



**PvuI (7)**  
**SgfI (6)**  
1 GGATCTGCATCGCTCCGGTGCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCCGAGAAGTTGGGGGAGGGGTCGGCAATTGAACGGGTGCCTA  
101 GAGAAAGTGGCGCGGGTAAACTGGAAAGTATGTCGTGACTGGCTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

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**Psp1406I (203)** **HindIII (245)** **Bsu36I (291)**  
201 GTGAACGTTCTTTTTTCGAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCCTTCACGCGCCCGCCCTACCTGAGGCC  
301 GCCATCCACGCCGGTTGAGTCGCGTTCTGCCGCTCCCGCTGTGGTGCCTCCTGAACTGCGTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

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**NgoMIV (441)**  
401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCTCAACTCTACGCTTTTGTTCGTTT

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**AgeI (552)** **NcoI (560)**  
501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGCGCCTACCTGAGATCACCGGTACCCTGGCGAGTGGGAAATGCTGCAGAATCTTGACAGCCC  
1▶ M A Q W E M L Q N L D S P  
**ScaI (659)**  
601 CTTTCAGGATCAGCTGCACCAGCTTTACTCGCACAGCCTCCTGCCTGTGGACATTCGACAGTACTTGGCTGTCTGGATTGAAGACCAGAAGTGGCAGGAA  
13▶ F Q D Q L H Q L Y S H S L L P V D I R Q Y L A V W I E D Q N W Q E  
701 GCTGCACTTGGGAGTGTGATGATCCAAGGCTACCATGCTATTCTCCACTTCTGGATCAGCTGAACTATGAGTGTGGCCGTTGACGCCAGGACCCAGAGT  
47▶ A A L G S D D S K A T M L F F H F L D Q L N Y E C G R C S Q D P E

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**BstAPI (813)**  
801 CCTTGTGCTGCAGCACAAATTTGCGAAATCTGCCGGACATTCAGCCCTTTTCCAGGATCCTACCAGTTGGCTGAGATGATCTTTAACCTCCTTCT  
80▶ S L L L Q H N L R K F C R D I Q P F S Q D P T Q L A E M I F N L L L L

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**Bsp120I (932)**  
901 GGAAGAAAAAGAATTTTATCCAGGCTCAGAGGGCCCAATTGGAACAAGGAGAGCCAGTTCTCGAAACACCTGTGGAGAGCCAGCAACATGAGATTGAA  
113▶ E E K R I L I Q A Q R A Q L E Q G E P V L E T P V E S Q Q H E I E  
1001 TCCCGATCCTGGATTTAAGGGCTATGATGGAGAAGCTGGTAAATCCATCAGCCAACGAAAGACCAGCAGGATGCTTCTGCTCCGATATAAGATCC  
147▶ S R I L D L R A M M E K L V K S I S Q L K D Q Q D V F C F R Y K I  
1101 AGGCCAAAAGGGAAGACACCTCTGGACCCCATCAGACCAAAGAGCAGAAGATTCTGACGAAACTCTCAATGAECTGGACAAAAGGAGAAAGGAGGT  
180▶ Q A K G K T P S L D P H Q T K E Q K I L Q E T L N E L D K R R K E V  
1201 GCTGGATGCTCCAAAGCACTGCTAGGCCGATTAACCTACCCTAATCGAGTACTGCTGCCAAAGTTGGAGGAGTGGAAAGGCCAGCAGCAAAAAGCCTGC  
213▶ L D A S K A L L G R L T T L I E L L L P K L E E W K A Q Q Q K A C

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**Bsu36I (1374)**  
1301 ATCAGAGCTCCCATTGACCACGGTTGGAACAGCTGGAGACATGGTTCACAGCTGGAGCAAAGCTGTTGTTTACCTGAGGCAGCTGCTGAAGGAGCTGA  
247▶ I R A P I D H G L E Q L E T W F T A G A K L L F H L R Q L L K E L

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**BstXI (1442)**  
1401 AGGGACTGAGTTGCCTGGTTAGCTATCAGGATGACCCCTCTGACCAAAGGGTGGACCTACGCAACGCCAGGTCACAGAGTTGCTACAGCGTCTGCTCCA  
280▶ K G L S C L V S Y Q D D P L T K G V D L R N A Q V T E L L Q R L L H  
1501 CAGAGCCTTTGTTGATAGAAACCCAGCCCTGCATGCCCAAACCTCCCATCGACCCCTCATCTCAAGACTGGCAGCAAGTTCCACGTCGAACAAAGGCTG  
313▶ R A F V V E T Q P C M P Q T P H R P L I L K T G S K F T V R T R L

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**BspEI (1679)**  
1601 CTGGTGAGACTCCAGGAAGCAATGAGTCACTGACTGTGGAAGTCTCCATTGACAGGAATCCTCCTCAATTACAAGGCTTCCGGAAGTTCAACATTCTGA  
347▶ L V R L Q E G N E S L T V E V S I D R N P P Q L Q G F R K F N I L

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**Psp1406I (1784)**  
1701 CTTCAAACAGAAAACCTTTGACCCCGAGAAGGGGAGAGTCAAGGTTTATTTGGGACTTTGGTTACCTGACTCTGGTGGAGCAACGTTCAAGTGGTTCC  
380▶ T S N Q K T L T P E K G Q S Q G L I W D F G Y L T L V E Q R S G G S

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**DraIII (1823)**  
1801 AGGAAAGGGCAGCAATAAGGGGCCACTAGGTGTGACAGAGGAAGTGCACATCATCAGCTTACGCTCAATATACCTACCAGGGTCTGAAGCAGGAGCTG  
413▶ G K G S N K G P L G V T E E L H I I S F T V K Y T Y Q G L K Q E L  
1901 AAAACGGACACCTCCCTGTGGTATTATTTCCAACATGAACAGCTCTCAATTGCTGGGCTTCAGTTCTCTGGTTCAATTTGCTCAGCCCAAACCTTC  
447▶ K T D T L P V V I I S N M N Q L S I A W A S V L W F N L L S P N L

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**Bsp120I (2049)** **StuI (2091)**  
2001 AGAACCAGCAGTTCTTCTCAACCCCCCAAGGCCCTGGAGCTTGTGGCCCTGCTCTCAGTTGGCAGTTCTCCTCCTATGTTGGCCGAGGCCTCAA  
480▶ Q N Q Q F F S N P P K A P W S L L G P A L S W Q F S S Y V G R G L N  
2101 CTCAGACAGCTGAGCATGCTGAGAAACAAGCTGTTCCGGGAGAGCTGAGGACTGAGGATCCATTATTGCTGGGCTGACTTCAAGCAGGAGAGC  
513▶ S D Q L S M L R N K L F G Q N C R T E D P L L S W A D F T K R E S  
2201 CCTCTGGCAAGTTACCATTTCTGGACATGGCTGGACAAAATCTGGAGTTGGTACATGACCACCTGAAGGATCTCTGGAATGATGGACCATCATGGGCT  
547▶ P P G K L P F W T W L D K I L E L V H D H L K D L W N D G R I M G

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**NgoMIV (2321)** **Tth111I (2337)** **BstAPI (2387)**  
2301 TTGTGAGTCGGAGCCAGGAGCGCCGGCTGCTGAAGAAGACCATGTCTGGCACCTTTCTACTGCGTTCAGTGAATCGTCAGAAGGGGGCATTACCTGCTC  
580▶ F V S R S Q E R R L L K K T M S G T F L L R F S E S S E G G I T C S  
2401 CTGGTGGAGCACCAGGATGATGACAAGGTGCTCATCTACTCTGTGAACCGTACACGAAGGAGGTGCTGCAGTCACTCCCGCTGACTGAAATCATCCGC  
613▶ W V E H Q D D D K V L I Y S V Q P Y T K E V L Q S L P L T E I I R

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**XmaI (2567)** **HindIII (2576)**  
2501 CATTACCAGTTGCTCACTGAGGAGAATATACCTGAAAACCCACTGCGCTTCTCTATCCCCGAATCCCCGGGATGAAGCTTTTGGGTGCTACTACCAGG  
647▶ H Y Q L L T E E N I P E N P L R F L Y P R I P R D E A F G C Y Y Q

2601 AGAAAGTTAATCTCCAGGAACGGAGGAAATACCTGAAACACAGGCTCATTGTGGTCTCTAATAGACAGGTGGATGAACTGCAACAACCGCTGGAGCTTAA  
680▶ E K V N L Q E R R K Y L K H R L I V V S N R Q V D E L Q Q P L E L K  
2701 GCCAGAGCCAGAGCTGGAGTCTTAGAGCTGGAAGTGGGCTGGTCCAGAGCCAGAGCTCAGCCTGGACTTAGAGCCACTGCTGAAGGCAGGGCTGGAT  
713▶ P E P E L E S L E L E L G L V P E P E L S L D L E P L L K A G L D

**NsiI (2862)**

2801 CTGGGGCCAGAGCTAGAGTCTGTGCTGGAGTCCACTCTGGAGCCTGTGATAGAGCCACACTATGCATGGTATCACAAACAGTGCCAGAGCCAGACCAAG  
747▶ L G P E L E S V L E S T L E P V I E P T L C M V S Q T V P E P D Q  
2901 GACCTGTATCACAGCCAGTGCCAGAGCCAGATTTGCCCTGTGATCTGAGACATTTGAACACTGAGCCAATGGAATCTTCAGAAACTGTGAAAGATTGA  
780▶ G P V S Q P V P E P D L P C D L R H L N T E P M E I F R N C V K I E

**MscI (3033)**

3001 AGAAATCATGCCGAATGGTGACCCACTGTTGGCTGGCCAGAACACCGTGGATGAGGTTTACGCTCTCCGCCCCAGCCACTTCTACACTGATGGACCCTTG  
813▶ E I M P N G D P L L A G Q N T V D E V Y V S R P S H F Y T D G P L

**MscI (3137)**

**NheI (3131)**

3101 ATGCCTTCTGACTTCTAGGAACACATTTCCGCTAGCTGGCCAGACATGATAAGATACATTGATGAGTTTGGACAAACCACAACCTAGAATGCAGTGAAAA  
847▶ M P S D F •

**HpaI (3269)**

3201 AAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAACAAAGTTAACAAACAATTGCATTCAATTTATGT

**EcoRI (3365)**

3301 TTCAGTTTCAGGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAAACCTCTACAAATGTGGTATGGAATTCTAAAATACAGCATAGCAAACTTTAACCT  
3401 CCAAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTTGCAGCCTCACCTT

**SapI (3547)**

3501 CTTTCATGGAGTTAAGATATAGTGTATTTTCCAAGTGTGAACTAGCTCTTCATTTCTTTATGTTTTAAATGCACTGACCTCCACATTCCCTTTTTA

**SspI (3604)**      **SwaI (3618)**

3601 GTAAAATATTCAGAAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCC  
3701 AGTTTAGTAGTTGGACTTAGGGAACAAAGAACCTTTAATAGAAATTGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCCTGGTGTACTTGAGGGGGA  
3801 TGAGTTCTCAATGGTGGTTTTGACCAGCTTGCATTCTCAATGAGCACAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTCTGCACATGCCACA  
132▶ 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 G C

**BstXI (3908)**

3901 GGGGCTGACCACCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCCTGACAGCCACAATGGTGTCAAAGTCTTCTGCCCGTTGCTCACAGCAGAC  
99▶ 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 A S

**StuI (4043)**

4001 CCAATGGCAATGGCTTACGACAGACAGTGACCTGCCAATGTAGGCCTCAATGTGGACAGCAGAGATGATCTCCCCAGTCTTGGTCTGATGGCCGCC  
65▶ 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 A G

**XmnI (4185)**

4101 CGACATGGTGCTTGTTCCTCATAGAGCATGGTGTCTTCTCAGTGGCGACCTCCACCAGCTCCAGATCCTGCTGAGAGATGTTGAAGGTCTTCATGGT  
32▶ 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 M

**AseI (4251)**

4201 GGCCCTCTATAGTGAGTCGTATTATACTATGCCGATATACTATGCCGATGATTAATTGTCAAACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTT  
4301 CACTAAACGAGCTCTGCTTATATAGACCTCCACCCTACACGCTACCGCCATTTGCGTCAATGGGGCGGAGTTGTTACGACATTTTGAAAGTCCCGT

**SpeI (4406)**

4401 TGATTTACTAGTCAAACAAACTCCCATTGACGTCAATGGGGTGGAGACTTGGAAATCCCCGTGAGTCAAACCGCTATCCACGCCATTGATGTACTGCC

**SnaBI (4534)**

4501 AAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGACTGCCAAGTAGGAAAGTCCCATAAAGTTCATGTACTGGGCATAATGCCAGGCGGG

**NdeI (4639)**

4601 CCATTTACCGTCATTGACGTCAATAGGGGGCTACTTGGCATATGATACACTTGTACTGCAAGTGGGCAGTTTACCGTAAATACTCCACCCATTGA  
4701 CGTCAATGAAAGTCCCTATTGGCGTACTATGGGAACATACGTCAATTATTGACGTCAATGGGGGGGGTCTGTTGGCGGTGAGCCAGGCGGGCCATTTA

**PaeI (4825)**

**SdaI (4817)**      **BspLU11I (4835)**

4801 CCGTAAGTTATGTAACGCTGCAGGTTAATTAAGAACATGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAAGGCCGCTTCTGGCGTTTTTC  
4901 CATAGGCTCCGCCCTGACGAGCATCAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCTTTCCCCCTG  
5001 GAAGCTCCCTCGTGCCTCTCTGTTCCGACCTGCCGCTTACCGGATACCTGTCCGCTTTCTCCCTTCGGGAAGCGTGGCGCTTTCTCATAGCTCAG

**ApaLI (5149)**

5101 CTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCAAGCTGGGCTGTGTGCACGAACCCCGTTCAGCCCGACCGCTGCGCTTATCCGGTAACTAT

5201 CGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGCGGGTGTACAGAGT

5301 TCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTC

5401 TTGATCCGGCAAACAAACCACCGCTGGTAGCGGTGGTTTTTTTGGTTTGAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATC

**EagI (5585)**

Pacl (5565) SwaI (5574) **NotI (5584)**

5501 TTTTCTACGGGGTCTGACGCTCAGTGGAACGAAAACCTCACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATCAGCGGCCGCAATAAAAT

5601 ATCTTTATTTTCATTACATCTGTGTGTTGGTTTTTTTGTGTGAATCGTAACTAACATACGCTCTCCATCAAACAAAACGAAACAAAACAACTAGCAAAA

5701 TAGGCTGTCCCCAGTGCAAGTGCAGGTGCCAGAACATTTCTCTATCGAA