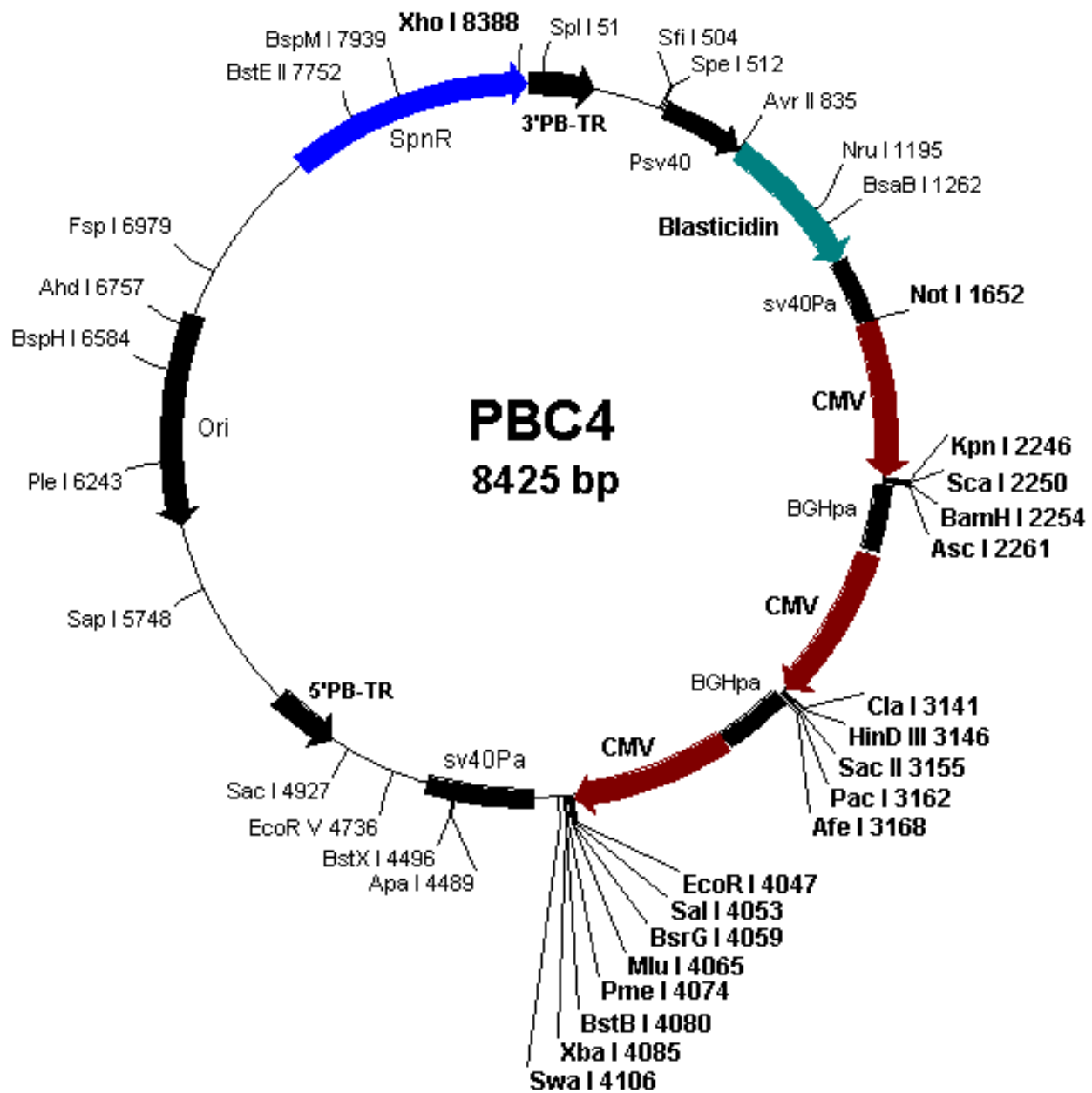


Vector: PBC4 (MOLab modified piggyBac vector with CMV promoter)

Antibiotic Selection: Spectinomycin or Blastidin-resistant

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

Date of Construction: January, 2013



PBC4 Vector Sequence

(Spectinomycin or Blastisin-resistant)

CTGCAGAACACGCAGCTAGATTAACTCTAGAAAAGATAATCATATTGTGACGTACGTTAAAGATAATCATCGTAAAATTGACGCATG
TGTTTTATCGGTCTGTATATCGAGGTTTATTTATTAATTTGAATAGATATTAAGTTTTATTATATTTACACTTACATACTAATAATA
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 AAGGCGAGATACCAAGGTAGTCGGCAATAACCCTCGAGCCACCAATGCAAAAATCCCTTAACGTGAGTTA

Unique enzymes in PBC4:

| | | |
|-----------|-----------------|------|
| BsiW I | C`GTAC,G | 51 |
| Spl I | C`GTAC,G | 51 |
| Sfi I | GGCCN,NNN`NGGCC | 504 |
| Spe I | A`CTAG,T | 512 |
| Avr II | C`CTAG,G | 835 |
| PpuM I | RG`GWC,CY | 1123 |
| Nru I | TCG CGA | 1195 |
| BsaB I | GATNN NNATC | 1262 |
| Not I | GC`GGCC,GC | 1652 |
| Acc65 I | G`GTAC,C | 2242 |
| Asp718 | G`GTAC,C | 2242 |
| Kpn I | G,GTAC`C | 2246 |
| Sca I | AGT ACT | 2250 |
| BamH I | G`GATC,C | 2254 |
| Asc I | GG`CGCG,CC | 2261 |
| Cla I | AT`CG,AT | 3141 |
| Hind III | A`AGCT,T | 3146 |
| Sac II | CC,GC`GG | 3155 |
| Pac I | TTA,AT`TAA | 3162 |
| Afe I | AGC GCT | 3168 |
| Eco47 III | AGC GCT | 3168 |
| EcoR I | G`AATT,C | 4047 |
| Sal I | G`TCGA,C | 4053 |
| Acc I | GT`MK,AC | 4054 |
| BsrG I | T`GTAC,A | 4059 |
| Mlu I | A`CGCG,T | 4065 |
| Pme I | CTTT AAAC | 4074 |
| BsiC I | TT`CG,AA | 4080 |

| | | |
|------------------------|----------------|------|
| BstB I | TT`CG,AA | 4080 |
| Xba I | T`CTAG,A | 4085 |
| Swa I | ATTT AAAT | 4106 |
| EcoN I | CCTNN`N,NNAGG | 4480 |
| Bsp120 I | G`GGCC,C | 4485 |
| Apa I | G,GGCC`C | 4489 |
| BstX I | CCAN,NNNN`NTGG | 4496 |
| EcoR V | GAT ATC | 4736 |
| Sac I | G,AGCT`C | 4927 |
| Sap I | GCTCTTC 8/11 | 5748 |
| Ear I | CTCTTC 7/10 | 5748 |
| Ple I | GAGTC 9/10 | 6243 |
| BspH I | T`CATG,A | 6584 |
| Ahd I | GACNN,N`NNGTC | 6757 |
| Fsp I | TGC GCA | 6979 |
| Psp1406 I | AA`CG,TT | 6983 |
| BstE II | G`GTNAC,C | 7752 |
| BspM I | ACCTGC 10/14 | 7939 |
| PaeR7 I | C`TCGA,G | 8388 |
| Xho I | C`TCGA,G | 8388 |
| Number of enzymes = 48 | | |

The following enzymes do not cut in PBC4:

| | | | | |
|-----------|-----------|---------|--------|--------|
| Afl II | Age I | Bbe I | Bgl II | BsmB I |
| Bsp1286 I | Bst1107 I | Bsu36 I | Ehe I | Fse I |
| Hpa I | Kas I | Mun I | Nar I | Nhe I |
| Pf1M I | Tth111 I | Xca I | Xcm I | Xmn I |

PBC4: sites sorted by name:

| | | | | | | | | | | | |
|---------|------|------|------|------|------|-----------|------|------|------|------|------|
| | | 2247 | 2255 | 2845 | 3752 | Dra III | (4) | 1369 | 7301 | 7729 | 8349 |
| | | 4362 | 4472 | 5293 | 5665 | Drd I | (3) | 1051 | 4943 | 5972 | |
| | | 6271 | 6284 | 6398 | 6804 | Dsa I | (10) | 502 | 742 | 962 | 2011 |
| | | 6922 | 6965 | 7232 | 7327 | | | 2909 | 3152 | 3816 | 7300 |
| | | 7392 | 8130 | 8226 | 8248 | | | 7514 | 7885 | | |
| BsrB I | (4) | 350 | 4648 | 5556 | 5797 | Eae I | (11) | 505 | 965 | 1080 | 1371 |
| BsrD I | (4) | 6818 | 6992 | 7941 | 8234 | | | 1652 | 2270 | 3177 | 5241 |
| BsrG I | (1) | 4059 | | | | | | 5703 | 7145 | 7679 | |
| BssH II | (3) | 2261 | 5503 | 8316 | | Eag I | (3) | 1080 | 1652 | 3177 | |
| BssS I | (2) | 1138 | 6037 | | | Ear I | (1) | 5748 | | | |
| BstB I | (1) | 4080 | | | | Eco47 III | (1) | 3168 | | | |
| BstE II | (1) | 7752 | | | | Eco57 I | (3) | 1060 | 6411 | 7737 | |
| BstN I | (28) | 291 | 477 | 549 | 604 | Eco72 I | (2) | 895 | 1393 | | |
| | | 621 | 1268 | 1741 | 1934 | EcoN I | (1) | 4480 | | | |
| | | 2358 | 2543 | 2639 | 2832 | EcoO109 I | (2) | 1123 | 4485 | | |
| | | 3265 | 3450 | 3546 | 3739 | EcoR I | (1) | 4047 | | | |
| | | 4390 | 4448 | 4520 | 4706 | EcoR II | (28) | 289 | 475 | 547 | 602 |
| | | 5284 | 5451 | 5604 | 5892 | | | 619 | 1266 | 1739 | 1932 |
| | | 6013 | 6026 | 7246 | 7823 | | | 2356 | 2541 | 2637 | 2830 |
| BstU I | (25) | 1195 | 1485 | 1711 | 2263 | | | 3263 | 3448 | 3544 | 3737 |
| | | 2609 | 3154 | 3516 | 4067 | | | 4388 | 4446 | 4518 | 4704 |
| | | 4865 | 4971 | 5142 | 5302 | | | 5282 | 5449 | 5602 | 5890 |
| | | 5505 | 5711 | 5713 | 5911 | | | 6011 | 6024 | 7244 | 7821 |
| | | 6492 | 6822 | 7506 | 7779 | EcoR V | (1) | 4736 | | | |
| | | 7844 | 7907 | 8200 | 8316 | Esp I | (2) | 1359 | 7901 | | |
| | | 8318 | | | | Fnu4H I | (59) | 14 | 326 | 329 | 336 |
| BstX I | (1) | 4496 | | | | | | 387 | 454 | 783 | 1064 |
| BstY I | (14) | 881 | 1489 | 2236 | 2254 | | | 1083 | 1157 | 1160 | 1163 |
| | | 2545 | 3134 | 3172 | 3452 | | | 1166 | 1169 | 1333 | 1419 |
| | | 4041 | 6505 | 6516 | 6602 | | | 1533 | 1652 | 1655 | 2273 |
| | | 6614 | 8073 | | | | | 3180 | 4444 | 4543 | 4610 |
| Cac8 I | (49) | 333 | 384 | 391 | 467 | | | 4661 | 4668 | 4671 | 4933 |
| | | 562 | 581 | 634 | 653 | | | 5052 | 5154 | 5185 | 5188 |
| | | 1059 | 1173 | 1465 | 1737 | | | 5303 | 5415 | 5462 | 5689 |
| | | 1930 | 2263 | 2316 | 2493 | | | 5770 | 5788 | 5791 | 5909 |
| | | 2497 | 2635 | 2828 | 3223 | | | 6064 | 6207 | 6272 | 6275 |
| | | 3400 | 3404 | 3542 | 3735 | | | 6481 | 6809 | 7148 | 7175 |
| | | 4531 | 4607 | 4614 | 4665 | | | 7270 | 7413 | 7498 | 7542 |
| | | 4912 | 5009 | 5096 | 5250 | | | 7558 | 7713 | 7780 | 7930 |
| | | 5501 | 5505 | 5657 | 5686 | | | 8039 | 8119 | 8216 | |
| | | 5795 | 5881 | 5918 | 6478 | Fok I | (21) | 307 | 359 | 686 | 1015 |
| | | 6869 | 7502 | 7679 | 7784 | | | 1250 | 1483 | 2517 | 3424 |
| | | 7964 | 8133 | 8239 | 8243 | | | 4308 | 4635 | 4687 | 5189 |
| | | 8318 | | | | | | 5338 | 5470 | 6723 | 6904 |
| Cfr10 I | (8) | 382 | 1463 | 4612 | 5363 | | | 7191 | 7323 | 7476 | 7720 |
| | | 5387 | 6837 | 8188 | 8241 | | | 8221 | | | |
| Cla I | (1) | 3141 | | | | Fsp I | (1) | 6979 | | | |
| Csp6 I | (28) | 52 | 1869 | 1894 | 1949 | Gdi II | (12) | 506 | 1079 | 1081 | 1370 |
| | | 1982 | 2033 | 2190 | 2243 | | | 1651 | 1653 | 2269 | 3176 |
| | | 2249 | 2767 | 2792 | 2847 | | | 3178 | 5704 | 7144 | 7678 |
| | | 2880 | 2931 | 3088 | 3674 | Gsu I | (4) | 1464 | 1519 | 6828 | 7843 |
| | | 3699 | 3754 | 3787 | 3838 | Hae I | (9) | 498 | 834 | 967 | 5243 |
| | | 3995 | 4060 | 4094 | 7238 | | | 5279 | 5879 | 5890 | 6342 |
| | | 7471 | 7684 | 7692 | 8175 | | | 8311 | | | |
| Dde I | (11) | 795 | 1359 | 2418 | 2527 | Hae II | (10) | 364 | 3170 | 4638 | 5101 |
| | | 3325 | 3434 | 4939 | 6139 | | | 5420 | 5742 | 6112 | 7659 |
| | | 6548 | 6714 | 7901 | | | | 8089 | 8238 | | |
| Dpn I | (39) | 429 | 883 | 888 | 1198 | Hae III | (32) | 498 | 507 | 776 | 782 |
| | | 1259 | 1273 | 1475 | 1491 | | | 834 | 967 | 1082 | 1373 |
| | | 2238 | 2256 | 2288 | 2547 | | | 1654 | 1735 | 1928 | 2272 |
| | | 3136 | 3174 | 3195 | 3454 | | | 2633 | 2826 | 3179 | 3540 |
| | | 4043 | 4112 | 4569 | 5062 | | | 3733 | 4487 | 5243 | 5279 |
| | | 6432 | 6507 | 6518 | 6526 | | | 5705 | 5879 | 5890 | 5908 |
| | | 6604 | 6616 | 6721 | 7062 | | | 6342 | 6800 | 6880 | 7147 |
| | | 7080 | 7126 | 7609 | 7792 | | | 7681 | 7715 | 8245 | 8311 |
| | | 7972 | 7982 | 8057 | 8075 | Hga I | (12) | 89 | 1042 | 1468 | 2176 |
| | | 8303 | 8324 | 8362 | | | | 3074 | 3981 | 4838 | 5001 |
| DpnII | (39) | 427 | 881 | 886 | 1196 | | | 5974 | 6552 | 7300 | 7636 |
| | | 1257 | 1271 | 1473 | 1489 | HgiA I | (3) | 4927 | 6182 | 7871 | |
| | | 2236 | 2254 | 2286 | 2545 | HgiE II | (3) | 2353 | 3260 | 6443 | |
| | | 3134 | 3172 | 3193 | 3452 | Hha I | (37) | 363 | 1063 | 1485 | 2263 |
| | | 4041 | 4110 | 4567 | 5060 | | | 2265 | 3169 | 4637 | 4973 |
| | | 6430 | 6505 | 6516 | 6524 | | | 5100 | 5343 | 5419 | 5505 |
| | | 6602 | 6614 | 6719 | 7060 | | | 5507 | 5648 | 5713 | 5741 |
| | | 7078 | 7124 | 7607 | 7790 | | | 5774 | 6044 | 6111 | 6211 |
| | | 7970 | 7980 | 8055 | 8073 | | | 6385 | 6494 | 6887 | 6980 |
| | | 8301 | 8322 | 8360 | | | | 7379 | 7429 | 7506 | 7658 |
| Dra I | (5) | 4074 | 4106 | 4339 | 6623 | | | 7846 | 7907 | 7934 | 8088 |
| | | 6642 | | | | | | 8182 | 8202 | 8237 | 8318 |

| | | | | | | | | | | | |
|----------|------|------|------|------|------|--|---------------|------|------|------|------|
| | | 8320 | | | | | | 801 | 809 | 812 | 824 |
| HinC II | (3) | 900 | 4055 | 4386 | | | | 944 | 1005 | 1346 | 1347 |
| Hind II | (3) | 900 | 4055 | 4386 | | | | 1369 | 1486 | 2192 | 2302 |
| HinD III | (1) | 3146 | | | | | | 2344 | 2390 | 2465 | 2522 |
| Hinf I | (20) | 988 | 1320 | 1409 | 1446 | | | 3090 | 3209 | 3251 | 3297 |
| | | 2061 | 2959 | 3866 | 4082 | | | 3372 | 3429 | 3997 | 4419 |
| | | 4260 | 4472 | 4858 | 4966 | | | 4552 | 4680 | 4924 | 5110 |
| | | 5227 | 5699 | 5764 | 5839 | | | 5137 | 5167 | 5431 | 5713 |
| | | 6235 | 6752 | 7623 | 7836 | | | 5762 | 5972 | 6045 | 6296 |
| HinI I | (14) | 1461 | 1773 | 1826 | 1909 | | | 6696 | 6777 | 6923 | 7129 |
| | | 2095 | 2671 | 2724 | 2807 | | | 7268 | 7492 | 7589 | 7629 |
| | | 2993 | 3578 | 3631 | 3714 | | | 8037 | 8076 | 8321 | 8396 |
| | | 3900 | 7646 | | | | Msc I (2) | 967 | 5243 | | |
| HinP I | (37) | 361 | 1061 | 1483 | 2261 | | Mse I (29) | 22 | 57 | 122 | 138 |
| | | 2263 | 3167 | 4635 | 4971 | | | 212 | 906 | 3158 | 3162 |
| | | 5098 | 5341 | 5417 | 5503 | | | 4073 | 4105 | 4331 | 4338 |
| | | 5505 | 5646 | 5711 | 5739 | | | 4815 | 4822 | 5043 | 5256 |
| | | 5772 | 6042 | 6109 | 6209 | | | 5400 | 5635 | 5694 | 6570 |
| | | 6383 | 6492 | 6885 | 6978 | | | 6622 | 6627 | 6641 | 6694 |
| | | 7377 | 7427 | 7504 | 7656 | | | 6929 | 6968 | 7585 | 8101 |
| | | 7844 | 7905 | 7932 | 8086 | | | 8414 | | | |
| | | 8180 | 8200 | 8235 | 8316 | | Msl I (7) | 2016 | 2914 | 3821 | 4494 |
| | | 8318 | | | | | | 7009 | 7168 | 7864 | |
| Hpa II | (37) | 340 | 353 | 358 | 383 | | Msp I (37) | 340 | 353 | 358 | 383 |
| | | 404 | 857 | 1456 | 1464 | | | 404 | 857 | 1456 | 1464 |
| | | 2240 | 2258 | 3176 | 4309 | | | 2240 | 2258 | 3176 | 4309 |
| | | 4459 | 4592 | 4613 | 4638 | | | 4459 | 4592 | 4613 | 4638 |
| | | 4643 | 4656 | 5311 | 5323 | | | 4643 | 4656 | 5311 | 5323 |
| | | 5364 | 5374 | 5388 | 5496 | | | 5364 | 5374 | 5388 | 5496 |
| | | 5582 | 6071 | 6218 | 6244 | | | 5582 | 6071 | 6218 | 6244 |
| | | 6434 | 6838 | 6872 | 6939 | | | 6434 | 6838 | 6872 | 6939 |
| | | 7049 | 7286 | 8059 | 8189 | | | 7049 | 7286 | 8059 | 8189 |
| | | 8242 | | | | | | 8242 | | | |
| Hph I | (13) | 959 | 2026 | 2924 | 3831 | | MspAl I (10) | 1171 | 2284 | 3154 | 3191 |
| | | 5272 | 6601 | 6828 | 7242 | | | 5409 | 5688 | 6206 | 6451 |
| | | 7300 | 7616 | 7763 | 7849 | | | 7415 | 8038 | | |
| | | 8356 | | | | | | | | | |
| | | 2246 | | | | | Nae I (4) | 384 | 1465 | 4614 | 8243 |
| Kpn I | (1) | 2246 | | | | | Nci I (17) | 340 | 341 | 404 | 405 |
| Mae I | (21) | 17 | 28 | 318 | 513 | | | 857 | 858 | 1457 | 4310 |
| | | 836 | 1073 | 1605 | 2308 | | | 4459 | 4592 | 4593 | 4656 |
| | | 2552 | 3170 | 3215 | 3459 | | | 4657 | 5496 | 6244 | 6940 |
| | | 4086 | 4210 | 4678 | 5037 | | | 7287 | | | |
| | | 5048 | 6359 | 6612 | 6947 | | Nco I (5) | 742 | 962 | 2011 | 2909 |
| | | 8273 | | | | | | 3816 | | | |
| Mae II | (36) | 50 | 54 | 304 | 894 | | Nde I (4) | 1885 | 2783 | 3690 | 4098 |
| | | 1392 | 1773 | 1785 | 1826 | | NgoM I (4) | 382 | 1463 | 4612 | 8241 |
| | | 1909 | 1990 | 2095 | 2671 | | Nla III (33) | 71 | 88 | 583 | 655 |
| | | 2683 | 2724 | 2807 | 2888 | | | 746 | 966 | 1498 | 1646 |
| | | 2993 | 3578 | 3590 | 3631 | | | 1955 | 2015 | 2499 | 2853 |
| | | 3714 | 3795 | 3900 | 4092 | | | 2913 | 3406 | 3760 | 3820 |
| | | 4692 | 4773 | 4831 | 5196 | | | 4251 | 4788 | 4848 | 5011 |
| | | 5213 | 5430 | 6567 | 6983 | | | 5160 | 5224 | 5248 | 5478 |
| | | 7672 | 8158 | 8348 | 8417 | | | 5522 | 5868 | 6588 | 7079 |
| Mae III | (32) | 46 | 248 | 1544 | 1712 | | | 7089 | 7167 | 7203 | 7446 |
| | | 1799 | 2148 | 2610 | 2697 | | | 8402 | | | |
| | | 3046 | 3517 | 3604 | 3953 | | Nla IV (23) | 346 | 553 | 625 | 1124 |
| | | 4149 | 4827 | 4887 | 5490 | | | 1240 | 2118 | 2244 | 2256 |
| | | 6220 | 6283 | 6399 | 6682 | | | 2366 | 3016 | 3273 | 3923 |
| | | 7013 | 7071 | 7224 | 7289 | | | 4487 | 4652 | 5610 | 5896 |
| | | 7420 | 7507 | 7551 | 7746 | | | 5935 | 6707 | 6801 | 6842 |
| | | 7752 | 7854 | 8184 | 8422 | | | 7053 | 7698 | 8063 | |
| Mbo I | (39) | 427 | 881 | 886 | 1196 | | Not I (1) | 1652 | | | |
| | | 1257 | 1271 | 1473 | 1489 | | Nru I (1) | 1195 | | | |
| | | 2236 | 2254 | 2286 | 2545 | | Nsi I (3) | 585 | 657 | 5009 | |
| | | 3134 | 3172 | 3193 | 3452 | | Nsp7524 I (7) | 84 | 579 | 651 | 2495 |
| | | 4041 | 4110 | 4567 | 5060 | | | 3402 | 5007 | 5864 | |
| | | 6430 | 6505 | 6516 | 6524 | | | 1171 | 2284 | 3154 | 3191 |
| | | 6602 | 6614 | 6719 | 7060 | | NspB II (10) | 5409 | 5688 | 6206 | 6451 |
| | | 7078 | 7124 | 7607 | 7790 | | | 7415 | 8038 | | |
| | | 7970 | 7980 | 8055 | 8073 | | NspH I (7) | 88 | 583 | 655 | 2499 |
| | | 8301 | 8322 | 8360 | | | | 3406 | 5011 | 5868 | |
| Mbo II | (15) | 231 | 996 | 1053 | 1081 | | Pac I (1) | 3162 | | | |
| | | 1499 | 2492 | 3399 | 5131 | | PaeR7 I (1) | 8388 | | | |
| | | 5736 | 6525 | 6598 | 7948 | | Pal I (32) | 498 | 507 | 776 | 782 |
| | | 8307 | 8310 | 8343 | | | | 834 | 967 | 1082 | 1373 |
| Mlu I | (1) | 4065 | | | | | | 1654 | 1735 | 1928 | 2272 |
| Mme I | (3) | 6078 | 6262 | 8310 | | | | 2633 | 2826 | 3179 | 3540 |
| Mnl I | (56) | 103 | 258 | 318 | 446 | | | 3733 | 4487 | 5243 | 5279 |
| | | 508 | 766 | 772 | 795 | | | 5705 | 5879 | 5890 | 5908 |

| | | | | | | | | | | | |
|-----------|---------------|----|-----------|-------------|----|-----------|--------------------|----|----------|-----------------|----|
| Hpa II | C`CG,G | 37 | Hph I | GGTGA 12/11 | 13 | PspA I | C`CCGG,G | 5 | Pst I | C,TGCA`G | 3 |
| Kas I | G`GCGC,C | - | Kpn I | G,GTAC`C | 1 | Pvu I | CG,AT`CG | 3 | Pvu II | CAG CTG | 2 |
| Mae I | C`TA,G | 21 | Mae II | A`CG,T | 36 | Rsa I | GT AC | 28 | Rsr II | CG`GWC,CG | 2 |
| Mae III | `GTNAC, | 32 | Mbo I | `GATC, | 39 | Sac I | G,AGCT`C | 1 | Sac II | CC,GC`GG | 1 |
| Mbo II | GAAGA 12/11 | 15 | Mlu I | A`CGCG,T | 1 | Sal I | G`TCGA,C | 1 | Sap I | GCTCTTC 8/11 | 1 |
| Mme I | TCCRAC 25/23 | 3 | Mnl I | CCTC 10/10 | 56 | Sau3A I | `GATC, | 39 | Sau96 I | G`GNC,C | 18 |
| Msc I | TGG CCA | 2 | Mse I | T`TA,A | 29 | Sca I | AGT ACT | 1 | ScrF I | CC`N,GG | 45 |
| Msl I | CAYNN NNRTG | 7 | Msp I | C`CG,G | 37 | Sec I | C`CNNG,G | 42 | SfaN I | GCATC 9/13 | 25 |
| MspA1 I | CMG CKG | 10 | Mun I | C`AATT,G | - | Sfc I | C`TRYA,G | 8 | Sfi I | GGCCN,NNN`NGGCC | 1 |
| Nae I | GCC GGC | 4 | Nar I | GG`CG,CC | - | Sma I | CCC GGG | 5 | SnaB I | TAC GTA | 4 |
| Nci I | CC`S,GG | 17 | Nco I | C`CATG,G | 5 | Spe I | A`CTAG,T | 1 | Sph I | G,CATG`C | 5 |
| Nde I | CA`TA,TG | 4 | NgoM I | G`CCGG,C | 4 | Spl I | C`GTAC,G | 1 | Srf I | GCCC GGGC | 2 |
| Nhe I | G`CTAG,C | - | Nla III | ,CATG` | 33 | Ssp I | AAT ATT | 2 | Stu I | AGG CCT | 2 |
| Nla IV | GGN NCC | 23 | Not I | GC`GGCC,GC | 1 | Sty I | C`CWWG,G | 9 | Swa I | ATTT AAAT | 1 |
| Nru I | TCG CGA | 1 | Nsi I | A,TGCA`T | 3 | Taq I | T`CG,A | 17 | Tfi I | G`AWT,C | 11 |
| Nsp7524 I | R`CATG,Y | 7 | NspB II | CMG CKG | 10 | Tsp45 I | `GTSAC, | 8 | Tth111 I | GACN`N,NGTC | - |
| NspH I | R,CATG`Y | 7 | Pac I | TTA,AT`TAA | 1 | Tth111 II | CAARCA 16/14 | 9 | Vsp I | AT`TA,AT | 6 |
| Paer7 I | C`TCGA,G | 1 | Pal I | GG CC | 32 | Xba I | T`CTAG,A | 1 | Xca I | GTA TAC | - |
| Pf1M I | CCAN,NNN`NTGG | - | Ple I | GAGTC 9/10 | 1 | Xcm I | CCANNNN,N`NNNNTGG- | - | Xho I | C`TCGA,G | 1 |
| Pme I | CTTT AAAC | 1 | Pml I | CAC GTG | 2 | Xho II | R`GATC,Y | 14 | Xma I | C`CCGG,G | 5 |
| PpuM I | RG`GWC,CY | 1 | Psp1406 I | AA`CG,TT | 1 | Xma III | C`GGCC,G | 3 | Xmn I | GAANN NNTTC | - |