



PvuI (7)  
 SgfI (6) MfeI (82)  
 1 GGATCTGCGATCGCTCCGGTGCCCGTCAGTGGGCAGAGCGCACATCGCCACAGTCCCCGAGAAGTTGGGGGAGGGGTCGGCAATTGAACGGGTGCCTA  
 101 GAGAAGGTGGCGCGGGTAAACTGGAAAAGTGTCTGTACTGGCTCCGCCTTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

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Psp1406I (203) HindIII (245)  
 201 GTGAACGTTCTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCCTTCACCGCCCCGCCCTACCTGAGGCC  
 301 GCCATCCACGCCGGTTGAGTCGCGTTCTGCCGCCTCCCGCCTGTGGTGCTCCTGAAGTGCCTCCCGCTTAGGTAAGTTTAAAGCTCAGGTCGAGACC

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NgoMIV (441)  
 401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCTCAACTCTACGCTTTTGTTCGTTT

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BstEII (555)  
 AgeI (552) NcoI (560)  
 501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGGCGCTACCTGAGATCACCGGTACCATGGCAGCCTCAGGGGTGCCAGAGGATGCGACATCCT  
 601 CATCGTCTACAGCCGGATGCCGAGGAATGGTGCCAGTACCTGCAGACCTGTTCTGTCCAGTCGGCAGGTCGCAGCCAGAAGATACTGACTCACAGG  
 13▶ I V Y S P D A E E W C Q Y L Q T L F L S S R Q V R S Q K I L T H R  
 1▶ M A A S G V P R G C D I L

Bsp120I (702) SacII (776)  
 701 CTGGGCCCGAGGCTCCTTCTCGGCAGAGGACCTAAGCCTTTTCTCAGCACCCGCTGTGTCGTGGTGTCTGTCTCCGCGGAGCTGGTGCAGCACTTCC  
 47▶ L G P E A S F S A E D L S L F L S T R C V V V L L S A E L V Q H F

DraIII (847)  
 801 ACAAGCCCCTCTTGTGCCCTGCTGCAGAGAGCTTTCCATCCTCCGACCCGCTGGTCAGGCTGCTCTGCGGCTGCGGGACAGCGAGGAGTTCTAGA  
 80▶ H K P S L L P L L Q R A F H P P H R V V R L L C G V R D S E E F L D

Bsp120I (914)  
 901 CTTCTTTCCAGATTGGGCCATTGGCAGGAGCTCACCTGTGACGATGAGCCAGAGACCTACGTGGCAGCTGTGAAAAAGCCATTTCCGAAGATTCTGGC  
 113▶ F F P D W A H W Q E L T C D D E P E T Y V A A V K K A I S E D S G

Tth11II (1003) BstAPI (1059)  
 1001 TGTGACTCAGTCACTGACTGAGCCTGAGGACGAGAAGTTGTTTCTACTCGAAGCAGCAGAACCCTGCCGAGGTGACTTCACTGGGAACCTGATGG  
 147▶ C D S V T D T E P E D E K V V S Y S K Q Q N L P T V T S P G N L M

RsrII (1109)  
 1101 TGGTGCAGCCGGACCGCATTGCTGTGGGGCAGAAACCACTGTCTATGTTATTGTGAGATGTAAGCTGGATGACAGGGTGGCGACAGAAGCAGAGTTTTC  
 180▶ V V Q P D R I R C G A E T T V Y V I V R C K L D D R V A T E A E F S

Psp1406I (1288)  
 1201 TCCTGAGGATTCTCCCTCTGTAAGGATGGAAGCCAAGTGGAGAATGAGTACACCATTTCAGTGAAGGCTCCCAACCTTTTCATCTGGGAACGTTTCTGTG  
 213▶ P E D S P S V R M E A K V E N E Y T I S V K A P N L S S G N V S L

1301 AAGATATATTCTGGAGACTTAGTGGTGTGAAACCGTTATCAGTATTATACTGACATGGAAGAATTTGGGAATTTATTGTCCAATGCCGGAATCCTG  
 247▶ K I Y S G D L V V C E T V I S Y Y T D M E E I G N L L S N A A N P

EcoRI (1402)  
 1401 TGGAATTCATGTGTCAGGCCTTAAATTTGTGCCCTACAACACAGAGACCCTTGATAAATGCTAACC GAATCCCTGAAGAACAATATCCCTGCAAGCGG  
 280▶ V E F M C Q A F K I V P Y N T E T L D K L L T E S L K N N I P A S G

SspI (1561)  
 1501 ACTGCACCTCTTTGGAATCAACCAGCTGGAAGAAGAAGATATGATGACAAATCAGAGGGATGAAGAGCTGCCACCCTGTTGCATTTTGTGCGAAGTAT  
 313▶ L H L F G I N Q L E E E D M M T N Q R D E E L P T L L H F A A K Y

SdaI (1644)  
 1601 GGAAGTGAAGAACCTCACTGCCTGTTGCTCACCTGCCAGGAGCCCTGCAGGCGTACAGCGTGGCCAACAAGCATGGCCACTACCCCAACACCATCGCTG  
 347▶ G L K N L T A L L L T C P G A L Q A Y S V A N K H G H Y P N T I A  
 1701 AGAAACACGGCTTCAGGACCTGCGGACGTTTCATCAGCAGATGTGAAACGGTGGACATGCTCAAGAGTCAATTAAGAGGAACCTGATGCACGGGGA  
 380▶ E K H G F R D L R Q F I D E Y V E T V D M L K S H I K E E L M H G E

NcoI (1823) NcoI (1898)  
 1801 GGAGGCTGATGCTGTGTACGAGTCCATGGCCACCTTTCCACAGACCTGCTTATGAAATGCTCGCTCAACCCCGGCTGTGACGAGGATCTCTATGAGTCC  
 413▶ E A D A V Y E S M A H L S T D L L M K C S L N P G C D E D L Y E S

XmnI (1942)  
 1901 ATGGCTGCCTTTGTCCAGCTGCCACTGAAGACCTCTATGTTGAAATGCTTCAGGCCAGTACATCTAACCAATCCCTGGAGATGGTTTCTCTCGGGCCA  
 447▶ M A A F V P A A T E D L Y V E M L Q A S T S N P I P G D G F S R A

BsaBI (2092)  
 2001 CTAAGGACTCTATGATCCGAAGTTTTTGAAGGCAACAGCATGGGAATGACCAATCTGGAGAGAGATCAGTGCCATCTTGGTCAGGAAGAAGATGTTTA  
 480▶ T K D S M I R K F L E G N S M G M T N L E R D Q C H L G Q E E D V Y

DraIII (2101)  
 2101 TCACACGGTGGATGACGATGAGGCCTTTTCTGTGGACCTGGCCAGCAGGCCCCCTGTCCAGTGGCCAGACCAGAGACCACTGCTCCTGGTGCTCACCAG  
 513▶ H T V D D D E A F S V D L A S R P P V P V P R P E T T A P G A H Q

BsrBI (2251)  
 2201 CTGCCTGACAACGAACCATAACATTTTTAAAGTTTTTGCAGAAAAAAGTCAAGAGCGGCTGGGAATTTCTACGTTTCTCAGAGAGCATCAGGAAAGGGC  
 547▶ L P D N E P Y I F K V F A E K S Q E R P G N F Y V S S E S I R K G

NcoI (2311)  
 2301 CGCCCGTCAGACCATGGAGGGACAGGCCAGTCGAGTATATATGACCCTTTTGCGGGAATGAAAACGCCAGGCCAGCGGCAGCTTATCACCTCCAGGA  
 580▶ P P V R P W R D R P Q S S I Y D P F A G M K T P G Q R Q L I T L Q E

2401 GCAGGTGAAGCTGGGCATTGTCAACGTGGATGAGGCTGTGCTCCACTTCAAAGAGTGGCAGCTCAACCAGAAGAAACGATCGGAGTCTTTTCGTTCCAG  
613▶ Q V K L G I V N V D E A V L H F K E W Q L N Q K K R S E S F R F Q  
2501 CAGGAAAATCTTAAACGGCTAAGAGACAGCATCACCCGAAGACAGAGAGAAGCAAAAATCAGGAAAGCAGACAGACTTGGAGATCACGGTCCCAATTC  
647▶ Q E N L K R L R D S I T R R Q R E K Q K S G K Q T D L E I T V P I

PvuI (2476)

2601 GGCACCTCACAGCACCTGCCTGCAAAAGTGGAGTTGGAGTCTATGAGAGTGGCCCCAGGAAAAGTGCATTCCCCCTAGGACGGAGCTGAGACGAGGAGA  
680▶ R H S Q H L P A K V E F G V Y E S G P R K S V I P P R T E L R R G D

BsrBI (2745)

2701 CTGGAAAACAGACAGCACCTCCAGCACAGCAAGTAGCACAAGTAACCGCTCCAGCACCCGGAGCCTCCTCAGTGTGAGCAGCGGGATGGAAGGGGACAA  
713▶ W K T D S T S S T A S S T S N R S S T R S L L S V S S G M E G D N

BstEII (2820) XhoI (2878)

2801 GAGGATAATGAAGTCCCTGAGGTTACCAAGTGCAGTCCAGGCCCCCAAGTGGATGGGACACCACCATGTCCCTCGAGAGACCCCCAGGGTGC  
747▶ E D N E V P E V T R S R S P G P P Q V D G T P T M S L E R P P R V  
2901 CTCCGAGAGCTGCCTCACAGAGGCTCCGACGAGGAGACCTTCATCCTCCTCCACCTGTTCCACCCAGAGGACGCTGATTCCACCTCCTAAAACCTGC  
780▶ P P R A A S Q R P P T R E T F H P P P P V P P R G R •

NheI (3001)

3001 CGCTAGCTGGCCAGACATGATAAGATACATTGATGAGTTGGACAAACCACAACCTAGAATGCAGTGAIAAAATGCTTTATTTGTGAAATTTGTGATGCT

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HpaI (3139) MfeI (3150)

3101 ATTGCTTTATTTGTAACCATTATAAGCTGCAATAAACAAAGTTAAACAACAATTGCATTCATTTTATGTTTCAGGTTACAGGGGAGGTGTGGGAGGTTT

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EcoRI (3235)

3201 TTTAAAGCAAGTAAAACCTCTACAAATGTGGTATGGAATTCATAAAATACAGCATAGCAAACTTTAACCTCCAATCAAGCCTCTACTGAATCCTTTTC  
3301 TGAGGGATGAATAAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTTGACGCCTCACCTTCTTTTCATGGAGTTAAGATATAGTGATTTT

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SapI (3417) SspI (3474) SwaI (3488)

3401 TCCAAGTTTGAACTAGCTCTTCATTTCTTTATGTTTAAATGCACTGACCTCCACATTCCTTTTTAGTAAAATATTCAGAAAATAATTTAAATACAT  
3501 CATTGCAATGAAAATAAATGTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTCATAATATCCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGG  
3601 AACCTTTAATAGAAATTTGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCCTGGTGTACTTGAGGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCT  
141▶ • N R T Y K L P I L E E I T T K V L K

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BstXI (3778)

3701 TGCCATTCATCTCAATGAGCACAAAGCAGTCCAGGAGCATAGTCCAGAGATGAGCTCTCTGCACATGCCACAGGGGCTGACCACCTGATGGATCTGTCCAC  
122▶ 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 V  
3801 CTCATCAGAGTAGGGGTGCCTGACAGCCACAATGGTGTCAAAGTCTTCTGCCGTTGCTCACAGCAGACCCCAATGGCAATGGCTTCAGCACAGACAGTG  
89▶ 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 T  
3901 ACCCTGCCAATGTAGGCCTCAATGTGGACAGCAGAGATGATCTCCCCAGTCTTGGTCTGATGGCCGCCCGACATGGTGCTGTTGCTCCTATAGAGCA  
55▶ 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 M

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XmnI (4055)

4001 TGGTGATCTTCTCAGTGGCGACCTCCACCAGCTCCAGATCCTGCTGAGAGATGTTGAAGGTCTTCATGGTGGCCCTCTATAGTGAGTCGTATTATACTA  
22▶ T I K E T A V E V L E L D Q Q S I N F T K M

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AseI (4121)

4101 TGCCGATATACTATGCCGATGATTAATTGTCAAACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTTCACTAAACGAGCTCTGCTTATATAGACCTC

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SpeI (4276)

4201 CCACCGTACACGCTACCGCCATTTGCGTCAATGGGCGGAGTTGTTACGACATTTTGAAAGTCCCGTTGATTTACTAGTCAAACAAACTCCCATTTG  
4301 ACGTCAATGGGGTGGAGACTTGGAAATCCCCGTGAGTCAAACCGCTATCCACGCCATTGATGTACTGCCAAAACCGCATCATCATGGTAATAGCGATGA

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SnaBI (4404)

4401 CTAATACGTAGATGTAAGTCCCAAGTAGGAAAGTCCCATAAGGTCATGTAAGTGGGATAATGCCAGGCGGGCCATTTACCGTCATTGACGTCAATAGGGGG

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NdeI (4509)

4501 CGTACTTGGCATATGATACACTTGTACTGCAAGTGGGAGTTTACCCTAAATACTCCACCCATTGACGTCAATGGAAAGTCCCTATTGGCGTTACT

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SdaI (4687)PacI (4695)

4601 ATGGGAACATACGTATTATTGACGTCAATGGGCGGGGTCGTTGGGCGGTACGCCAGGCGGGCCATTTACCGTAAGTTATGTAACGCTGCAGGTTAAAT

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BspLUIII (4705)

4701 TAAGAACATGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAAGGCCGCTTGTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCAC  
4801 AAAAATCGACGCTCAAGTCAAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTTCCCCTGGAAGCTCCCTCGTGCCTCTCCTGTTCCGA  
4901 CCCTGCCGCTTACCGGATACCTGTCCGCTTTCTCCCTCGGGAAGCGTGGCGCTTTCTCATAGCTCACGCTGAGGTATCTCAGTTCGGTGTAGGTCGT

**ApaI (5019)**

5001 TCGTCCAAGCTGGGCTGTGTGCACGAACCCCGTTAGCCCGACCCTGCGCCTTATCCGGTAACTATCGTCTTGAGTCCAACCCGGTAAGACACGAC  
5101 TTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACA  
5201 CTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAACAAACCACCGCTGGTAG  
5301 CGGTGGTTTTTTTGGTTTGAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGGTCTGACGCTCAGTGGAAAC

**EagI (5455)**

PacI (5435) SwaI (5444) **NotI (5454)**

5401 GAAAACTCACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATCAGCGGCCGCAATAAAATATCTTTATTTTCATTACATCTGTGTGTTGG  
5501 TTTTTGTGTGAATCGTAACTAACATACGCTCTCCATCAAACAAAACGAAACAAAACAACTAGCAAATAGGCTGTCCCCAGTGCAAGTGCAGGTGCC  
5601 AGAACATTTCTCTATCGAA