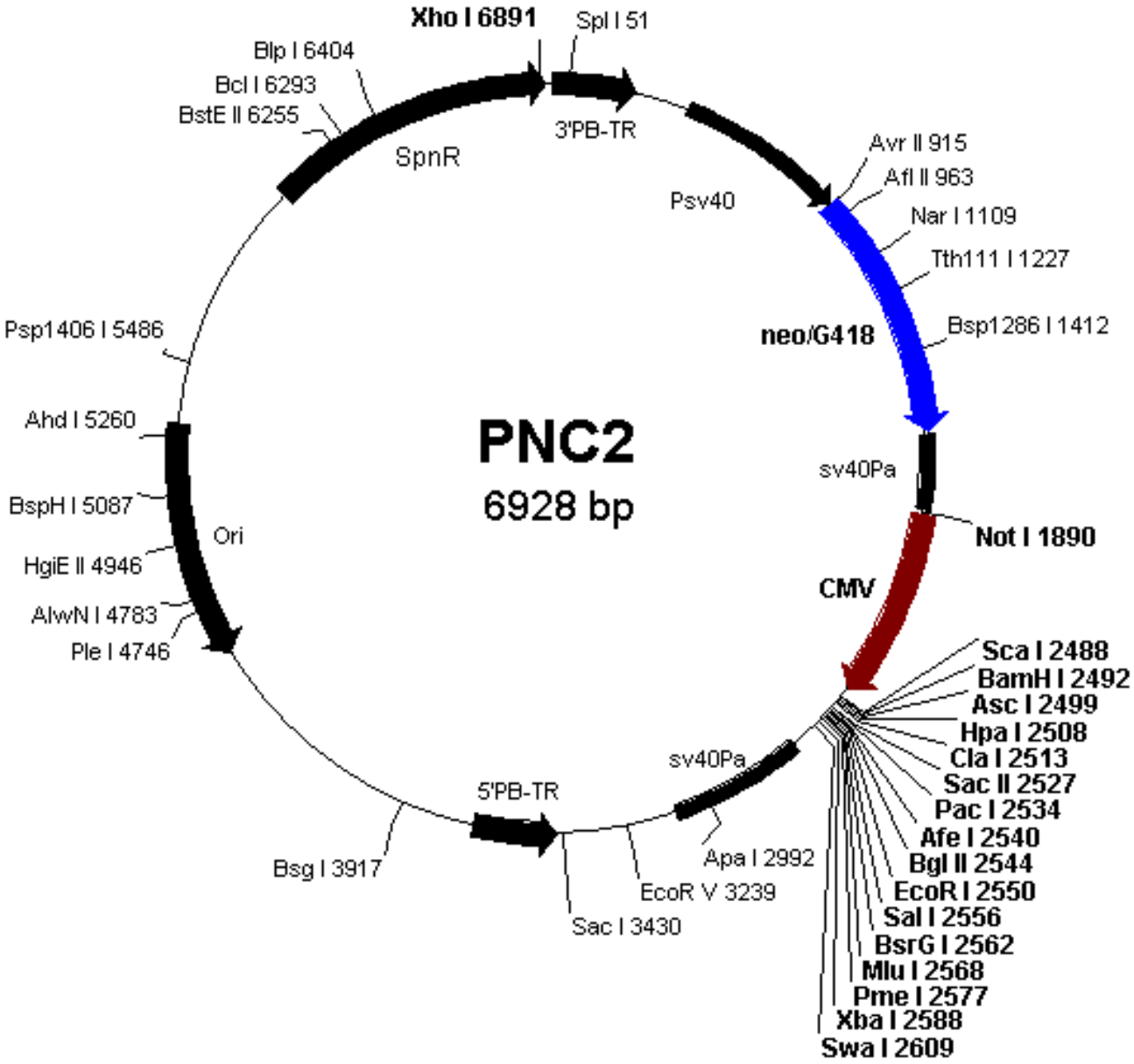
**Vector**: **PNC2** (MOLab modified piggyBac vector with CMV promoter)

**Antibiotic Selection**: **Spectinomycin-resistant**

**Creator(s)**: Xian Chen & Palak Shah, Molecular Oncology Lab of The University of Chicago

**Date of Construction**: January, 2013



# PNC2 Vector Sequence

*(Spectinomycin-resistant)*

CTGCAGAACACGCAGCTAGATTAA**CCCTAGAAAGATAATCATATTGTGACGTACGTTAAAGATAATCATGCGTAAAATTGACGCATG**
TGTTTTATCGGTCTGTATATCGAGGTTTATTTATTAATTTGAATAGATATTAAGTTTTATTATATTTACACTTACATACTAATAATA
AATTCAACAAACAATTTATTTATGTTTATTTATTTATTAAAAAAAAACAAAAACTCAAAATTTCTTCTATAAAGTAACAAAACTTTT
ATGAGGGACAGCCCCCCCCCAAAGCCCCCAGGGATGTAATTACGTCCCTCCCCCGCTAGGGGGCAGCAGCGAGCCGCCCGGGGCTCC
GCTCCGGTCCGGCGCTCCCCCCGCATCCCCGAGCCGGCAGCGTGCGGGGACAGCCCGGGCACGGGGAAGGTGGCACGGGATCGCTTT
CCTCTGAACGCTTCTCGCTGCTCTTTGAGCCTGCAGACACCTGGGGGGATACGGGGAAAAGGCCTCCACGGCCAGACTAGAgcgcag
caccatggcctgaaataacctctgaaagaggaacttggttaggtaccttctgaggcggaaagaaccagctgtggaatgtgtgtcagt
tagggtgtggaaagtccccaggctccccagcaggcagaagtatgcaaagcatgcatctcaattagtcagcaaccaggtgtggaaagt
ccccaggctccccagcaggcagaagtatgcaaagcatgcatctcaattagtcagcaaccatagtcccgcccctaactccgcccatcc
cgcccctaactccgcccagttccgcccattctccgccccatggctgactaatttttttatttatgcagaggccgaggccgcctcgg
cctctgagctattccagaagtagtgaggaggcttttttggaggcctaggcttttgcaaaaagcttgattcttctgacacaacagtct
cgaacttaaggctagagccaccATGATTGAACAAGATGGATTGCACGCAGGTTCTCCGGCCGCTTGGGTGGAGAGGCTATTCGGCTA
TGACTGGGCACAACAGACAATCGGCTGCTCTGATGCCGCCGTGTTCCGGCTGTCAGCGCAGGGGCGCCCGGTTCTTTTTGTCAAGAC
CGACCTGTCCGGTGCCCTGAATGAACTGCAGGACGAGGCAGCGCGGCTATCGTGGCTGGCCACGACGGGCGTTCCTTGCGCAGCTGT
GCTCGACGTTGTCACTGAAGCGGGAAGGGACTGGCTGCTATTGGGCGAAGTGCCGGGGCAGGATCTCCTGTCATCTCACCTTGCTCC
TGCCGAGAAAGTATCCATCATGGCTGATGCAATGCGGCGGCTGCATACGCTTGATCCGGCTACCTGCCCATTCGACCACCAAGCGAA
ACATCGCATCGAGCGAGCACGTACTCGGATGGAAGCCGGTCTTGTCGATCAGGATGATCTGGACGAAGAGCATCAGGGGCTCGCGCC
AGCCGAACTGTTCGCCAGGCTCAAGGCGCGCATGCCCGACGGCGAGGATCTCGTCGTGACCCATGGCGATGCCTGCTTGCCGAATAT
CATGGTGGAAAATGGCCGCTTTTCTGGATTCATCGACTGTGGCCGGCTGGGTGTGGCGGACCGCTATCAGGACATAGCGTTGGCTAC
CCGTGATATTGCTGAAGAGCTTGGCGGCGAATGGGCTGACCGCTTCCTCGTGCTTTACGGTATCGCCGCTCCCGATTCGCAGCGCAT
CGCCTTCTATCGCCTTCTTGACGAGTTCTTCTGAgcgggactctggggttcgaaatgaccgaccaagcgacgcccaacctgccatca
cgatggccgcaataaaatatctttattttcattacatctgtgtgttggttttttgtgtgaGCGGCCGCTAATAGTAATCAATTACGG
GGTCATTAGTTCATAGCCCATATATGGAGTTCCGCGTTACATAACTTACGGTAAATGGCCCGCCTGGCTGACCGCCCAACGACCCCC
GCCCATTGACGTCAATAATGACGTATGTTCCCATAGTAACGCCAATAGGGACTTTCCATTGACGTCAATGGGTGGAGTATTTACGGT
AAACTGCCCACTTGGCAGTACATCAAGTGTATCATATGCCAAGTACGCCCCCTATTGACGTCAATGACGGTAAATGGCCCGCCTGGC
ATTATGCCCAGTACATGACCTTATGGGACTTTCCTACTTGGCAGTACATCTACGTATTAGTCATCGCTATTACCATGGTGATGCGGT
TTTGGCAGTACATCAATGGGCGTGGATAGCGGTTTGACTCACGGGGATTTCCAAGTCTCCACCCCATTGACGTCAATGGGAGTTTGT
TTTGGCACCAAAATCAACGGGACTTTCCAAAATGTCGTAACAACTCCGCCCCATTGACGCAAATGGGCGGTAGGCGTGTACGGTGGG
AGGTCTATATAAGCAGAGCTGGTTTAGTGAACCGTCAGATCCGGTACC**AGTACTGGATCCGGCGCGCCGTTAACATCGATAAGCTTC**
**CGCGGTTAATTAAAGCGCT**agatctG**AATTCGTCGACTGTACAACGCGTGTTTAAACTTCGAATCTAGATACGTACATATGATTTAA**
**AT**GATCTAACTAACTAAACTTGTTTATTGCANCTTATAATGGTTACAAATAAAGCAATAGCATCACAAATTTCACAAATAAAGCATT
TTTTTCACTGCATTCTAGTTGTGGTTTGTCCAAACTCATCAATGTATCTTATCATGTCTGGAATGACTCAAATGATGTCAATTAGTC
TATCAGAAGCTCATCTGGTCTCCCTTCCGGGGGACAAGACATCCCTGTTTAATATTTAAACAGCAGTGTTCCCAAACTGGGTTCTTA
TATCCCTTGCTCTGGTCAACCAGGTTGCAGGGTTTCCTGTCCTCACAGGAACGAAGTCCCTAAAGAAACAGTGGCAGCCAGGTTTAG
CCCCGGAATTGACTGGATTCCTTTTTTAGGGCCCATTGGTATGGCTTTTTCCCCGTATCCCCCCAGGTGTCTGCAGGCTCAAAGAGC
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TAGAAAGAGAGAGCAATATTTCAAGAATG**CATGCGTCAATTTTACGCAGACTATCTTTCTAGGG**TTAATCTAGCTGCATCAGGATCA
TATCGTCGGGTCTTTTTTCATCGCCCAAGCTGGCGCTATCTGGGCATCGGGGAGGAAGAAGCCCGTGCCTTTTCCCGCGAGGTTGAA
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GGGCGCGCTTGGCGTAATCATGGTCATAGCTGTTTCCTGTGTGAAATTGTTATCCGCTCACAATTCCACACAACATACGAGCCGGAA
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CTGACTCGCTGCGCTCGGTCGTTCGGCTGCGGCGAGCGGTATCAGCTCACTCAAAGGCGGTAATACGGTTATCCACAGAATCAGGGG
ATAACGCAGGAAAGAACATGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAAGGCCGCGTTGCTGGCGTTTTTCCATAGGC
TCCGCCCCCCTGACGAGCATCACAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTC
CCCCTGGAAGCTCCCTCGTGCGCTCTCCTGTTCCGACCCTGCCGCTTACCGGATACCTGTCCGCCTTTCTCCCTTCGGGAAGCGTGG
CGCTTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCGCTCCAAGCTGGGCTGTGTGCACGAACCCCCCGTTC
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GTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGGACAG
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ACGCTCAGTGGAACGAAAACTCACGTTAAGGGATTTTGGTCATGAGATTATCAAAAAGGATCTTCACCTAGATCCTTTTAAATTAAA

AATGAAGTTTTAAATCAATCTAAAGTATATATGAGTAAACTTGGTCTGACAGTTACCAATGCTTAATCAGTGAGGCACCTATCTCAG
CGATCTGTCTATTTCGTTCATCCATAGTTGCCTGACTCCCCGTCGTGTAGATAACTACGATACGGGAGGGCTTACCATCTGGCCCCA
GTGCTGCAATGATACCGCGAGACCCACGCTCACCGGCTCCAGATTTATCAGCAATAAACCAGCCAGCCGGAAGGGCCGAGCGCAGAA
GTGGTCCTGCAACTTTATCCGCCTCCATCCAGTCTATTAATTGTTGCCGGGAAGCTAGAGTAAGTAGTTCGCCAGTTAATAGTTTGC
GCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCACGCTCGTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAA
GGCGAGTTACATGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGAAGTAAGTTGGCCGCAG
TGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACTGTCATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTGTA
CCAGCCAGGACAGAAATGCCTCGACTTCGCTGCTACCCAAGGTTGCCGGGTGACGCACACCGTGGAAACGGATGAAGGCACGAACCC
AGTGGACATAAGCCTGTTCGGTTCGTAAGCTGTAATGCAAGTAGCGTATGCGCTCACGCAACTGGTCCAGAACCTTGACCGAACGCA
GCGGTGGTAACGGCGCAGTGGCGGTTTTCATGGCTTGTTATGACTGTTTTTTTGGGGTACAGTCTATGCCTCGGGCATCCAAGCAGC
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GGCTTGATGAAACAACGCGGCGAGCTTTGATCAACGACCTTTTGGAAACTTCGGCTTCCCCTGGAGAGAGCGAGATTCTCCGCGCTG
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CCTTGGTAGGTCCAGCGGCGGAGGAACTCTTTGATCCGGTTCCTGAACAGGATCTATTTGAGGCGCTAAATGAAACCTTAACGCTAT
GGAACTCGCCGCCCGACTGGGCTGGCGATGAGCGAAATGTAGTGCTTACGTTGTCCCGCATTTGGTACAGCGCAGTAACCGGCAAAA
TCGCGCCGAAGGATGTCGCTGCCGACTGGGCAATGGAGCGCCTGCCGGCCCAGTATCAGCCCGTCATACTTGAAGCTAGACAGGCTT
ATCTTGGACAAGAAGAAGATCGCTTGGCCTCGCGCGCAGATCAGTTGGAAGAATTTGTCCACTACGTGAAAGGCGAGATCACCAAGG
TAGTCGGCAAATAACCCTCGAGCCACCCATGACCAAAATCCCTTAACGTGAGTTA

Unique enzymes in PNC2:

| | | |
|---|---|---|
| BsiW I | C`GTAC,G | 51 |
| Spl I | C`GTAC,G | 51 |
| BseR I | GAGGAG 16/14 | 911 |
| Avr II | C`CTAG,G | 915 |
| Afl II | C`TTAA,G | 963 |
| Kas I | G`GCGC,C | 1108 |
| Nar I | GG`CG,CC | 1109 |
| Ehe I | GGC\|GCC | 1110 |
| Bbe I | G,GCGC`C | 1112 |
| Tth111 I | GACN`N,NGTC | 1227 |
| Bsp1286 I | G,DGCH`C | 1412 |
| Not I | GC`GGCC,GC | 1890 |
| Sca I | AGT\|ACT | 2488 |
| BamH I | G`GATC,C | 2492 |
| Asc I | GG`CGCG,CC | 2499 |
| Hpa I | GTT\|AAC | 2508 |
| Cla I | AT`CG,AT | 2513 |
| Sac II | CC,GC`GG | 2527 |
| Pac I | TTA,AT`TAA | 2534 |
| Afe I | AGC\|GCT | 2540 |
| Eco47 III | AGC\|GCT | 2540 |
| Bgl II | A`GATC,T | 2544 |
| EcoR I | G`AATT,C | 2550 |
| Sal I | G`TCGA,C | 2556 |
| Acc I | GT`MK,AC | 2557 |
| BsrG I | T`GTAC,A | 2562 |
| Mlu I | A`CGCG,T | 2568 |
| Pme I | CTTT\|AAAC | 2577 |
| Xba I | T`CTAG,A | 2588 |
| Swa I | ATTT\|AAAT | 2609 |
| EcoN I | CCTNN`N,NNAGG | 2983 |
| EcoO109 I | RG`GNC,CY | 2988 |
| Bsp120 I | G`GGCC,C | 2988 |
| Apa I | G,GGCC`C | 2992 |
| EcoR V | GAT\|ATC | 3239 |
| Sac I | G,AGCT`C | 3430 |
| Bsg I | GTGCAG 22/20 | 3917 |
| Ple I | GAGTC 9/10 | 4746 |
| AlwN I | CAG,NNN`CTG | 4783 |
| HgiE II | ACCNNNNNNGGT | -1/134946 |
| BspH I | T`CATG,A | 5087 |
| Ahd I | GACNN,N`NNGTC | 5260 |
| Psp1406 I | AA`CG,TT | 5486 |
| BstE II | G`GTNAC,C | 6255 |
| Bcl I | T`GATC,A | 6293 |
| Blp I | GC`TNA,GC | 6404 |
| Esp I | GC`TNA,GC | 6404 |
| PaeR7 I | C`TCGA,G | 6891 |
| Xho I | C`TCGA,G | 6891 |

Number of enzymes = 49

The following enzymes do not cut in PNC2:

| | | | | |
|---|---|---|---|---|
| Age I | Bbs I | Bbv II | BsaB I | BsmB I |
| Bst1107 I | Bsu36 I | Eco72 I | Fse I | Mun I |
| Nhe I | Nru I | PflM I | Pml I | PpuM I |

PNC2: sites sorted by name:

| | | | | | |
|---|---|---|---|---|---|
| Aat II | (4) | 2014 | 2067 | 2150 | 2336 |
| Acc I | (1) | 2557 | | | |
| Acc65 I | (2) | 565 | 2480 | | |
| Aci I | (86) | 315 | 336 | 348 | 370 |
| | | 393 | 578 | 763 | 775 |
| | | 784 | 796 | 806 | 817 |
| | | 863 | 1018 | 1081 | 1175 |
| | | 1239 | 1340 | 1343 | 1583 |
| | | 1623 | 1628 | 1678 | 1694 |
| | | 1720 | 1776 | 1835 | 1889 |
| | | 1893 | 1947 | 1975 | 1987 |
| | | 2001 | 2168 | 2259 | 2292 |
| | | 2396 | 2417 | 2524 | 2526 |
| | | 3106 | 3129 | 3151 | 3163 |
| | | 3184 | 3368 | 3401 | 3435 |
| | | 3643 | 3656 | 3805 | 3912 |
| | | 3917 | 3965 | 4002 | 4057 |
| | | 4160 | 4216 | 4226 | 4250 |
| | | 4293 | 4300 | 4321 | 4412 |
| | | 4440 | 4567 | 4586 | 4707 |
| | | 4817 | 4952 | 4961 | 5323 |
| | | 5414 | 5605 | 5651 | 5918 |
| | | 5938 | 6106 | 6203 | 6215 |
| | | 6282 | 6345 | 6541 | 6544 |
| | | 6622 | 6669 | | |
| Afe I | (1) | 2540 | | | |
| Afl II | (1) | 963 | | | |
| Afl III | (2) | 2568 | 4367 | | |
| Aha II | (7) | 1109 | 1811 | 2011 | 2064 |
| | | 2147 | 2333 | 6149 | |
| Ahd I | (1) | 5260 | | | |
| Alu I | (27) | 16 | 591 | 879 | 933 |
| | | 1215 | 1673 | 2455 | 2520 |
| | | 2794 | 3428 | 3554 | 3597 |
| | | 4032 | 4127 | 4191 | 4309 |
| | | 4535 | 4625 | 4671 | 4928 |
| | | 5449 | 5549 | 5612 | 5859 |
| | | 6289 | 6403 | 6775 | |
| Alw I | (17) | 434 | 1287 | 1354 | 1533 |
| | | 2470 | 2488 | 2499 | 3066 |
| | | 3570 | 4929 | 5015 | 5015 |
| | | 5112 | 5113 | 5577 | 6554 |
| | | 6583 | | | |
| AlwN I | (1) | 4783 | | | |
| Apa I | (1) | 2992 | | | |
| ApaL I | (2) | 4681 | 6370 | | |
| Apo I | (5) | 175 | 233 | 2550 | 2678 |
| | | 6838 | | | |
| Asc I | (1) | 2499 | | | |
| Ase I | (5) | 122 | 3903 | 4138 | 4197 |
| | | 5432 | | | |
| Asp718 | (2) | 565 | 2480 | | |
| Ava I | (8) | 339 | 377 | 403 | 3094 |
| | | 3120 | 3158 | 5987 | 6891 |
| Ava II | (7) | 355 | 1625 | 3143 | 5398 |

| | | | | | |
|---|---|---|---|---|---|
| | | 5620 | 5894 | 6535 | |
| Avr II | (1) | 915 | | | |
| BamH I | (1) | 2492 | | | |
| Ban I | (7) | 565 | 1108 | 1143 | 2354 |
| | | 2480 | 4111 | 5208 | |
| Ban II | (5) | 347 | 1474 | 2992 | 3158 |
| | | 3430 | | | |
| Bbe I | (1) | 1112 | | | |
| Bbv I | (19) | 25 | 337 | 340 | 398 |
| | | 532 | 1182 | 1224 | 1745 |
| | | 2958 | 3057 | 4786 | 4789 |
| | | 4995 | 5689 | 5927 | 6012 |
| | | 6056 | 6072 | 6444 | |
| Bcl I | (1) | 6293 | | | |
| Bcn I | (16) | 341 | 342 | 405 | 406 |
| | | 1114 | 1274 | 2814 | 2963 |
| | | 3096 | 3097 | 3160 | 3161 |
| | | 4000 | 4748 | 5444 | 5791 |
| Bfa I | (16) | 17 | 28 | 318 | 513 |
| | | 916 | 970 | 2542 | 2589 |
| | | 2713 | 3181 | 3540 | 3551 |
| | | 4862 | 5115 | 5450 | 6776 |
| Bgl I | (7) | 504 | 868 | 1979 | 2101 |
| | | 2172 | 5380 | 6727 | |
| Bgl II | (1) | 2544 | | | |
| Blp I | (1) | 6404 | | | |
| Bpm I | (2) | 5330 | 6347 | | |
| Bsa I | (2) | 2808 | 5321 | | |
| BsaA I | (6) | 1413 | 2229 | 2596 | 3277 |
| | | 3335 | 6852 | | |
| BsaH I | (7) | 1109 | 1811 | 2011 | 2064 |
| | | 2147 | 2333 | 6149 | |
| BsaJ I | (38) | 289 | 290 | 339 | 340 |
| | | 403 | 476 | 502 | 526 |
| | | 627 | 699 | 822 | 857 |
| | | 866 | 915 | 1272 | 1541 |
| | | 2249 | 2524 | 2812 | 2960 |
| | | 3021 | 3094 | 3157 | 3158 |
| | | 3207 | 3208 | 3675 | 3786 |
| | | 4106 | 4527 | 5780 | 5803 |
| | | 5986 | 6017 | 6324 | 6388 |
| | | 6527 | 6869 | | |
| BsaW I | (10) | 352 | 1140 | 2477 | 3145 |
| | | 3813 | 3825 | 4573 | 4720 |
| | | 5551 | 6561 | | |
| BseR I | (1) | 911 | | | |
| Bsg I | (1) | 3917 | | | |
| BsiC I | (2) | 1791 | 2583 | | |
| BsiE I | (7) | 1018 | 1893 | 3372 | 4283 |
| | | 4707 | 5630 | 6476 | |
| BsiHKA I | (5) | 1222 | 1412 | 3430 | 4685 |
| | | 6374 | | | |
| BsiW I | (1) | 51 | | | |
| Bsm I | (2) | 2708 | 3512 | | |
| BsmA I | (4) | 959 | 2322 | 2807 | 5322 |
| BsmF I | (17) | 281 | 291 | 410 | 609 |
| | | 681 | 745 | 1260 | 1792 |
| | | 2064 | 2215 | 2383 | 2830 |
| | | 2913 | 3087 | 3206 | 3216 |
| | | 6651 | | | |
| BsoF I | (63) | 14 | 326 | 329 | 336 |
| | | 387 | 454 | 521 | 863 |
| | | 1018 | 1070 | 1081 | 1171 |
| | | 1176 | 1213 | 1254 | 1341 |
| | | 1344 | 1347 | 1583 | 1679 |
| | | 1720 | 1734 | 1835 | 1890 |
| | | 1893 | 2947 | 3046 | 3113 |
| | | 3164 | 3171 | 3174 | 3436 |
| | | 3555 | 3657 | 3688 | 3691 |
| | | 3806 | 3918 | 3965 | 4192 |
| | | 4273 | 4291 | 4294 | 4412 |
| | | 4567 | 4710 | 4775 | 4778 |
| | | 4984 | 5312 | 5651 | 5678 |
| | | 5773 | 5916 | 6001 | 6045 |
| | | 6061 | 6216 | 6283 | 6433 |
| | | 6542 | 6622 | 6719 | |
| Bsp120 I | (1) | 2988 | | | |
| Bsp1286 I | (1) | 1412 | | | |
| BspH I | (1) | 5087 | | | |
| BspM I | (4) | 996 | 1377 | 1827 | 6442 |
| BspM II | (2) | 3813 | 3825 | | |
| Bsr I | (22) | 801 | 1052 | 1253 | 2185 |
| | | 2485 | 2493 | 2865 | 2975 |
| | | 3796 | 4168 | 4774 | 4787 |
| | | 4901 | 5307 | 5425 | 5468 |
| | | 5735 | 5830 | 5895 | 6633 |
| | | 6729 | 6751 | | |
| BsrB I | (7) | 350 | 1722 | 1776 | 1889 |
| | | 3151 | 4059 | 4300 | |
| BsrD I | (5) | 1342 | 5321 | 5495 | 6444 |

| | | | | | |
|---|---|---|---|---|---|
| | | 6737 | | | |
| BsrG I | (1) | 2562 | | | |
| BssH II | (4) | 1506 | 2499 | 4006 | 6819 |
| BssS I | (2) | 1701 | 4540 | | |
| BstB I | (2) | 1791 | 2583 | | |
| BstE II | (1) | 6255 | | | |
| BstN I | (20) | 291 | 477 | 629 | 684 |
| | | 701 | 1496 | 1979 | 2172 |
| | | 2893 | 2951 | 3023 | 3209 |
| | | 3787 | 3954 | 4107 | 4395 |
| | | 4516 | 4529 | 5749 | 6326 |
| BstU I | (24) | 1175 | 1476 | 1508 | 1949 |
| | | 2501 | 2526 | 2570 | 3368 |
| | | 3474 | 3645 | 3805 | 4008 |
| | | 4214 | 4216 | 4414 | 4995 |
| | | 5325 | 6009 | 6282 | 6347 |
| | | 6410 | 6703 | 6819 | 6821 |
| BstX I | (2) | 1830 | 2999 | | |
| BstY I | (10) | 1280 | 1526 | 2474 | 2492 |
| | | 2544 | 5008 | 5019 | 5105 |
| | | 5117 | 6576 | | |
| Cac8 I | (46) | 333 | 384 | 391 | 467 |
| | | 642 | 661 | 714 | 733 |
| | | 1003 | 1189 | 1408 | 1474 |
| | | 1480 | 1508 | 1512 | 1553 |
| | | 1557 | 1611 | 1975 | 2168 |
| | | 2501 | 3034 | 3110 | 3117 |
| | | 3168 | 3415 | 3512 | 3599 |
| | | 3753 | 4004 | 4008 | 4160 |
| | | 4189 | 4298 | 4384 | 4421 |
| | | 4981 | 5372 | 6005 | 6182 |
| | | 6287 | 6467 | 6636 | 6742 |
| | | 6746 | 6821 | | |
| Cfr10 I | (9) | 382 | 1428 | 1609 | 3115 |
| | | 3866 | 3890 | 5340 | 6691 |
| | | 6744 | | | |
| Cla I | (1) | 2513 | | | |
| Csp6 I | (18) | 52 | 566 | 1414 | 2107 |
| | | 2132 | 2187 | 2220 | 2271 |
| | | 2428 | 2481 | 2487 | 2563 |
| | | 2597 | 5741 | 5974 | 6187 |
| | | 6195 | 6678 | | |
| Dde I | (8) | 573 | 875 | 1772 | 3442 |
| | | 4642 | 5051 | 5217 | 6404 |
| Dpn I | (31) | 429 | 1282 | 1360 | 1441 |
| | | 1450 | 1528 | 2476 | 2494 |
| | | 2546 | 2615 | 3072 | 3565 |
| | | 4935 | 5010 | 5021 | 5029 |
| | | 5107 | 5119 | 5224 | 5565 |
| | | 5583 | 5629 | 6112 | 6295 |
| | | 6475 | 6485 | 6560 | 6578 |
| | | 6806 | 6827 | 6865 | |
| DpnII | (31) | 427 | 1280 | 1358 | 1439 |
| | | 1448 | 1526 | 2474 | 2492 |
| | | 2544 | 2613 | 3070 | 3563 |
| | | 4933 | 5008 | 5019 | 5027 |
| | | 5105 | 5117 | 5222 | 5563 |
| | | 5581 | 5627 | 6110 | 6293 |
| | | 6473 | 6483 | 6558 | 6576 |
| | | 6804 | 6825 | 6863 | |
| Dra I | (5) | 2577 | 2609 | 2842 | 5126 |
| | | 5145 | | | |
| Dra III | (3) | 5804 | 6232 | 6852 | |
| Drd I | (4) | 952 | 1136 | 3446 | 4475 |
| Dsa I | (9) | 502 | 526 | 822 | 1541 |
| | | 2249 | 2524 | 5803 | 6017 |
| | | 6388 | | | |
| Eae I | (11) | 505 | 1015 | 1189 | 1580 |
| | | 1607 | 1832 | 1890 | 3744 |
| | | 4206 | 5648 | 6182 | |
| Eag I | (2) | 1015 | 1890 | | |
| Ear I | (3) | 1453 | 1663 | 4251 | |
| Eco47 III | (1) | 2540 | | | |
| Eco57 I | (4) | 1254 | 1686 | 4914 | 6240 |
| EcoN I | (1) | 2983 | | | |
| EcoO109 I | (1) | 2988 | | | |
| EcoR I | (1) | 2550 | | | |
| EcoR II | (20) | 289 | 475 | 627 | 682 |
| | | 699 | 1494 | 1977 | 2170 |
| | | 2891 | 2949 | 3021 | 3207 |
| | | 3785 | 3952 | 4105 | 4393 |
| | | 4514 | 4527 | 5747 | 6324 |
| EcoR V | (1) | 3239 | | | |
| Ehe I | (1) | 1110 | | | |
| Esp I | (1) | 6404 | | | |
| Fnu4H I | (63) | 14 | 326 | 329 | 336 |
| | | 387 | 454 | 521 | 863 |
| | | 1018 | 1070 | 1081 | 1171 |
| | | 1176 | 1213 | 1254 | 1341 |
| | | 1344 | 1347 | 1583 | 1679 |

| | | | | | |
|---|---|---|---|---|---|
| | | 1720 | 1734 | 1835 | 1890 |
| | | 1893 | 2947 | 3046 | 3113 |
| | | 3164 | 3171 | 3174 | 3436 |
| | | 3555 | 3657 | 3688 | 3691 |
| | | 3806 | 3918 | 3965 | 4192 |
| | | 4273 | 4291 | 4294 | 4412 |
| | | 4567 | 4710 | 4775 | 4778 |
| | | 4984 | 5312 | 5651 | 5678 |
| | | 5773 | 5916 | 6001 | 6045 |
| | | 6061 | 6216 | 6283 | 6433 |
| | | 6542 | 6622 | 6719 | |
| Fok I | (18) | 307 | 359 | 766 | 1433 |
| | | 1458 | 2811 | 3138 | 3190 |
| | | 3692 | 3841 | 3973 | 5226 |
| | | 5407 | 5694 | 5826 | 5979 |
| | | 6223 | 6724 | | |
| Fsp I | (2) | 1211 | 5482 | | |
| Gdi II | (11) | 506 | 1014 | 1016 | 1579 |
| | | 1606 | 1831 | 1889 | 1891 |
| | | 4207 | 5647 | 6181 | |
| Gsu I | (2) | 5331 | 6346 | | |
| Hae I | (10) | 498 | 531 | 914 | 1191 |
| | | 3746 | 3782 | 4382 | 4393 |
| | | 4845 | 6814 | | |
| Hae II | (11) | 364 | 1112 | 2542 | 3141 |
| | | 3604 | 3923 | 4245 | 4615 |
| | | 6162 | 6592 | 6741 | |
| Hae III | (30) | 498 | 507 | 531 | 856 |
| | | 862 | 871 | 914 | 1017 |
| | | 1191 | 1582 | 1609 | 1834 |
| | | 1892 | 1973 | 2166 | 2990 |
| | | 3746 | 3782 | 4208 | 4382 |
| | | 4393 | 4411 | 4845 | 5303 |
| | | 5383 | 5650 | 6184 | 6218 |
| | | 6748 | 6814 | | |
| Hga I | (9) | 89 | 1818 | 2414 | 3341 |
| | | 3504 | 4477 | 5055 | 5803 |
| | | 6139 | | | |
| HgiA I | (5) | 1222 | 1412 | 3430 | 4685 |
| | | 6374 | | | |
| HgiE II | (1) | 4946 | | | |
| Hha I | (44) | 363 | 520 | 1103 | 1111 |
| | | 1175 | 1212 | 1478 | 1508 |
| | | 1510 | 1738 | 2501 | 2503 |
| | | 2541 | 3140 | 3476 | 3603 |
| | | 3846 | 3922 | 4008 | 4010 |
| | | 4151 | 4216 | 4244 | 4277 |
| | | 4547 | 4614 | 4714 | 4888 |
| | | 4997 | 5390 | 5483 | 5882 |
| | | 5932 | 6009 | 6161 | 6349 |
| | | 6410 | 6437 | 6591 | 6685 |
| | | 6705 | 6740 | 6821 | 6823 |
| HinC II | (3) | 2508 | 2558 | 2889 | |
| Hind II | (3) | 2508 | 2558 | 2889 | |
| HinD III | (2) | 931 | 2518 | | |
| Hinf I | (18) | 937 | 1594 | 1728 | 1780 |
| | | 2299 | 2585 | 2763 | 2975 |
| | | 3361 | 3469 | 3730 | 4202 |
| | | 4267 | 4342 | 4738 | 5255 |
| | | 6126 | 6339 | | |
| HinI I | (7) | 1109 | 1811 | 2011 | 2064 |
| | | 2147 | 2333 | 6149 | |
| HinP I | (44) | 361 | 518 | 1101 | 1109 |
| | | 1173 | 1210 | 1476 | 1506 |
| | | 1508 | 1736 | 2499 | 2501 |
| | | 2539 | 3138 | 3474 | 3601 |
| | | 3844 | 3920 | 4006 | 4008 |
| | | 4149 | 4214 | 4242 | 4275 |
| | | 4545 | 4612 | 4712 | 4886 |
| | | 4995 | 5388 | 5481 | 5880 |
| | | 5930 | 6007 | 6159 | 6347 |
| | | 6408 | 6435 | 6589 | 6683 |
| | | 6703 | 6738 | 6819 | 6821 |
| Hpa I | (1) | 2508 | | | |
| Hpa II | (41) | 340 | 353 | 358 | 383 |
| | | 404 | 1014 | 1091 | 1113 |
| | | 1141 | 1272 | 1362 | 1429 |
| | | 1610 | 2478 | 2496 | 2812 |
| | | 2962 | 3095 | 3116 | 3141 |
| | | 3146 | 3159 | 3814 | 3826 |
| | | 3867 | 3877 | 3891 | 3999 |
| | | 4085 | 4574 | 4721 | 4747 |
| | | 4937 | 5341 | 5375 | 5442 |
| | | 5552 | 5789 | 6562 | 6692 |
| | | 6745 | | | |
| Hph I | (11) | 1288 | 2264 | 3775 | 5104 |
| | | 5331 | 5745 | 5803 | 6119 |
| | | 6266 | 6352 | 6859 | |
| Kas I | (1) | 1108 | | | |
| Kpn I | (2) | 569 | 2484 | | |

| | | | | | |
|---|---|---|---|---|---|
| Mae I | (16) | 17 | 28 | 318 | 513 |
| | | 916 | 970 | 2542 | 2589 |
| | | 2713 | 3181 | 3540 | 3551 |
| | | 4862 | 5115 | 5450 | 6776 |
| Mae II | (24) | 50 | 54 | 304 | 1225 |
| | | 1412 | 2011 | 2023 | 2064 |
| | | 2147 | 2228 | 2333 | 2595 |
| | | 3195 | 3276 | 3334 | 3699 |
| | | 3716 | 3933 | 5070 | 5486 |
| | | 6175 | 6661 | 6851 | 6920 |
| Mae III | (27) | 46 | 248 | 1229 | 1535 |
| | | 1950 | 2037 | 2386 | 2652 |
| | | 3330 | 3390 | 3993 | 4723 |
| | | 4786 | 4902 | 5185 | 5516 |
| | | 5574 | 5727 | 5792 | 5923 |
| | | 6010 | 6054 | 6249 | 6255 |
| | | 6357 | 6687 | 6925 | |
| Mbo I | (31) | 427 | 1280 | 1358 | 1439 |
| | | 1448 | 1526 | 2474 | 2492 |
| | | 2544 | 2613 | 3070 | 3563 |
| | | 4933 | 5008 | 5019 | 5027 |
| | | 5105 | 5117 | 5222 | 5563 |
| | | 5581 | 5627 | 6110 | 6293 |
| | | 6473 | 6483 | 6558 | 6576 |
| | | 6804 | 6825 | 6863 | |
| Mbo II | (13) | 231 | 933 | 1469 | 1679 |
| | | 1761 | 3634 | 4239 | 5028 |
| | | 5101 | 6451 | 6810 | 6813 |
| | | 6846 | | | |
| Mlu I | (1) | 2568 | | | |
| Mme I | (3) | 4581 | 4765 | 6813 | |
| Mnl I | (45) | 103 | 258 | 318 | 446 |
| | | 508 | 544 | 551 | 568 |
| | | 846 | 852 | 875 | 881 |
| | | 889 | 892 | 904 | 1024 |
| | | 1160 | 1517 | 1709 | 2430 |
| | | 2922 | 3055 | 3183 | 3427 |
| | | 3613 | 3640 | 3670 | 3934 |
| | | 4216 | 4265 | 4475 | 4548 |
| | | 4799 | 5199 | 5280 | 5426 |
| | | 5632 | 5771 | 5995 | 6092 |
| | | 6132 | 6540 | 6579 | 6824 |
| | | 6899 | | | |
| Msc I | (2) | 1191 | 3746 | | |
| Mse I | (30) | 22 | 57 | 122 | 138 |
| | | 212 | 964 | 2507 | 2530 |
| | | 2534 | 2576 | 2608 | 2834 |
| | | 2841 | 3318 | 3325 | 3546 |
| | | 3759 | 3903 | 4138 | 4197 |
| | | 5073 | 5125 | 5130 | 5144 |
| | | 5197 | 5432 | 5471 | 6088 |
| | | 6604 | 6917 | | |
| Msl I | (8) | 1546 | 1828 | 1867 | 2254 |
| | | 2997 | 5512 | 5671 | 6367 |
| Msp I | (41) | 340 | 353 | 358 | 383 |
| | | 404 | 1014 | 1091 | 1113 |
| | | 1141 | 1272 | 1362 | 1429 |
| | | 1610 | 2478 | 2496 | 2812 |
| | | 2962 | 3095 | 3116 | 3141 |
| | | 3146 | 3159 | 3814 | 3826 |
| | | 3867 | 3877 | 3891 | 3999 |
| | | 4085 | 4574 | 4721 | 4747 |
| | | 4937 | 5341 | 5375 | 5442 |
| | | 5552 | 5789 | 6562 | 6692 |
| | | 6745 | | | |
| MspA1 I | (9) | 591 | 1215 | 2526 | 3912 |
| | | 4191 | 4709 | 4954 | 5918 |
| | | 6541 | | | |
| Nae I | (4) | 384 | 1611 | 3117 | 6746 |
| Nar I | (1) | 1109 | | | |
| Nci I | (16) | 340 | 341 | 404 | 405 |
| | | 1113 | 1273 | 2813 | 2962 |
| | | 3095 | 3096 | 3159 | 3160 |
| | | 3999 | 4747 | 5443 | 5790 |
| Nco I | (4) | 526 | 822 | 1541 | 2249 |
| Nde I | (2) | 2123 | 2601 | | |
| NgoM I | (4) | 382 | 1609 | 3115 | 6744 |
| Nla III | (30) | 71 | 88 | 530 | 663 |
| | | 735 | 826 | 983 | 1328 |
| | | 1514 | 1545 | 1571 | 2193 |
| | | 2253 | 2754 | 3291 | 3351 |
| | | 3514 | 3663 | 3727 | 3751 |
| | | 3981 | 4025 | 4371 | 5091 |
| | | 5582 | 5592 | 5670 | 5706 |
| | | 5949 | 6905 | | |
| Nla IV | (20) | 346 | 567 | 633 | 705 |
| | | 1110 | 1145 | 2356 | 2482 |
| | | 2494 | 2990 | 3155 | 4113 |
| | | 4399 | 4438 | 5210 | 5304 |
| | | 5345 | 5556 | 6201 | 6566 |

| | | | | | |
|---|---|---|---|---|---|
| Not I | (1) | 1890 | | | |
| Nsi I | (3) | 665 | 737 | 3512 | |
| Nsp7524 I | (6) | 84 | 659 | 731 | 1510 |
| | | 3510 | 4367 | | |
| NspB II | (9) | 591 | 1215 | 2526 | 3912 |
| | | 4191 | 4709 | 4954 | 5918 |
| | | 6541 | | | |
| NspH I | (6) | 88 | 663 | 735 | 1514 |
| | | 3514 | 4371 | | |
| Pac I | (1) | 2534 | | | |
| PaeR7 I | (1) | 6891 | | | |
| Pal I | (30) | 498 | 507 | 531 | 856 |
| | | 862 | 871 | 914 | 1017 |
| | | 1191 | 1582 | 1609 | 1834 |
| | | 1892 | 1973 | 2166 | 2990 |
| | | 3746 | 3782 | 4208 | 4382 |
| | | 4393 | 4411 | 4845 | 5303 |
| | | 5383 | 5650 | 6184 | 6218 |
| | | 6748 | 6814 | | |
| Ple I | (1) | 4746 | | | |
| Pme I | (1) | 2577 | | | |
| Psp1406 I | (1) | 5486 | | | |
| PspA I | (4) | 339 | 403 | 3094 | 3158 |
| Pst I | (4) | 6 | 471 | 1162 | 3034 |
| Pvu I | (2) | 5630 | 6476 | | |
| Pvu II | (3) | 591 | 1215 | 4191 | |
| Rsa I | (18) | 53 | 567 | 1415 | 2108 |
| | | 2133 | 2188 | 2221 | 2272 |
| | | 2429 | 2482 | 2488 | 2564 |
| | | 2598 | 5742 | 5975 | 6188 |
| | | 6196 | 6679 | | |
| Rsr II | (3) | 355 | 1625 | 3143 | |
| Sac I | (1) | 3430 | | | |
| Sac II | (1) | 2527 | | | |
| Sal I | (1) | 2556 | | | |
| Sap I | (3) | 1453 | 1663 | 4251 | |
| Sau3A I | (31) | 427 | 1280 | 1358 | 1439 |
| | | 1448 | 1526 | 2474 | 2492 |
| | | 2544 | 2613 | 3070 | 3563 |
| | | 4933 | 5008 | 5019 | 5027 |
| | | 5105 | 5117 | 5222 | 5563 |
| | | 5581 | 5627 | 6110 | 6293 |
| | | 6473 | 6483 | 6558 | 6576 |
| | | 6804 | 6825 | 6863 | |
| Sau96 I | (14) | 355 | 1625 | 1972 | 2165 |
| | | 2988 | 2989 | 3143 | 5302 |
| | | 5381 | 5398 | 5620 | 5894 |
| | | 6535 | 6747 | | |
| Sca I | (1) | 2488 | | | |
| ScrF I | (36) | 291 | 340 | 341 | 404 |
| | | 405 | 477 | 629 | 684 |
| | | 701 | 1113 | 1273 | 1496 |
| | | 1979 | 2172 | 2813 | 2893 |
| | | 2951 | 2962 | 3023 | 3095 |
| | | 3096 | 3159 | 3160 | 3209 |
| | | 3787 | 3954 | 3999 | 4107 |
| | | 4395 | 4516 | 4529 | 4747 |
| | | 5443 | 5749 | 5790 | 6326 |
| Sec I | (38) | 289 | 290 | 339 | 340 |
| | | 403 | 476 | 502 | 526 |
| | | 627 | 699 | 822 | 857 |
| | | 866 | 915 | 1272 | 1541 |
| | | 2249 | 2524 | 2812 | 2960 |
| | | 3021 | 3094 | 3157 | 3158 |
| | | 3207 | 3208 | 3675 | 3786 |
| | | 4106 | 4527 | 5780 | 5803 |
| | | 5986 | 6017 | 6324 | 6388 |
| | | 6527 | 6869 | | |
| SfaN I | (20) | 380 | 671 | 743 | 1068 |
| | | 1323 | 1407 | 1471 | 1539 |
| | | 1746 | 2247 | 2679 | 3117 |
| | | 3565 | 3620 | 3854 | 3952 |
| | | 4463 | 5515 | 5708 | 6000 |
| Sfc I | (8) | 2 | 467 | 1158 | 3030 |
| | | 4632 | 4823 | 5501 | 6350 |
| Sfi I | (2) | 504 | 868 | | |
| Sma I | (4) | 341 | 405 | 3096 | 3160 |
| SnaB I | (2) | 2229 | 2596 | | |
| Sph I | (4) | 663 | 735 | 1514 | 3514 |
| Spl I | (1) | 51 | | | |
| Srf I | (2) | 405 | 3096 | | |
| Ssp I | (2) | 2838 | 3498 | | |
| Stu I | (2) | 498 | 914 | | |
| Sty I | (8) | 526 | 822 | 915 | 1541 |
| | | 2249 | 5780 | 6527 | 6869 |
| Swa I | (1) | 2609 | | | |
| Taq I | (20) | 108 | 958 | 1222 | 1378 |
| | | 1402 | 1438 | 1600 | 1791 |
| | | 2513 | 2557 | 2583 | 4467 |
| | | 5764 | 6024 | 6124 | 6155 |
| | | 6167 | 6461 | 6476 | 6892 |
| Tfi I | (10) | 937 | 1594 | 1728 | 2585 |
| | | 2975 | 3469 | 3730 | 4202 |
| | | 4342 | 6339 | | |
| Tsp45 I | (10) | 46 | 1229 | 1535 | 3330 |
| | | 3390 | 5516 | 5727 | 5792 |
| | | 6255 | 6357 | | |
| Tth111 I | (1) | 1227 | | | |
| Tth111 II | (8) | 198 | 1545 | 3425 | 4956 |
| | | 4965 | 4995 | 6012 | 6019 |
| Vsp I | (5) | 122 | 3903 | 4138 | 4197 |
| | | 5432 | | | |
| Xba I | (1) | 2588 | | | |
| Xho I | (1) | 6891 | | | |
| Xho II | (10) | 1280 | 1526 | 2474 | 2492 |
| | | 2544 | 5008 | 5019 | 5105 |
| | | 5117 | 6576 | | |
| Xma I | (4) | 339 | 403 | 3094 | 3158 |
| Xma III | (2) | 1015 | 1890 | | |

## Site usage in PNC2:

| | | | | | |
|---|---|---|---|---|---|
| Aat II | G,ACGT`C | 4 | Acc I | GT`MK,AC | 1 |
| Acc65 I | G`GTAC,C | 2 | Aci I | C`CG,C | 86 |
| Afe I | AGC\|GCT | 1 | Afl II | C`TTAA,G | 1 |
| Afl III | A`CRYG,T | 2 | Age I | A`CCGG,T | - |
| Aha II | GR`CG,YC | 7 | Ahd I | GACNN,N`NNGTC | 1 |
| Alu I | AG\|CT | 27 | Alw I | GGATC 8/9 | 17 |
| AlwN I | CAG,NNN`CTG | 1 | Apa I | G,GGCC`C | 1 |
| ApaL I | G`TGCA,C | 2 | Apo I | R`AATT,Y | 5 |
| Asc I | GG`CGCG,CC | 1 | Ase I | AT`TA,AT | 5 |
| Asp718 | G`GTAC,C | 2 | Ava I | C`YCGR,G | 8 |
| Ava II | G`GWC,C | 7 | Avr II | C`CTAG,G | 1 |
| BamH I | G`GATC,C | 1 | Ban I | G`GYRC,C | 7 |
| Ban II | G,RGCY`C | 5 | Bbe I | G,GCGC`C | 1 |
| Bbs I | GAAGAC 8/12 | - | Bbv I | GCAGC 13/17 | 19 |
| Bbv II | GAAGAC 7/11 | - | Bcl I | T`GATC,A | 1 |
| Bcn I | CC,S`GG | 16 | Bfa I | C`TA,G | 16 |
| Bgl I | GCCN,NNN`NGGC | 7 | Bgl II | A`GATC,T | 1 |
| Blp I | GC`TNA,GC | 1 | Bpm I | CTGGAG 22/20 | 2 |
| Bsa I | GGTCTC 7/11 | 2 | BsaA I | YAC\|GTR | 6 |
| BsaB I | GATNN\|NNATC | - | BsaH I | GR`CG,YC | 7 |
| BsaJ I | C`CNNG,G | 38 | BsaW I | W`CCGG,W | 10 |
| BseR I | GAGGAG 16/14 | 1 | Bsg I | GTGCAG 22/20 | 1 |
| BsiC I | TT`CG,AA | 2 | BsiE I | CG,RY`CG | 7 |
| BsiHKA I | G,WGCW`C | 5 | BsiW I | C`GTAC,G | 1 |
| Bsm I | GAATG,C 7 | 2 | BsmA I | GTCTC`/9 | 4 |
| BsmB I | CGTCTC 7/11 | - | BsmF I | GGGAC 15/19 | 17 |
| BsoF I | GC`N,GC | 63 | Bsp120 I | G`GGCC,C | 1 |
| Bsp1286 I | G,DGCH`C | 1 | BspH I | T`CATG,A | 1 |
| BspM I | ACCTGC 10/14 | 4 | BspM II | T`CCGG,A | 2 |
| Bsr I | ACT,GG` | 22 | BsrB I | GAG\|CGG | 7 |
| BsrD I | GCAATG, 8 | 5 | BsrG I | T`GTAC,A | 1 |
| BssH II | G`CGCG,C | 4 | BssS I | C`TCGT,G | 2 |
| Bst1107 I | GTA\|TAC | - | BstB I | TT`CG,AA | 2 |
| BstE II | G`GTNAC,C | 1 | BstN I | CC`W,GG | 20 |
| BstU I | CG\|CG | 24 | BstX I | CCAN,NNNN`NTGG | 2 |
| BstY I | R`GATC,Y | 10 | Bsu36 I | CC`TNA,GG | - |
| Cac8 I | GCN\|NGC | 46 | Cfr10 I | R`CCGG,Y | 9 |
| Cla I | AT`CG,AT | 1 | Csp6 I | G`TA,C | 18 |
| Dde I | C`TNA,G | 8 | Dpn I | GA\|TC | 31 |
| DpnII | `GATC, | 31 | Dra I | TTT\|AAA | 5 |
| Dra III | CAC,NNN`GTG | 3 | Drd I | GACNN,NN`NNGTC | 4 |
| Dsa I | C`CRYG,G | 9 | Eae I | Y`GGCC,R | 11 |
| Eag I | C`GGCC,G | 2 | Ear I | CTCTTC 7/10 | 3 |
| Eco47 III | AGC\|GCT | 1 | Eco57 I | CTGAAG 21/19 | 4 |
| Eco72 I | CAC\|GTG | - | EcoN I | CCTNN`N,NNAGG | 1 |
| EcoO109 I | RG`GNC,CY | 1 | EcoR I | G`AATT,C | 1 |
| EcoR II | `CCWGG, | 20 | EcoR V | GAT\|ATC | 1 |
| Ehe I | GGC\|GCC | 1 | Esp I | GC`TNA,GC | 1 |
| Fnu4H I | GC`N,GC | 63 | Fok I | GGATG 14/18 | 18 |
| Fse I | GG,CCGG`CC | - | Fsp I | TGC\|GCA | 2 |
| Gdi II | `YGGC,CG | 11 | Gsu I | CTGGAG 21/19 | 2 |
| Hae I | WGG\|CCW | 10 | Hae II | R,GCGC`Y | 11 |
| Hae III | GG\|CC | 30 | Hga I | GACGC 9/14 | 9 |
| HgiA I | G,WGCW`C | 5 | HgiE II | ACCNNNNNNGGT -1/131 | |
| Hha I | G,CG`C | 44 | HinC II | GTY\|RAC | 3 |
| Hind II | GTY\|RAC | 3 | HinD III | A`AGCT,T | 2 |
| Hinf I | G`ANT,C | 18 | HinI I | GR`CG,YC | 7 |
| HinP I | G`CG,C | 44 | Hpa I | GTT\|AAC | 1 |
| Hpa II | C`CG,G | 41 | Hph I | GGTGA 12/11 | 11 |
| Kas I | G`GCGC,C | 1 | Kpn I | G,GTAC`C | 2 |
| Mae I | C`TA,G | 16 | Mae II | A`CG,T | 24 |
| Mae III | `GTNAC, | 27 | Mbo I | `GATC, | 31 |
| Mbo II | GAAGA 12/11 | 13 | Mlu I | A`CGCG,T | 1 |
| Mme I | TCCRAC 25/23 | 3 | Mnl I | CCTC 10/10 | 45 |
| Msc I | TGG\|CCA | 2 | Mse I | T`TA,A | 30 |
| Msl I | CAYNN\|NNRTG | 8 | Msp I | C`CG,G | 41 |
| MspA1 I | CMG\|CKG | 9 | Mun I | C`AATT,G | - |
| Nae I | GCC\|GGC | 4 | Nar I | GG`CG,CC | 1 |
| Nci I | CC`S,GG | 16 | Nco I | C`CATG,G | 4 |
| Nde I | CA`TA,TG | 2 | NgoM I | G`CCGG,C | 4 |
| Nhe I | G`CTAG,C | - | Nla III | ,CATG` | 30 |
| Nla IV | GGN\|NCC | 20 | Not I | GC`GGCC,GC | 1 |
| Nru I | TCG\|CGA | - | Nsi I | A,TGCA`T | 3 |
| Nsp7524 I | R`CATG,Y | 6 | NspB II | CMG\|CKG | 9 |
| NspH I | R,CATG`Y | 6 | Pac I | TTA,AT`TAA | 1 |
| PaeR7 I | C`TCGA,G | 1 | Pal I | GG\|CC | 30 |
| PflM I | CCAN,NNN`NTGG | - | Ple I | GAGTC 9/10 | 1 |
| Pme I | CTTT\|AAAC | 1 | Pml I | CAC\|GTG | - |
| PpuM I | RG`GWC,CY | - | Psp1406 I | AA`CG,TT | 1 |

| | | | | | |
|---|---|---|---|---|---|
| PspA I | C`CCGG,G | 4 | Pst I | C,TGCA`G | 4 |
| Pvu I | CG,AT`CG | 2 | Pvu II | CAG\|CTG | 3 |
| Rsa I | GT\|AC | 18 | Rsr II | CG`GWC,CG | 3 |
| Sac I | G,AGCT`C | 1 | Sac II | CC,GC`GG | 1 |
| Sal I | G`TCGA,C | 1 | Sap I | GCTCTTC 8/11 | 3 |
| Sau3A I | `GATC, | 31 | Sau96 I | G`GNC,C | 14 |
| Sca I | AGT\|ACT | 1 | ScrF I | CC`N,GG | 36 |
| Sec I | C`CNNG,G | 38 | SfaN I | GCATC 9/13 | 20 |
| Sfc I | C`TRYA,G | 8 | Sfi I | GGCCN,NNN`NGGCC | 2 |
| Sma I | CCC\|GGG | 4 | SnaB I | TAC\|GTA | 2 |
| Spe I | A`CTAG,T | - | Sph I | G,CATG`C | 4 |

| | | | | | |
|---|---|---|---|---|---|
| Spl I | C`GTAC,G | 1 | Srf I | GCCC\|GGGC | 2 |
| Ssp I | AAT\|ATT | 2 | Stu I | AGG\|CCT | 2 |
| Sty I | C`CWWG,G | 8 | Swa I | ATTT\|AAAT | 1 |
| Taq I | T`CG,A | 20 | Tfi I | G`AWT,C | 10 |
| Tsp45 I | `GTSAC, | 10 | Tth111 I | GACN`N,NGTC | 1 |
| Tth111 II | CAARCA 16/14 | 8 | Vsp I | AT`TA,AT | 5 |
| Xba I | T`CTAG,A | 1 | Xca I | GTA\|TAC | - |
| Xcm I | CCANNNN,N`NNNNTGG | - | Xho I | C`TCGA,G | 1 |
| Xho II | R`GATC,Y | 10 | Xma I | C`CCGG,G | 4 |
| Xma III | C`GGCC,G | 2 | Xmn I | GAANN\|NNTTC | - |