



**PvuI (7)**  
**SgfI (6)** 1 GGATCTGCGATCGCTCCGGTGCCCGTCAGTGGGCAGAGCGCACATCGCCACAGTCCCCGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA **MfeI (82)**

101 GAGAAGTGGCGCGGGTAAACTGGAAAGTGATGTCGTGTAAGTGGCTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

**Psp1406I (203)** **HindIII (245)**  
201 GTGAACGTTCTTTTTTCGCAACGGGTTTCCGCCAGAACACAGCTGAAGCTTCGAGGGGCTCGCATCTCTCTTACCGCCGCCGCCCTACCTGAGGCC **Bsu36I (291)**

301 GCCATCCACGCCGGTTGAGTCGCGTTCTGCCGCTCCCGCCTGTGGTGCCTCCTGAACTGCGTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

**NgoMIV (441)**  
401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCTAACTCTACGCTTTTGTTCGTTT

**NcoI (560)**  
**BstEII (555)**  
501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGGCCCTACCTGAGATCACCGGTCCACCATGGCGCGGGCGGCTCAGGGGGCGGGGCGGGGA **AgeI (552)**  
1▶ M A A A A A Q G G G G E

**SandI (629)**  
**XmaI (624)** **XmaI (633)**  
601 GCCCCGTAGAACCAGGGGGTCCGGCCCGGGGTCCTCCGGGGAGGTGGAGATGGTGAAGGGCAGCCGTTCCGACGTGGGCCCGCTACACGCAGTTGCAG **Bsp120I (675)**  
13▶ P R R T E G V G P G V P G E V E M V K G Q P F D V G P R Y T Q L Q

**BsiWI (716)** **BbrPI (745)** **MscI (764)** **BstBI (787)**  
701 TACATCGGCGAGGGCGGTACGGCATGGTCAGCTCGGCCTATGACCACGTGCGCAAGACTCGCGTGGCCATCAAGAAGATCAGCCCTTCAACATCAGA **FspI (749)**  
47▶ Y I G E G A Y G M V S S A Y D H V R K T R V A I K K I S P F E H Q

**BsaBI (825)**  
801 CCTACTGCCAGCGCACGCTCCGGGAGATCCAGATCCTGCTGCGCTTCCGCCATGAGAATGTCATCGGCATCCGAGACATTCTGCGGGCGTCCACCCTGGA **BsrGI (947)** **PvuII (970)**  
80▶ T Y C Q R T L R E I Q I L L R F R H E N V I G I R D I L R A S T L E

901 AGCCATGAGAGATGTCTACATTGTGAGGACCTGATGGAGACTGACCTGTACAAGTTGCTGAAAAGCCAGCAGCTGAGCAATGACCATATCTGCTACTTC **BglII (1056)**  
113▶ A M R D V Y I V Q D L M E T D L Y K L L K S Q Q L S N D H I C Y F

1001 CTCTACCAGATCCTCGGGGCTCAAGTACATCCACTCCGCCAAGTGTCCACCGAGATCTAAAGCCCTCCAACCTGCTCATCAACACCACCTGCGACC **Bsp120I (1193)**  
147▶ L Y Q I L R G L K Y I H S A N V L H R D L K P S N L L I N T T C D **Acc65I (1187)**

1101 TTAAGATTTGTGATTTCCGCTGGCCCGATTGCCGATCTGAGCATGACCACACCGGCTTCTGACGGAGTATGTGGCTACGCGCTGGTACCGGGCCCC **Bsp120I (1193)**  
180▶ L K I C D F G L A R I A D P E H D H T G F L T E Y V A T R W Y R A P

1201 AGAGATCATGCTGAACCTCAAGGGCTATACCAAGTCCATCGACATCTGGTCTGTGGGCTGCATTCTGGCTGAGATGCTCTTAACCGGCCATCTTCCCT **Bsp120I (1193)**  
213▶ E I M L N S K G Y T K S I D I W S V G C I L A E M L S N R P I F P

1301 GGCAAGCACTACCTGGATCAGCTCAACCACATTCTGGGCATCCTGGGCTCCCCATCCAGGAGGACCTGAATTGTATCATCAACATGAAGGCCGAAACT **Bsp120I (1193)**  
247▶ G K H Y L D Q L N H I L G I L G S P S Q E D L N C I I N M K A R N

**XcmI (1418)** **HindIII (1441)** **HpaI (1491)**  
1401 ACCTACAGTCTCTGCCCTCAAGACCAAGTGGCTTGGCCCAAGCTTTCCCAAGTCCAAAGCCCTTGACCTGCTGGACCGGATGTTAACCTT **HpaI (1491)**  
280▶ Y L Q S L P S K T K V A W A K L F P K S D S K A L D L L D R M L T F

**Eco47III (1530)** **ScaI (1556)**  
1501 TAACCCCAATAAACCGGATCACAGTGGAGGAAGCGCTGGCTCACCCCTACTGGAGCAGTACTATGACCCGACGGATGAGCCAGTGGCCGAGGAGCCCTTC **BsrBI (1633)**  
313▶ N P N K R I T V E E A L A H P Y L E Q Y Y D P T D E P V A E E P F

**NcoI (1607)** **BstXI (1607)** **Bsu36I (1627)**  
1601 ACCTTCGCCATGGAGCTGGATGACCTACCTAAGGAGCGGTGAAGGAGCTCATCTCCAGGAGACAGCAGCTTCCAGCCGGAGTGTGGAGGCCCCCT **MscI (1733)**  
347▶ T F A M E L D D L P K E R L K E L I F Q E T A R F Q P G V L E A P

**NheI (1727)**  
1701 AGCCAGACAGACATCTCTGCACCTGGCTAGCTGGCCAGACATGATAAGATACATTGATGAGTTTGGACAAACCACAACCTAGAATGCAGTGAAAAAAT **HpaI (1865)** **MfeI (1876)**  
380▶ •

1801 GCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAACCAAGTTAAACAACAATTGCATTCTTTTATGTTTCA **EcoRI (1961)**

1901 GGTTCAGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAACCTCTACAATGTGGTATGGAATCTAAAATACAGCATAGCAAACTTTAACCTCCAA **EcoRI (1961)**

2001 ATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTGTGCCAATGTGCATTAGCTGTTTGCAGCCTCACCTTCTT **EcoRI (1961)**

2101 CATGGAGTTAAGATATAGTGTATTTTCCCAAGTTTGAAGTACTGCTTTCATTTCTTTATGTTTTAAATGCACTGACCTCCCACATTCCTTTTATGTA

**SspI (2200)** **SwaI (2214)**  
2201 AATATTCAGAAATAATTTAAATACATCATTGCAATGAAATAAATGTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTT

2301 TAGTAGTTGGACTTAGGGAACAAAGGAACCTTTAATAGAAATTGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCCCTGGTGTACTTGAGGGGGATGAG **EcoRI (1961)**  
141▶ • N R T Y K L P I L

2401 TTCCTCAATGGTGGTTTTGACCAGCTTGCCATTTCATCTCAATGAGCACAAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTCTGCACATGCCACAGGGG  
131 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 P  
BstXI (2504)

2501 CTGACCACCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCCTGACAGCCACAATGGTGTCAAAGTCCTTCTGCCCGTTGCTCACAGCAGACCCAA  
97 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 G I  
StuI (2639)

2601 TGGCAATGGCTTCAGCACAGACAGTACCCTGCCAATGTAGGCCTCAATGTGGACAGCAGAGATGATCTCCCCAGTCTTGGCTCTGATGGCCGCCCCGAC  
64 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 V  
BspHI (2789)  
BbsI (2785)  
XmnI (2781)

2701 ATGGTGCTTGTTCCTCATAGAGCATGGTGATCTTCTCAGTGGCGACCTCCACCAGCTCCAGATCCTGCTGAGAGATGTTGAAGTCTTCATGATGGCC  
31 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 (2847)

2801 CTCCTATAGTGAGTCGTATTATACTATGCCGATATACTATGCCGATGATTAATTGTCAAACACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTTCAC  
2900 TAAACGAGCTCTGCTTATATAGACCTCCACCGTACACGCCTACCGCCATTTGCGTCAATGGGGCGGAGTTGTTACGACATTTTGGAAAGTCCCGTTGA  
SpeI (3002)

3000 TTTACTAGTCAAAACAACTCCATTGACGTCAATGGGTGGAGACTTGAAATCCCCGTGAGTCAAACCGCTATCCACGCCATTGATGTA CTGCTGACAA  
SnaBI (3130)

3099 AACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGTA CTGCCAAGTAGGAAAGTCCATAAGGTCATGTA CTGGGCATAATGCCAGGCGGGCC  
NdeI (3235)

3199 ATTTACCGTCATTGACGTCAATAGGGGGCTACTTGGCATATGATACACTTGATGTA CTGCCAAGTGGCAGTTTACCCTAAATACTCCACCCATTGACG  
3299 TCAATGGAAAGTCCCTATTGGCGTTACTATGGGAACATACGTCAATTATTGACGTCAATGGGGCGGGGTCTTGGGCGGTACGCCAGGCGGGCCATTTACC  
PstI (3414)  
SdaI (3413) PacI (3421) BspLU11I (3431)

3399 GTAAGTTATGTAACGCCTGCAGGTTAA TTAAGAACATGTGAGCAAAGGCCAGCAAAGGCCAGGAACCGTAAAAAGGCCGCTTGTGGCGTTTTTC  
3497 CATAGGCTCCGCCCCCTGACGAGCATCAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTTCCCCCTG  
3597 GAAGCTCCCTCGTGCGCTCTCTGTTCCGACCTGCCGTTACCGGATACCTGTCCGCTTTCTCCCTTCGGGAAGCGTGGCGTTTTCTCATAGCTCACG  
ApaLI (3745)

3697 CTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCAAGCTGGGCTGTGTGCACGAACCCCCGTTCCAGCCGACCGCTGCGCCTTATCCGGTAACTAT  
3797 CGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCTGTTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGT  
3897 TCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTC  
3997 TTGATCCGGCAAACAAACCACCGCTGGTAGCGGTGTTTTTTTTGTTTGAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATC  
PacI (4161) SmaI (4170) EagI (4181)  
NotI (4180)

4097 TTTTCTACGGGTCTGACGCTCAGTGAACGAAAACCTCACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATC AGCGGCCCAATAAAAAT  
4197 ATCTTTATTTTCATTACATCTGTGTGTTGTTTTTTGTGTGAATCGTAACTAACATACGCTCTCCATCAAACAAAACGAAACAAAACAACTAGCAAAA  
4297 TAGGCTGTCCCAGTGCAAGTGCAGGTGCCAGAACATTTCTCTATCGAA