATTCAAT

EcoRI (3671)

3601 TTATGTTTCAGGTTCAAGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAACCTCTACAATGTGGTATGGAATTCTAAAATACAGCATAGCAAACCT

3701 TAACCTCAAATCAAGCCTCTACTTGAATCCTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTGCAGCCT

3801 CACCTCTTTTCATGGAGTTAAGATATAGTGTATTTTCCCAAGGTTTGAAGTACTGCTCTTCATTCTTTATGTTTTAAATGCACTGACCTCCACATTCCC

SspI (3910)

SwaI (3924)

3901 TTTTGTAGTAAATATTCAGAAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATA

4001 TCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGGAACCTTTAATAGAAATTGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCTGGTGTACTTGA

4101 GGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCATTCTCAATGAGCACAAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTCTGCACAT  
134▶ 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 L E R C M

BstXI (4214)

4201 GCCACAGGGGCTGACCACCCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCTGACAGCCACAATGGTGTCAAAGTCTTCTGCCGTTGCTCACA  
101▶ 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 Q G N S V

4301 GCAGACCAATGGCAATGGCTTCAAGCAGACAGTACCTGCAATGTAGGCCTCAATGTGGACAGCAGAGATGATCTCCCAAGTCTTGGTCTGATGG  
67▶ 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 T K T R I A

BspHI (4499)

BbsI (4495)

4401 CCGCCCCGACATGGTCTTGTCTCATAGAGCATGGTGTCTTCTCAGTGGCGACCTCCACAGCTCCAGATCCTGCTGAGAGATGTTGAAGGTCTT  
34▶ 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 I N F T K

AseI (4557)

4501 CATGATGGCCCTCTATAGTGAGTCTATTATACTATGCCGATATACTATGCCGATGATTAATTGTCAAACACAGCGTGGATGGCGTCTCCAGCTTATCTG  
1▶ M

4601 ACGGTTCACTAAACGAGCTCTGCTTATATAGACCTCCACCGTACACGCTACCGCCATTGCGTCAATGGGCGGAGTTGTTACGACATTTTGGAAAG

SpeI (4712)

4701 TCCC GTT GATTTACTAGTCAAACAAACTCCATTGACGTCAATGGGGTGAGACTTGGAAATCCCCTGAGTCAAACCGCTATCCACGCCATTGATGT

SnaBI (4840)

4801 ACTGCCAAAACCGCATCATCATGTAATAGCGATGACTAATACGTAGATGTACTGCCAAGTAGGAAAGTCCCATAAAGTCATGTACTGGGCATAATGCCA

NdeI (4945)

4901 GCGGGCCATTTACCGTCATTGACGTCAATAGGGGGCTACTTGGCATATGATACACTTGTACTGCCAAGTGGGCAGTTTACCGTAAATACTCCACC

5001 CATTGACGTCAATGGAAGTCCCTATTGGCGTTACTATGGGAACATACGTCAATATTGACGTCAATGGGCGGGGTCTTGGCGGTGACCCAGGCGGGC

PstI (5124)

SdaI (5123)

Pacl (5131)

BspLU11I (5141)

5101 CATTACCCTAAGTTATGTAACGCTGCAGGTTAATTAAGAACATGTGAGCAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAAGCCGCTTCTGGCGC

5201 TTTTCCATAGGCTCCGCCCTGACGAGCATCAAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAGATACCAGGCGTTTC

5301 CCCCTGGAAGCTCCCTCGTGCCTCTCTGTTCCGACCCTGCCGTTACCGGATACCTGTCCGCTTTCTCCCTTCGGGAAGCGTGGCGTTTCTCATAG

ApaLI (5455)

5401 CTCACGCTGATAGGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCCAAAGTGGGCTGTGTGCACGAACCCCCGTTAGCCCGACCGCTGCGCCTTATCCGGT

5501 AACTATCGTCTTGTAGTCAACCCGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTA

5601 CAGAGTCTTGAAGTGGTGGCTAACTACGGCTACACTAGAAGACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGG

5701 TAGCTCTTGATCCGGCAAACAACCACCGCTGGTAGCGGTGGTTTTTTTGGTTTGCAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCT

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5801 TTGATCTTTTCTACGGGGTCTGACGCTCAGTGGAAACGAAACTCACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATC AGCGGCCGCAA

EagI (5891)  
PacI (5871) SwaI (5880) NotI (5890)

5901 TAAAATATCTTTATTTTCATTACATCTGTGTGTTGGTTTTTTTGTGTGAATCGTAACTAACATACGCTCTCCATCAAAACAAAACGAAACAAAACAAACTA  
6001 GCAAAATAGGCTGTCCCCAGTGAAGTGCAGGTGCCAGAACATTTCTCTATCGAA