

# **pLenti3.3/TR**

9228 bp

## Restriction/Methylation Map

| Enzyme | # of cuts | Positions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AatI   | 2         | 4801 6349                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| AatII  | 6         | 2009 2062 2145<br>2331 4300 4351                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Acc65I | 2         | 4495 5679                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| AccI   | 2         | 739 1855                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Acil   | 90        | 183 511(c) 546(c)<br>592(c) 909 920(c)<br>924 1942 1970 1982<br>1996 2163 2254(c)<br>2287(c) 2391 2412(c)<br>3367(c) 3722 3807(c)<br>3843 3852(c) 4207(c)<br>4220 4233 4343(c)<br>4384(c) 4398 4400(c)<br>4419(c) 4429 4475<br>4483 4650 4662<br>4671 4683 4693<br>4704 4750 4921<br>4984 5078(c) 5142(c)<br>5243(c) 5246(c) 5486<br>5526(c) 5531 5581(c)<br>5597 5623 6198<br>6210 6219 6231<br>6241 6252 6298<br>6508 6570(c) 6584(c)<br>6587(c) 6615 6642<br>7040(c) 7087 7186(c)<br>7295(c) 7372(c) 7416<br>7537(c) 7583 7774(c)<br>7865(c) 8227 8236(c)<br>8371 8481(c) 8602(c)<br>8621(c) 8748(c)<br>8776(c) 8867 8888<br>8895 8938(c) 8962<br>8972 9028(c) 9131(c) |
| AcsI   | 14        | 534 621 1909 1916<br>2552 2613 2806<br>2814 2963 3863<br>3917 6105 6971<br>6982                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Acyl   | 11        | 415 2006 2059 2142<br>2328 2482 3381<br>4297 4348 5012<br>7391                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| AflII  | 2         | 294 5866                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| AflIII | 2         | 3872 8819                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| AgeI   | 2         | 3878 4498                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| AluI   | 49        | 216 266 310 457 688<br>757 866 1080 1256                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

|        |    |                                                                                                                                                                                                                                                |
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|        |    | 1304 1450 1931<br>2450 2791 3140<br>3268 3322 3444<br>3740 4164 4293<br>4766 4820 4830<br>5118 5576 5710<br>5838 5882 6070<br>6192 6314 6486<br>6701 6958 7578<br>7641 7741 8262<br>8519 8565 8655<br>8881 8999 9063<br>9158 9213 9219<br>9226 |
| Alw44I | 3  | 4107 7259 8505                                                                                                                                                                                                                                 |
| AlwI   | 24 | 364(c) 787 1303<br>1756(c) 1790 2524(c)<br>2537 3849(c) 3862<br>4468 4856 4880<br>5191 5256(c) 5437<br>5936(c) 7292 7296(c)<br>7613 8076(c) 8077<br>8173(c) 8175 8261                                                                          |
| AlwNI  | 4  | 1223 1307 3143<br>8410                                                                                                                                                                                                                         |
| Aosl   | 3  | 5114 6536 7708                                                                                                                                                                                                                                 |
| Apal   | 1  | 3099                                                                                                                                                                                                                                           |
| ApaLI  | 3  | 4107 7259 8505                                                                                                                                                                                                                                 |
| Apol   | 14 | 534 621 1909 1916<br>2552 2613 2806<br>2814 2963 3863<br>3917 6105 6971<br>6982                                                                                                                                                                |
| Asel   | 3  | 7756 8991 9050                                                                                                                                                                                                                                 |
| Asnl   | 3  | 7756 8991 9050                                                                                                                                                                                                                                 |
| Asp700 | 2  | 621 7331                                                                                                                                                                                                                                       |
| Asp718 | 2  | 4495 5679                                                                                                                                                                                                                                      |
| AspEI  | 1  | 7931                                                                                                                                                                                                                                           |
| AspHI  | 10 | 268 459 2452 4111<br>5125 5315 5840<br>7263 7348 8509                                                                                                                                                                                          |
| Aspl   | 1  | 5130                                                                                                                                                                                                                                           |
| Aval   | 3  | 1700 3858 4823                                                                                                                                                                                                                                 |
| Avall  | 8  | 1707 2578 2688<br>3840 4386 5528<br>7567 7789                                                                                                                                                                                                  |
| Avill  | 3  | 5114 6536 7708                                                                                                                                                                                                                                 |
| AvrII  | 2  | 4802 6350                                                                                                                                                                                                                                      |
| BamHI  | 2  | 2529 3854                                                                                                                                                                                                                                      |
| BanI   | 10 | 414 2349 3408 4495<br>5011 5046 5679<br>6747 7978 9075                                                                                                                                                                                         |
| BanII  | 8  | 268 459 2452 3099<br>4251 5377 5840                                                                                                                                                                                                            |

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|       |    | 6717                                                                                                                                                                                                                                 |
| BbsI  | 3  | 2518 4426(c) 5781                                                                                                                                                                                                                    |
| BbvI  | 32 | 1116 1137 1190<br>1193 1265 3255(c)<br>3346 3966(c) 4222(c)<br>4298(c) 4394(c)<br>4959(c) 5085 5127<br>5143(c) 5236(c) 5648<br>5719 6079 6476<br>6549 6618 7497(c)<br>7888 8191(c) 8397(c)<br>8400(c) 8490 8909<br>8927 9008 9206(c) |
| Bcgl  | 1  | 7393(c)                                                                                                                                                                                                                              |
| BcII  | 3  | 3754 3798 4853                                                                                                                                                                                                                       |
| BfaI  | 25 | 213 279 365 406 543<br>553 689 1366 2524<br>2536 3228 3323<br>3602 3868 4803<br>5851 5937 5978<br>6140 6189 6351<br>6635 7738 8073<br>8326                                                                                           |
| BfRI  | 2  | 294 5866                                                                                                                                                                                                                             |
| BglI  | 6  | 1974 2096 2167<br>6303 6546 7813                                                                                                                                                                                                     |
| BglII | 4  | 250 5715 5781 5822                                                                                                                                                                                                                   |
| BlnI  | 2  | 4802 6350                                                                                                                                                                                                                            |
| BmyI  | 19 | 268 341 459 2452<br>3099 4111 4251<br>4264 4958 5051<br>5125 5315 5377<br>5840 5913 6717<br>7263 7348 8509                                                                                                                           |
| Bpml  | 5  | 7 961 1242(c) 2497<br>7862                                                                                                                                                                                                           |
| BpuAI | 3  | 2518 4426(c) 5781                                                                                                                                                                                                                    |
| BsaAI | 4  | 2224 3461 5316<br>6788                                                                                                                                                                                                               |
| BsaBI | 1  | 4871                                                                                                                                                                                                                                 |
| BsaHI | 11 | 415 2006 2059 2142<br>2328 2482 3381<br>4297 4348 5012<br>7391                                                                                                                                                                       |
| BsaI  | 3  | 238 5810 7865                                                                                                                                                                                                                        |
| BsaJI | 33 | 259 635 858 1027<br>1088 1307 1356<br>1701 2244 2684<br>3143 3760 3858<br>4202 4274 4306<br>4398 4514 4586<br>4709 4744 4802<br>4823 5175 5444<br>5831 6257 6292<br>6301 6350 6436                                                   |

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|          |    | 8659 9080                                                                                                                            |
| BsaWI    | 6  | 3878 4498 5043<br>7635 8466 8613                                                                                                     |
| BsgI     | 4  | 1068 1197 1858<br>3786                                                                                                               |
| BsiEI    | 8  | 122 924 4921 6517<br>7413 7562 8485<br>8909                                                                                          |
| BsiHKA I | 10 | 268 459 2452 4111<br>5125 5315 5840<br>7263 7348 8509                                                                                |
| BsiYI    | 23 | 101 424 945 1277<br>3434 4088 4139<br>4238 4307 4399<br>4410 4492 4710<br>4993 5537 6258<br>6569 6895 8341<br>8620 8786 8804<br>8978 |
| BsII     | 23 | 101 424 945 1277<br>3434 4088 4139<br>4238 4307 4399<br>4410 4492 4710<br>4993 5537 6258<br>6569 6895 8341<br>8620 8786 8804<br>8978 |
| BsmAI    | 12 | 238 1744(c) 1750(c)<br>2318 2473(c) 2746<br>3175 4064 4854(c)<br>5810 7089(c) 7865                                                   |
| BsmFI    | 20 | 440 765 972 1437<br>1720 2059 2210<br>2378 2591 2656(c)<br>4188 4348(c) 4359<br>4496(c) 4568(c)<br>4632(c) 5163 5759<br>6368 6569    |
| Bsml     | 3  | 1367 3613 6135(c)                                                                                                                    |
| Bsp120I  | 1  | 3095                                                                                                                                 |
| Bsp1286I | 19 | 268 341 459 2452<br>3099 4111 4251<br>4264 4958 5051<br>5125 5315 5377<br>5840 5913 6717<br>7263 7348 8509                           |
| BspDI    | 1  | 1924                                                                                                                                 |
| BspHI    | 3  | 2694 7091 8099                                                                                                                       |
| BspMI    | 2  | 4899(c) 5280                                                                                                                         |
| BspWI    | 57 | 320 494 917 1120<br>1209 1226 1484<br>1974 2096 2128<br>2167 2260 2284<br>2490 3373 3617<br>3626 3773 4106                           |

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|        |    | 4228 4232 4324<br>4416 4428 4547<br>4619 4670 4749<br>4755 5003 5087<br>5110 5249 5255<br>5372 5408 5455<br>5892 6218 6297<br>6303 6516 6546<br>6579 6581 6623<br>6650 6680 7813<br>8201 8773 8887<br>8954 9038 9082<br>9181 9219 |
| BsrBI  | 5  | 5625(c) 6644(c)<br>7089(c) 8890(c) 9131                                                                                                                                                                                           |
| BsrDI  | 5  | 185(c) 4145(c) 5245<br>7697 7871(c)                                                                                                                                                                                               |
| BsrFI  | 7  | 3878 4410 4498<br>5331 5512 6683<br>7846                                                                                                                                                                                          |
| BsrI   | 24 | 522 753 2179(c)<br>2541(c) 3939 4140<br>4687(c) 4956 5157<br>5753 5805 6235(c)<br>6405 6431 6877<br>7286 7456(c) 7725<br>7768 7886 8292<br>8404(c) 8417(c) 9025                                                                   |
| BssHII | 4  | 488 5409 6392 9180                                                                                                                                                                                                                |
| BstNI  | 26 | 260 636 711 940<br>1260 1272 1308<br>1412 1974 2167<br>2476 3012 3144<br>4050 4332 4487<br>4516 4571 4588<br>5399 5832 6438<br>8660 8673 8794<br>9082                                                                             |
| BstUI  | 26 | 490 610 1944 3504<br>3845 3874 4343<br>4400 4431 5078<br>5379 5411 6392<br>6394 6560 6584<br>6604 6980 7040<br>7372 7865 8195<br>8776 8974 8976<br>9182                                                                           |
| BstXI  | 1  | 2548                                                                                                                                                                                                                              |
| BstYI  | 20 | 250 369 1761 1782<br>2529 3854 4460<br>4848 5183 5429<br>5715 5781 5822<br>5941 7284 7301<br>8069 8081 8167<br>8178                                                                                                               |

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| CfoI   | 40 | 417 490 492 1125<br>1214 3260 3629<br>4343 5006 5014<br>5078 5115 5381<br>5411 5413 5641<br>6394 6396 6537<br>6562 6575 6584<br>6606 6632 6640<br>7040 7372 7709<br>7802 8195 8304<br>8478 8578 8645<br>8915 8948 8976<br>9041 9182 9184                    |
| Cfr10I | 7  | 3878 4410 4498<br>5331 5512 6683<br>7846                                                                                                                                                                                                                    |
| Clal   | 1  | 1924                                                                                                                                                                                                                                                        |
| Csp6I  | 23 | 116 525 1146 1632<br>1832 2102 2127<br>2182 2215 2266<br>2423 2846 2896<br>3518 3528 3847<br>3876 4496 5317<br>5680 5798 6359<br>7449                                                                                                                       |
| Ddel   | 19 | 254 375 791 1197<br>3082 3385 3494<br>3623 4448 4762<br>5675 5719 5826<br>5947 6310 7430<br>7970 8136 8545                                                                                                                                                  |
| DpnI   | 44 | 121 252 371 607 781<br>796 930 1297 1763<br>1784 2471 2531<br>3666 3756 3800<br>3856 3892 4462<br>4850 4855 4874<br>5185 5263 5344<br>5353 5431 5717<br>5783 5824 5943<br>6516 7250 7286<br>7303 7561 7607<br>7625 7966 8071<br>8083 8161 8169<br>8180 8255 |
| DpnII  | 44 | 119 250 369 605 779<br>794 928 1295 1761<br>1782 2469 2529<br>3664 3754 3798<br>3854 3890 4460<br>4848 4853 4872<br>5183 5261 5342<br>5351 5429 5715<br>5781 5822 5941<br>6514 7248 7284                                                                    |

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|          |    | 7301 7559 7605<br>7623 7964 8069<br>8081 8159 8167<br>8178 8253                                                                                                                                                       |
| DraI     | 6  | 1808 2813 5732<br>7353 8045 8064                                                                                                                                                                                      |
| DraII    | 3  | 1707 2578 3096                                                                                                                                                                                                        |
| DraIII   | 1  | 6791                                                                                                                                                                                                                  |
| DrdI     | 3  | 5039 6835 8717                                                                                                                                                                                                        |
| DsaI     | 9  | 2244 2684 4202<br>4274 4306 4398<br>4709 5444 6257                                                                                                                                                                    |
| DsaV     | 37 | 258 634 709 938<br>1258 1270 1306<br>1410 1972 2165<br>2474 3010 3092<br>3142 3857 3858<br>4048 4171 4330<br>4485 4514 4569<br>4586 4822 4823<br>5014 5174 5397<br>5830 6436 7393<br>7744 8440 8658<br>8671 8792 9080 |
| EaeI     | 8  | 921 4918 5092 5483<br>5510 6402 7538<br>8980                                                                                                                                                                          |
| EagI     | 2  | 921 4918                                                                                                                                                                                                              |
| Eam1105I | 1  | 7931                                                                                                                                                                                                                  |
| EarI     | 8  | 879(c) 1034(c) 4430<br>5356(c) 5566(c)<br>6495(c) 7132(c)<br>8936(c)                                                                                                                                                  |
| Ecl136II | 4  | 266 457 2450 5838                                                                                                                                                                                                     |
| EclXI    | 2  | 921 4918                                                                                                                                                                                                              |
| Eco47III | 1  | 3628                                                                                                                                                                                                                  |
| Eco57I   | 8  | 504 755(c) 917(c)<br>2884(c) 5158 5590<br>7265 8277(c)                                                                                                                                                                |
| EcoNI    | 2  | 943 3432                                                                                                                                                                                                              |
| EcoO109I | 3  | 1707 2578 3096                                                                                                                                                                                                        |
| EcoRI    | 2  | 2552 3863                                                                                                                                                                                                             |
| EcoRII   | 26 | 258 634 709 938<br>1258 1270 1306<br>1410 1972 2165<br>2474 3010 3142<br>4048 4330 4485<br>4514 4569 4586<br>5397 5830 6436<br>8658 8671 8792<br>9080                                                                 |
| EcoRV    | 1  | 2564                                                                                                                                                                                                                  |
| Esp3I    | 1  | 2473(c)                                                                                                                                                                                                               |
| Fnu4HI   | 59 | 183 512 921 924                                                                                                                                                                                                       |

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|        |    | 1105 1126 1179<br>1182 1254 3269<br>3335 3722 3980<br>4220 4236 4312<br>4401 4408 4420<br>4475 4750 4921<br>4973 4984 5074<br>5079 5116 5157<br>5244 5247 5250<br>5486 5582 5623<br>5637 5708 6068<br>6298 6465 6538<br>6571 6585 6607<br>7187 7416 7511<br>7538 7877 8205<br>8411 8414 8479<br>8622 8777 8895<br>8898 8916 8997<br>9220 |
| FnuDII | 26 | 490 610 1944 3504<br>3845 3874 4343<br>4400 4431 5078<br>5379 5411 6392<br>6394 6560 6584<br>6604 6980 7040<br>7372 7865 8195<br>8776 8974 8976<br>9182                                                                                                                                                                                  |
| FokI   | 14 | 751(c) 1427 2472(c)<br>2994(c) 3006(c)<br>4653(c) 4879 5336<br>5361 6201(c) 6456(c)<br>7492 7779 7960                                                                                                                                                                                                                                    |
| Fspl   | 3  | 5114 6536 7708                                                                                                                                                                                                                                                                                                                           |
| HaeII  | 7  | 418 3630 5015 6633<br>6641 8579 8949                                                                                                                                                                                                                                                                                                     |
| HaeIII | 38 | 634 714 923 1152<br>1718 1968 2161<br>3097 3535 3789<br>4080 4372 4403<br>4422 4474 4743<br>4749 4801 4920<br>5094 5485 5512<br>6291 6297 6306<br>6349 6404 6506<br>6796 6938 7540<br>7807 7887 8345<br>8779 8797 8808<br>8982                                                                                                           |
| HgaI   | 14 | 474 568(c) 1117(c)<br>1145 2410 2490<br>3389 3880 4132<br>4420(c) 6566 7399<br>8129(c) 8707(c)                                                                                                                                                                                                                                           |
| HgiAI  | 10 | 268 459 2452 4111                                                                                                                                                                                                                                                                                                                        |

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|         |    | 5125 5315 5840<br>7263 7348 8509                                                                                                                                                                                                         |
| HhaI    | 40 | 417 490 492 1125<br>1214 3260 3629<br>4343 5006 5014<br>5078 5115 5381<br>5411 5413 5641<br>6394 6396 6537<br>6562 6575 6584<br>6606 6632 6640<br>7040 7372 7709<br>7802 8195 8304<br>8478 8578 8645<br>8915 8948 8976<br>9041 9182 9184 |
| HinP1I  | 40 | 415 488 490 1123<br>1212 3258 3627<br>4341 5004 5012<br>5076 5113 5379<br>5409 5411 5639<br>6392 6394 6535<br>6560 6573 6582<br>6604 6630 6638<br>7038 7370 7707<br>7800 8193 8302<br>8476 8576 8643<br>8913 8946 8974<br>9039 9180 9182 |
| HincII  | 2  | 1801 2730                                                                                                                                                                                                                                |
| HindII  | 2  | 1801 2730                                                                                                                                                                                                                                |
| HindIII | 6  | 308 864 1448 1929<br>5880 9224                                                                                                                                                                                                           |
| Hinfl   | 24 | 354 472 696 1267<br>1400 1473 2294<br>2520 3084 3201<br>3285 4335 4455<br>5497 5631 5926<br>6380 6836 6858<br>7932 8449 8845<br>8920 8985                                                                                                |
| HpaI    | 1  | 1801                                                                                                                                                                                                                                     |
| HpaII   | 26 | 3093 3859 3879<br>4172 4411 4499<br>4824 4917 4994<br>5016 5044 5175<br>5265 5332 5513<br>6684 7394 7636<br>7746 7813 7847<br>8251 8441 8467<br>8614 9103                                                                                |
| HphI    | 12 | 532 1660(c) 2260<br>2673(c) 3749(c)<br>5190(c) 6788 7204(c)<br>7239 7445(c) 7861<br>8088                                                                                                                                                 |

|         |    |                                                                                                                                                                                                                                                                                                                                                             |
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| Ital    | 59 | 183 512 921 924<br>1105 1126 1179<br>1182 1254 3269<br>3335 3722 3980<br>4220 4236 4312<br>4401 4408 4420<br>4475 4750 4921<br>4973 4984 5074<br>5079 5116 5157<br>5244 5247 5250<br>5486 5582 5623<br>5637 5708 6068<br>6298 6465 6538<br>6571 6585 6607<br>7187 7416 7511<br>7538 7877 8205<br>8411 8414 8479<br>8622 8777 8895<br>8898 8916 8997<br>9220 |
| Kasl    | 2  | 414 5011                                                                                                                                                                                                                                                                                                                                                    |
| Kpnl    | 2  | 4499 5683                                                                                                                                                                                                                                                                                                                                                   |
| Ksp632l | 8  | 879(c) 1034(c) 4430<br>5356(c) 5566(c)<br>6495(c) 7132(c)<br>8936(c)                                                                                                                                                                                                                                                                                        |
| Kspl    | 1  | 4401                                                                                                                                                                                                                                                                                                                                                        |
| Mael    | 25 | 213 279 365 406 543<br>553 689 1366 2524<br>2536 3228 3323<br>3602 3868 4803<br>5851 5937 5978<br>6140 6189 6351<br>6635 7738 8073<br>8326                                                                                                                                                                                                                  |
| Maell   | 23 | 2006 2018 2059<br>2142 2223 2328<br>3151 3460 4095<br>4297 4348 4361<br>5128 5315 6357<br>6418 6677 6787<br>6830 6842 7329<br>7702 8118                                                                                                                                                                                                                     |
| MaeIII  | 26 | 41 351 360 1945<br>2032 2381 2768<br>2800 3040 5132<br>5438 5923 5932<br>6079 6422 6442<br>6598 6610 7270<br>7458 7611 7669<br>8000 8283 8399<br>8462                                                                                                                                                                                                       |
| Maml    | 1  | 4871                                                                                                                                                                                                                                                                                                                                                        |
| Mbol    | 44 | 119 250 369 605 779<br>794 928 1295 1761                                                                                                                                                                                                                                                                                                                    |

|       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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|       |    | 1782 2469 2529<br>3664 3754 3798<br>3854 3890 4460<br>4848 4853 4872<br>5183 5261 5342<br>5351 5429 5715<br>5781 5822 5941<br>6514 7248 7284<br>7301 7559 7605<br>7623 7964 8069<br>8081 8159 8167<br>8178 8253                                                                                                                                                                                                                                                                                                                       |
| Mboll | 27 | 797 896 923(c) 1051<br>1482 1743 1746<br>2523 2677 3116(c)<br>3674 3701 4417(c)<br>4426(c) 5373 5583<br>5663(c) 5786 6512<br>6649(c) 7149 7258<br>7336 8091 8162(c)<br>8314(c) 8953                                                                                                                                                                                                                                                                                                                                                   |
| Mcrl  | 8  | 122 924 4921 6517<br>7413 7562 8485<br>8909                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Mfel  | 2  | 962 2920                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Mlul  | 1  | 3872                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| MluNI | 1  | 5094                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Mnll  | 68 | 310 384 445(c)<br>494(c) 499(c) 542(c)<br>830 874(c) 936(c)<br>939(c) 949(c) 1192(c)<br>1202(c) 1593(c)<br>1696(c) 1701 2425(c)<br>2513 2520(c) 2622(c)<br>2702 2755 3061(c)<br>3110 3271(c) 3914<br>4044 4062(c) 4201<br>4384 4433 4457<br>4488 4733(c) 4739(c)<br>4763 4769 4776(c)<br>4779(c) 4791(c)<br>4863(c) 4927(c)<br>5063(c) 5420(c) 5613<br>5670(c) 5882 5956<br>6044(c) 6281(c)<br>6287(c) 6311 6317<br>6324(c) 6327(c)<br>6339(c) 6496(c) 6761<br>7558(c) 7764(c) 7911<br>7992 8392 8642(c)<br>8716 8925(c) 8975<br>9203 |
| MscI  | 1  | 5094                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| MseI  | 45 | 205 295 588 629 659<br>705 1435 1452 1464                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

|        |    |                                                                                                                                                                                                                      |
|--------|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        |    | 1549 1614 1800<br>1807 2781 2812<br>2932 3252 3273<br>3296 3825 3944<br>3985 5686 5731<br>5867 6453 6578<br>6849 6947 6964<br>6975 6987 6998<br>7352 7717 7756<br>7991 8044 8058<br>8063 8115 8991<br>9050 9188 9228 |
| MslI   | 10 | 1350 2249 3115<br>3395 3504 3762<br>5449 7160 7519<br>7678                                                                                                                                                           |
| MspA1I | 12 | 926 3852 4235 4384<br>4400 5118 5710<br>6486 7295 8236<br>8481 8999                                                                                                                                                  |
| MspI   | 26 | 3093 3859 3879<br>4172 4411 4499<br>4824 4917 4994<br>5016 5044 5175<br>5265 5332 5513<br>6684 7394 7636<br>7746 7813 7847<br>8251 8441 8467<br>8614 9103                                                            |
| MunI   | 2  | 962 2920                                                                                                                                                                                                             |
| MvaI   | 26 | 260 636 711 940<br>1260 1272 1308<br>1412 1974 2167<br>2476 3012 3144<br>4050 4332 4487<br>4516 4571 4588<br>5399 5832 6438<br>8660 8673 8794<br>9082                                                                |
| MvnI   | 26 | 490 610 1944 3504<br>3845 3874 4343<br>4400 4431 5078<br>5379 5411 6392<br>6394 6560 6584<br>6604 6980 7040<br>7372 7865 8195<br>8776 8974 8976<br>9182                                                              |
| MwoI   | 57 | 320 494 917 1120<br>1209 1226 1484<br>1974 2096 2128<br>2167 2260 2284<br>2490 3373 3617<br>3626 3773 4106<br>4228 4232 4324                                                                                         |

|        |    |                                                                                                                                                                                                                                                             |
|--------|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        |    | 4416 4428 4547<br>4619 4670 4749<br>4755 5003 5087<br>5110 5249 5255<br>5372 5408 5455<br>5892 6218 6297<br>6303 6516 6546<br>6579 6581 6623<br>6650 6680 7813<br>8201 8773 8887<br>8954 9038 9082<br>9181 9219                                             |
| NaeI   | 3  | 4412 5514 6685                                                                                                                                                                                                                                              |
| NarI   | 2  | 415 5012                                                                                                                                                                                                                                                    |
| NciI   | 11 | 3094 3859 3860<br>4173 4824 4825<br>5016 5176 7395<br>7746 8442                                                                                                                                                                                             |
| NcoI   | 6  | 2244 2684 4306<br>4709 5444 6257                                                                                                                                                                                                                            |
| NdeI   | 2  | 2118 3803                                                                                                                                                                                                                                                   |
| NdeII  | 44 | 119 250 369 605 779<br>794 928 1295 1761<br>1782 2469 2529<br>3664 3754 3798<br>3854 3890 4460<br>4848 4853 4872<br>5183 5261 5342<br>5351 5429 5715<br>5781 5822 5941<br>6514 7248 7284<br>7301 7559 7605<br>7623 7964 8069<br>8081 8159 8167<br>8178 8253 |
| NgoMI  | 3  | 4410 5512 6683                                                                                                                                                                                                                                              |
| NlaIII | 33 | 41 63 94 160 2188<br>2248 2621 2688<br>2698 3114 3120<br>3356 4003 4310<br>4550 4622 4713<br>4886 5231 5417<br>5448 5474 5996<br>6181 6261 7095<br>7488 7524 7602<br>7612 8103 8823<br>9169                                                                 |
| NlaIV  | 32 | 285 416 1708 1709<br>2351 2531 2579<br>2580 2690 3097<br>3098 3410 3841<br>3856 4497 4520<br>4592 5013 5048<br>5681 5857 6716<br>6728 6749 7044                                                                                                             |

|          |    |                                                                                                                                                                                                                                                             |
|----------|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |    | 7634 7845 7886<br>7980 8752 8791<br>9077                                                                                                                                                                                                                    |
| NotI     | 1  | 921                                                                                                                                                                                                                                                         |
| NruI     | 2  | 610 3504                                                                                                                                                                                                                                                    |
| NsiI     | 3  | 3613 4552 4624                                                                                                                                                                                                                                              |
| Nspl     | 7  | 63 94 3356 4550<br>4622 5417 8823                                                                                                                                                                                                                           |
| PfiMI    | 1  | 4139                                                                                                                                                                                                                                                        |
| PinAI    | 2  | 3878 4498                                                                                                                                                                                                                                                   |
| PleI     | 14 | 348(c) 466(c) 2288(c)<br>2514(c) 3092 3195(c)<br>4463 5920(c) 6388<br>6844 6852(c) 7940<br>8443(c) 8928                                                                                                                                                     |
| Ppu10I   | 3  | 3609 4548 4620                                                                                                                                                                                                                                              |
| PpuMI    | 2  | 1707 2578                                                                                                                                                                                                                                                   |
| Psp1406I | 2  | 7329 7702                                                                                                                                                                                                                                                   |
| PstI     | 2  | 2561 5065                                                                                                                                                                                                                                                   |
| PvuI     | 3  | 122 6517 7562                                                                                                                                                                                                                                               |
| PvuII    | 4  | 5118 5710 6486<br>8999                                                                                                                                                                                                                                      |
| RcaI     | 3  | 2694 7091 8099                                                                                                                                                                                                                                              |
| RsaI     | 23 | 117 526 1147 1633<br>1833 2103 2128<br>2183 2216 2267<br>2424 2847 2897<br>3519 3529 3848<br>3877 4497 5318<br>5681 5799 6360<br>7450                                                                                                                       |
| RsrII    | 1  | 5528                                                                                                                                                                                                                                                        |
| SacI     | 4  | 268 459 2452 5840                                                                                                                                                                                                                                           |
| SacII    | 1  | 4401                                                                                                                                                                                                                                                        |
| SapI     | 4  | 879(c) 5356(c)<br>5566(c) 8936(c)                                                                                                                                                                                                                           |
| Sau3AI   | 44 | 119 250 369 605 779<br>794 928 1295 1761<br>1782 2469 2529<br>3664 3754 3798<br>3854 3890 4460<br>4848 4853 4872<br>5183 5261 5342<br>5351 5429 5715<br>5781 5822 5941<br>6514 7248 7284<br>7301 7559 7605<br>7623 7964 8069<br>8081 8159 8167<br>8178 8253 |
| Sau96I   | 20 | 1707 1717 1967<br>2160 2578 2688<br>3095 3096 3840<br>4079 4371 4386                                                                                                                                                                                        |

|       |    |                                                                                                                                                                                                                       |
|-------|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|       |    | 4472 5528 6505<br>6794 7567 7789<br>7806 7885                                                                                                                                                                         |
| Scal  | 2  | 2847 7450                                                                                                                                                                                                             |
| ScrFI | 37 | 260 636 711 940<br>1260 1272 1308<br>1412 1974 2167<br>2476 3012 3094<br>3144 3859 3860<br>4050 4173 4332<br>4487 4516 4571<br>4588 4824 4825<br>5016 5176 5399<br>5832 6438 7395<br>7746 8442 8660<br>8673 8794 9082 |
| SexAI | 1  | 4569                                                                                                                                                                                                                  |
| SfaNI | 18 | 841 1229 1255<br>2241(c) 3682 4559<br>4631 4970(c) 5225(c)<br>5311 5375 5441(c)<br>5650 6107 7230(c)<br>7479 7670(c) 8722(c)                                                                                          |
| Sfcl  | 13 | 736 1639 2557 3135<br>3207 3537 5061<br>5711 6373 6565<br>7685 8363 8554                                                                                                                                              |
| Sfil  | 1  | 6303                                                                                                                                                                                                                  |
| SmaI  | 2  | 3860 4825                                                                                                                                                                                                             |
| SnaBI | 2  | 2224 3461                                                                                                                                                                                                             |
| Snol  | 3  | 4107 7259 8505                                                                                                                                                                                                        |
| Spel  | 1  | 2535                                                                                                                                                                                                                  |
| SphI  | 4  | 94 4550 4622 5417                                                                                                                                                                                                     |
| Sspl  | 4  | 2950 2984 6996<br>7126                                                                                                                                                                                                |
| StuI  | 2  | 4801 6349                                                                                                                                                                                                             |
| StyI  | 13 | 858 1027 1088 1356<br>2244 2684 3760<br>4306 4709 4802<br>5444 6257 6350                                                                                                                                              |
| TaqI  | 18 | 218 463 1769 1787<br>1924 3288 3378<br>3561 3744 3893<br>5125 5281 5305<br>5341 5503 6753<br>7277 8721                                                                                                                |
| TfiI  | 10 | 696 1267 1400 1473<br>3285 4335 5497<br>5631 8845 8985                                                                                                                                                                |
| ThaI  | 26 | 490 610 1944 3504<br>3845 3874 4343<br>4400 4431 5078<br>5379 5411 6392<br>6394 6560 6584<br>6604 6980 7040                                                                                                           |

|         |    |                                                                                                                                                                                                                                                                                                                                |
|---------|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         |    | 7372 7865 8195<br>8776 8974 8976<br>9182                                                                                                                                                                                                                                                                                       |
| Tru9I   | 45 | 205 295 588 629 659<br>705 1435 1452 1464<br>1549 1614 1800<br>1807 2781 2812<br>2932 3252 3273<br>3296 3825 3944<br>3985 5686 5731<br>5867 6453 6578<br>6849 6947 6964<br>6975 6987 6998<br>7352 7717 7756<br>7991 8044 8058<br>8063 8115 8991<br>9050 9188 9228                                                              |
| Tsp509I | 55 | 177 534 600 621 656<br>962 975 1000 1158<br>1190 1432 1439<br>1465 1506 1515<br>1541 1559 1578<br>1887 1900 1909<br>1916 2552 2613<br>2700 2806 2814<br>2920 2929 2963<br>3189 3216 3569<br>3746 3794 3863<br>3917 4269 4556<br>4628 4720 5759<br>6105 6268 6364<br>6971 6982 7008<br>7498 7753 8059<br>9047 9122 9139<br>9185 |
| Tth111I | 1  | 5130                                                                                                                                                                                                                                                                                                                           |
| Van91I  | 1  | 4139                                                                                                                                                                                                                                                                                                                           |
| XbaI    | 3  | 2523 3227 3867                                                                                                                                                                                                                                                                                                                 |
| XhoII   | 20 | 250 369 1761 1782<br>2529 3854 4460<br>4848 5183 5429<br>5715 5781 5822<br>5941 7284 7301<br>8069 8081 8167<br>8178                                                                                                                                                                                                            |
| XmaI    | 2  | 3858 4823                                                                                                                                                                                                                                                                                                                      |
| XmaIII  | 2  | 921 4918                                                                                                                                                                                                                                                                                                                       |
| XmnI    | 2  | 621 7331                                                                                                                                                                                                                                                                                                                       |

**No cuts:** AccIII, AscI, AsuII, BbrPI, Bpu1102I, BseAI, BsiWI, BspEI, BsrGI, Bst1107I, BstBI, BstEII, Bsu36I, CeuII, Csp45I, EspI, MroI, NheI, NspV, PacI, PaeR7I, PmaCI, PmeI, PmlI, SalI, SfiI, SgrAI, SspBI, SmaI, XcmI, XhoI