



General Description

DNA pAO815

Entire molecule length: 7709 bp

Restriction Map

| Enzyme | # of cuts | Positions  |
|--------|-----------|--|
| AatI   | 1         | 2948   |
| AatII  | 1         | 7535   |
| Acc65I | 2         | 1873 2485  |
| AccI   | 5         | 2864 3503 4695<br>4999 5492  |
| AccIII | 1         | 3530   |
| Acil   | 53        | 321 657 1277(c)<br>1289(c) 1431(c) 1539<br>1548 1551 1708(c)<br>1829 2582(c) 3616(c)<br>3764(c) 3797 3863(c)<br>4328(c) 4481(c)<br>4484(c) 4487(c) 4593<br>4871(c) 5021(c)<br>5250(c) 5393(c)<br>5432(c) 5442(c)<br>5484(c) 5509(c)<br>5547(c) 5560 5586<br>5603 5646(c) 5653(c)<br>5674(c) 5765 5793<br>5920 5939 6060<br>6170(c) 6305 6314(c)<br>6676 6767 6958(c)<br>7004 7125(c) 7169<br>7246 7355 7454(c)<br>7501 |
| AcsI   | 9         | 747 944 2695 3400<br>3642 4233 4669<br>5244 5295   |
| AcyI   | 7         | 2417 3633 4317<br>4338 4452 7150<br>7532   |
| AflIII | 1         | 5720   |
| AgeI   | 1         | 998  |
| AluI   | 30        | 207 318 798 838 875<br>1137 1164 2102<br>2136 2195 2405<br>2687 2777 3197<br>3215 4011 4065<br>4101 5194 5362<br>5381 5662 5888<br>6024 6281 6802<br>6902 6965 7628<br>7643  |
| Alw44I | 4         | 623 5536 6034 7280   |
| AlwI   | 20        | 1274(c) 1287 1633<br>1734(c) 1922(c) 1988  |

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|--------|----|---|
|        |    | 2236 3294(c) 3926<br>4273(c) 5002(c)<br>5199(c) 6281(c)<br>6367(c) 6369 6465(c)<br>6466 6929(c) 7246<br>7250(c)   |
| AlwNI  | 3  | 2384 2408 6136  |
| Aosl   | 2  | 1512 6835   |
| ApaLI  | 4  | 623 5536 6034 7280  |
| Apol   | 9  | 747 944 2695 3400<br>3642 4233 4669<br>5244 5295  |
| Asel   | 3  | 583 6785 7609   |
| Asnl   | 3  | 583 6785 7609   |
| Asp700 | 5  | 2380 3812 4816<br>7212 7610   |
| Asp718 | 2  | 1873 2485   |
| AspEI  | 3  | 2206 4684 6613  |
| AspHI  | 9  | 209 627 1530 4494<br>5048 5540 6038<br>7199 7284  |
| Aspl   | 1  | 5467  |
| Asull  | 2  | 934 4810  |
| Avall  | 9  | 61 132 2351 3892<br>3954 4023 4892<br>6751 6973   |
| Avill  | 2  | 1512 6835   |
| BamHI  | 1  | 1279  |
| BanI   | 11 | 1326 1369 1873<br>1912 2416 2485<br>4316 4337 4451<br>4822 6561   |
| BanII  | 3  | 209 4378 4392   |
| BbsI   | 3  | 1001 2785(c) 7591(c)  |
| BbvI   | 22 | 122 785(c) 1173<br>1463(c) 1745 2339<br>2414 4110 4121<br>4505(c) 5300(c) 5371<br>5468 5612(c) 5630(c)<br>6049(c) 6139 6142<br>6348 6651(c) 6840(c)<br>7042 |
| Bcgl   | 1  | 7152  |
| BcII   | 4  | 741 1146 1946 4086  |
| Bfal   | 14 | 107 1008 1480 1719<br>2253 2427 3065<br>3854 3908 3951<br>5081 6215 6468<br>6803  |
| BgII   | 3  | 279 2274 6733   |
| BgIII  | 2  | 2 5307  |
| BmyI   | 13 | 209 627 986 1530<br>4378 4392 4494<br>5048 5227 5540  |

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|          |    | 6038 7199 7284  |
| Bpml     | 6  | 327(c) 1923 3303<br>3441(c) 3492(c)<br>6683(c)  |
| Bpu1102I | 1  | 589   |
| BpuAI    | 3  | 1001 2785(c) 7591(c)  |
| BsaAI    | 1  | 5474  |
| BsaBI    | 3  | 1015 1171 5209  |
| BsaHI    | 7  | 2417 3633 4317<br>4338 4452 7150<br>7532  |
| Bsal     | 3  | 3772 4620 6674(c)   |
| BsaJI    | 18 | 277 618 1365 1379<br>2086 2172 2412<br>2648 3030 3171<br>3186 3318 3888<br>3914 4431 4437<br>5111 5880  |
| BsaWI    | 7  | 998 1876 3530 4646<br>5926 6073 6904  |
| BseAI    | 1  | 3530  |
| BsgI     | 2  | 2080(c) 4117  |
| BsiEI    | 5  | 1539 5636 6060<br>6983 7132   |
| BsiHKAI  | 9  | 209 627 1530 4494<br>5048 5540 6038<br>7199 7284  |
| BsiWI    | 2  | 1130 1851   |
| BsiYI    | 27 | 191 283 350 525 663<br>1431 1522 1622<br>1856 2559 2904<br>2990 3310 3339<br>3951 4020 4436<br>4437 4483 4513<br>4531 4901 5371<br>5742 5760 5926<br>6205 |
| BsII     | 27 | 191 283 350 525 663<br>1431 1522 1622<br>1856 2559 2904<br>2990 3310 3339<br>3951 4020 4436<br>4437 4483 4513<br>4531 4901 5371<br>5742 5760 5926<br>6205 |
| BsmAI    | 14 | 603 686 1256(c)<br>2193(c) 2662 2677<br>3417 3772 4620<br>4703(c) 4742(c)<br>5363(c) 6674(c) 7450   |
| BsmFI    | 6  | 1659(c) 1755(c) 3007<br>3092 4455 4748(c)   |
| BsmI     | 5  | 313 568 1039<br>1964(c) 4595(c)   |

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| Bsp1286I | 13 | 209 627 986 1530<br>4378 4392 4494<br>5048 5227 5540<br>6038 7199 7284   |
| BspDI    | 1  | 7636   |
| BspEI    | 1  | 3530   |
| BspHI    | 5  | 738 4392 6440 7448<br>7553   |
| BspMI    | 1  | 4169(c)  |
| BspWI    | 27 | 279 1158 1416 1482<br>1489 1547 1569<br>1603 2274 2402<br>2408 2423 2540<br>3320 3854 4169<br>4314 4325 4346<br>4537 5544 5594<br>5659 5773 6345<br>6733 6853        |
| BsrBI    | 3  | 4871 5653 7454   |
| BsrDI    | 4  | 1703(c) 3287(c) 6674<br>6848(c)  |
| BsrFI    | 5  | 998 1410 4304 4313<br>6693   |
| BsrGI    | 1  | 3984   |
| BsrI     | 21 | 185(c) 497(c) 862<br>1460(c) 1555(c)<br>1677(c) 2345 3509(c)<br>3825(c) 4518 5016(c)<br>5467(c) 5500 6128<br>6141 6253(c) 6659(c)<br>6777(c) 6820(c) 7089<br>7259(c) |
| Bst1107I | 1  | 5493   |
| BstBI    | 2  | 934 4810   |
| BstNI    | 17 | 270 279 1381 2173<br>2349 2413 2592<br>2649 3042 3091<br>3173 3559 3889<br>3915 5748 5869<br>5882  |
| BstUI    | 9  | 1597 5321 5323<br>5426 5767 6348<br>6678 7171 7503   |
| BstXI    | 3  | 707 2323 2454  |
| BstYI    | 13 | 2 1279 1625 1739<br>1927 4278 5307<br>6361 6372 6458<br>6470 7238 7255   |
| Bsu36I   | 1  | 1774   |
| CellI    | 1  | 589  |
| CfoI     | 24 | 595 1353 1485 1513<br>2419 3913 4319<br>4340 4400 4454<br>5323 5426 5456<br>5597 5630 5900   |

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|--------|----|--|
|        |    | 5967 6067 6241<br>6350 6743 6836<br>7173 7505  |
| Cfr10l | 5  | 998 1410 4304 4313<br>6693   |
| Clal   | 1  | 7636   |
| Csp45l | 2  | 934 4810   |
| Csp6l  | 15 | 1131 1246 1414<br>1852 1874 1941<br>1999 2073 2486<br>3124 3553 3985<br>5275 5527 7092   |
| Ddel   | 21 | 359 468 589 952 969<br>1046 1774 2211<br>2371 2440 2497<br>2950 3326 3769<br>4066 5530 5995<br>6404 6570 7110<br>7536  |
| Dpnl   | 38 | 4 451 743 914 1148<br>1281 1600 1627<br>1741 1929 1948<br>1982 2230 2722<br>3301 3920 4007<br>4088 4280 4371<br>5009 5091 5206<br>5309 6288 6363<br>6374 6382 6460<br>6472 6577 6918<br>6936 6982 7240<br>7257 7293 7677 |
| Dpnll  | 38 | 2 449 741 912 1146<br>1279 1598 1625<br>1739 1927 1946<br>1980 2228 2720<br>3299 3918 4005<br>4086 4278 4369<br>5007 5089 5204<br>5307 6286 6361<br>6372 6380 6458<br>6470 6575 6916<br>6934 6980 7238<br>7255 7291 7675 |
| Dral   | 6  | 414 5145 5287 6479<br>6498 7190  |
| Drall  | 4  | 132 3892 4427 7589   |
| Dralll | 1  | 3310   |
| Drdl   | 3  | 5165 5415 5828   |
| Dsal   | 2  | 3318 4431  |
| DsaV   | 25 | 268 277 618 1379<br>1419 2171 2347<br>2411 2590 2647<br>3040 3089 3171<br>3557 3887 3913<br>4436 5364 5399   |

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|          |    | 5746 5867 5880<br>6098 6794 7145   |
| EaeI     | 7  | 494 1545 1754 3341<br>4302 4434 7001   |
| Eam1105I | 3  | 2206 4684 6613   |
| EarI     | 5  | 150 1243 3573(c)<br>5604 7408  |
| Ecl136II | 1  | 207  |
| Eco47III | 2  | 1484 4399  |
| Eco57I   | 9  | 1224(c) 2244(c)<br>2970(c) 3657(c) 4259<br>4585(c) 4920(c) 6268<br>7280(c)   |
| EcoNI    | 3  | 2988 4529 4899   |
| EcoO109I | 4  | 132 3892 4427 7589   |
| EcoRI    | 1  | 944  |
| EcoRII   | 17 | 268 277 1379 2171<br>2347 2411 2590<br>2647 3040 3089<br>3171 3557 3887<br>3913 5746 5867<br>5880  |
| EcoRV    | 2  | 1437 5262  |
| Esp3I    | 3  | 1256(c) 2677 5363(c)   |
| Espl     | 1  | 589  |
| Fnu4HI   | 33 | 111 799 1162 1477<br>1548 1551 1734<br>2328 2403 4099<br>4110 4482 4485<br>4519 5314 5360<br>5457 5510 5626<br>5644 5647 5765<br>5920 6063 6128<br>6131 6337 6665<br>6854 7004 7031<br>7126 7355 |
| FnuDII   | 9  | 1597 5321 5323<br>5426 5767 6348<br>6678 7171 7503   |
| FokI     | 16 | 32(c) 39(c) 441(c)<br>679 1038 1348(c)<br>1396 2476(c) 3884<br>3908(c) 4049 5408<br>6579(c) 6760(c)<br>7047(c) 7705(c)   |
| Fspl     | 2  | 1512 6835  |
| Haell    | 9  | 1486 2420 3914<br>4320 4341 4401<br>4455 5598 5968   |
| HaellI   | 23 | 273 397 496 1424<br>1547 1756 2268<br>2605 2948 3343<br>3562 4304 4428<br>4436 4500 5735<br>5746 5764 6198   |

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|---------|----|---|
|         |    | 6656 6736 7003<br>7590  |
| Hgal    | 8  | 3641 4302 4541(c)<br>5415(c) 5831 6409<br>7139(c) 7679  |
| HgiAI   | 9  | 209 627 1530 4494<br>5048 5540 6038<br>7199 7284  |
| Hhal    | 24 | 595 1353 1485 1513<br>2419 3913 4319<br>4340 4400 4454<br>5323 5426 5456<br>5597 5630 5900<br>5967 6067 6241<br>6350 6743 6836<br>7173 7505                       |
| HinP1I  | 24 | 593 1351 1483 1511<br>2417 3911 4317<br>4338 4398 4452<br>5321 5424 5454<br>5595 5628 5898<br>5965 6065 6239<br>6348 6741 6834<br>7171 7503                       |
| HinclI  | 3  | 1824 2865 7154  |
| HindII  | 3  | 1824 2865 7154  |
| HindIII | 1  | 873   |
| Hinfl   | 19 | 704 1011 1634 2166<br>2177 2803 3011<br>3505 3581 4040<br>4263 4535 4697<br>4973 5620 5695<br>6091 6608 7646  |
| Hpal    | 1  | 1824  |
| Hpall   | 22 | 620 999 1411 1420<br>1877 3531 4290<br>4305 4314 4437<br>4647 5366 5400<br>5927 6074 6100<br>6290 6694 6728<br>6795 6905 7147                                     |
| HphI    | 14 | 1368(c) 1722 2161(c)<br>2835(c) 4303(c)<br>4348(c) 4597 5342<br>5351 6456(c) 6683(c)<br>7099 7305(c) 7340   |
| Ital    | 33 | 111 799 1162 1477<br>1548 1551 1734<br>2328 2403 4099<br>4110 4482 4485<br>4519 5314 5360<br>5457 5510 5626<br>5644 5647 5765<br>5920 6063 6128<br>6131 6337 6665 |

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|         |    | 6854 7004 7031<br>7126 7355  |
| Kasl    | 4  | 2416 4316 4337<br>4451   |
| Kpnl    | 2  | 1877 2489  |
| Ksp632l | 5  | 150 1243 3573(c)<br>5604 7408  |
| Mael    | 14 | 107 1008 1480 1719<br>2253 2427 3065<br>3854 3908 3951<br>5081 6215 6468<br>6803   |
| Maell   | 18 | 734 1265 1784 1854<br>2462 2670 2705<br>2738 2957 3114<br>4946 5149 5290<br>5473 6423 6839<br>7212 7532  |
| Maelll  | 24 | 1084 1374 1462<br>1780 2332 2364<br>2841 3067 3115<br>3366 3486 3745<br>4030 4939 5374<br>5469 6076 6139<br>6255 6538 6869<br>6927 7080 7268   |
| Maml    | 3  | 1015 1171 5209   |
| Mbol    | 38 | 2 449 741 912 1146<br>1279 1598 1625<br>1739 1927 1946<br>1980 2228 2720<br>3299 3918 4005<br>4086 4278 4369<br>5007 5089 5204<br>5307 6286 6361<br>6372 6380 6458<br>6470 6575 6916<br>6934 6980 7238<br>7255 7291 7675 |
| Mboll   | 24 | 137(c) 922 1006<br>1116(c) 1230(c) 1263<br>1970 2112(c) 2785(c)<br>2919(c) 3006(c)<br>3174(c) 3590 3663(c)<br>3845 4379 4591(c)<br>5591(c) 6382 6453(c)<br>7208(c) 7286(c)<br>7395(c) 7591(c)                            |
| Mcrl    | 5  | 1539 5636 6060<br>6983 7132  |
| Mfel    | 4  | 865 2749 2868 3697   |
| MluNI   | 2  | 1756 3343  |
| Mnll    | 45 | 89(c) 145 153 161<br>277(c) 343(c) 934(c)<br>978 1016(c) 1246  |



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|--------|----|--|
|        |    | 1375 1435 1783<br>1873(c) 2206(c) 2430<br>2595(c) 2773 2935(c)<br>2938(c) 3115 3229<br>3538 4024 4036<br>4292 4511 4605(c)<br>4643(c) 4646(c)<br>4895(c) 5050(c)<br>5213(c) 5218 5327<br>5357 5619 5828(c)<br>5902 6152(c) 6552(c)<br>6633(c) 6780 6986<br>7580(c) |
| Mrol   | 1  | 3530   |
| Mscl   | 2  | 1756 3343  |
| Msel   | 29 | 413 583 751 809 885<br>895 1256 1306 1649<br>1666 1697 1823<br>2735 4055 5144<br>5152 5179 5286<br>5501 6426 6478<br>6483 6497 6550<br>6785 6824 7189<br>7561 7609   |
| MslI   | 5  | 77 1708 6865 7024<br>7383  |
| MspA1I | 7  | 1164 1831 4101<br>5432 6062 6307<br>7248   |
| Mspl   | 22 | 620 999 1411 1420<br>1877 3531 4290<br>4305 4314 4437<br>4647 5366 5400<br>5927 6074 6100<br>6290 6694 6728<br>6795 6905 7147  |
| MunI   | 4  | 865 2749 2868 3697   |
| Mval   | 17 | 270 279 1381 2173<br>2349 2413 2592<br>2649 3042 3091<br>3173 3559 3889<br>3915 5748 5869<br>5882  |
| Mvnl   | 9  | 1597 5321 5323<br>5426 5767 6348<br>6678 7171 7503   |
| Mwol   | 27 | 279 1158 1416 1482<br>1489 1547 1569<br>1603 2274 2402<br>2408 2423 2540<br>3320 3854 4169<br>4314 4325 4346<br>4537 5544 5594<br>5659 5773 6345<br>6733 6853  |

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| NaeI     | 1  | 4306   |
| NarI     | 4  | 2417 4317 4338<br>4452   |
| NciI     | 8  | 620 1421 4438 5366<br>5401 6100 6796<br>7147   |
| NcoI     | 1  | 3318   |
| NdeI     | 1  | 5543   |
| NdeII    | 38 | 2 449 741 912 1146<br>1279 1598 1625<br>1739 1927 1946<br>1980 2228 2720<br>3299 3918 4005<br>4086 4278 4369<br>5007 5089 5204<br>5307 6286 6361<br>6372 6380 6458<br>6470 6575 6916<br>6934 6980 7238<br>7255 7291 7675 |
| NgoMI    | 1  | 4304   |
| NheI     | 2  | 1479 2426  |
| NlaIII   | 25 | 249 293 385 742 961<br>1605 2190 2281<br>2694 3322 4396<br>4469 4666 5359<br>5464 5724 6444<br>6935 6945 7023<br>7059 7452 7557<br>7620 7653   |
| NlaIV    | 25 | 274 429 862 1281<br>1328 1371 1581<br>1875 1914 2418<br>2487 2586 3893<br>4318 4339 4429<br>4453 4824 5752<br>5791 6563 6657<br>6698 6909 7499   |
| NsiI     | 1  | 678  |
| NspI     | 4  | 2281 4469 5359<br>5724   |
| NspV     | 2  | 934 4810   |
| PfI      | 2  | 191 3310   |
| PinA1    | 1  | 998  |
| PleI     | 11 | 2797(c) 3499(c) 3589<br>4034(c) 4271 4543<br>4691(c) 5614(c) 6099<br>6602(c) 7640(c)   |
| PmeI     | 1  | 414  |
| Ppu10I   | 1  | 674  |
| PpuMI    | 2  | 132 3892   |
| Psp1406I | 6  | 734 2738 4946 5149<br>6839 7212  |
| PstI     | 1  | 6858   |

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| Pvul   | 1  | 6983   |
| Pvull  | 2  | 1164 4101  |
| Rcal   | 5  | 738 4392 6440 7448<br>7553   |
| Rsal   | 15 | 1132 1247 1415<br>1853 1875 1942<br>2000 2074 2487<br>3125 3554 3986<br>5276 5528 7093   |
| Sacl   | 1  | 209  |
| Sall   | 1  | 2863   |
| Sapl   | 1  | 5604   |
| Sau3AI | 38 | 2 449 741 912 1146<br>1279 1598 1625<br>1739 1927 1946<br>1980 2228 2720<br>3299 3918 4005<br>4086 4278 4369<br>5007 5089 5204<br>5307 6286 6361<br>6372 6380 6458<br>6470 6575 6916<br>6934 6980 7238<br>7255 7291 7675 |
| Sau96I | 18 | 61 132 272 396 1422<br>2267 2351 3561<br>3892 3954 4023<br>4427 4892 6655<br>6734 6751 6973<br>7589  |
| Scal   | 1  | 7093   |
| ScrFI  | 25 | 270 279 620 1381<br>1421 2173 2349<br>2413 2592 2649<br>3042 3091 3173<br>3559 3889 3915<br>4438 5366 5401<br>5748 5869 5882<br>6100 6796 7147   |
| SfaNI  | 24 | 1042(c) 1374(c) 1463<br>1487(c) 1724 2126<br>2497(c) 2565 2933<br>3059 3716 3862(c)<br>4305 4317 4917(c)<br>5245(c) 5386(c) 5521<br>5557(c) 5597 5817<br>6869 7060(c) 7309   |
| Sfcl   | 6  | 1388 2712 3896<br>5985 6176 6854   |
| Sful   | 2  | 934 4810   |
| SgrAI  | 1  | 4313   |
| Snol   | 4  | 623 5536 6034 7280   |
| SphI   | 1  | 4469   |
| SspBI  | 1  | 3984   |
| Sspl   | 2  | 2359 7417  |

|         |    |   |
|---------|----|---|
| Stul    | 1  | 2948  |
| Styl    | 5  | 2086 3030 3186<br>3318 5111   |
| TaqI    | 19 | 172 934 1203 1589<br>1632 1970 2153<br>2864 3431 4004<br>4071 4555 4700<br>4810 5264 5820<br>7264 7636 7708   |
| Tfil    | 8  | 704 1011 1634 2166<br>2177 3011 4973<br>5695  |
| Thal    | 9  | 1597 5321 5323<br>5426 5767 6348<br>6678 7171 7503  |
| Tru9I   | 29 | 413 583 751 809 885<br>895 1256 1306 1649<br>1666 1697 1823<br>2735 4055 5144<br>5152 5179 5286<br>5501 6426 6478<br>6483 6497 6550<br>6785 6824 7189<br>7561 7609  |
| Tsp509I | 37 | 219 747 849 865 927<br>944 1308 1501 1663<br>2076 2124 2517<br>2577 2695 2749<br>2868 2881 2931<br>2961 2971 3225<br>3400 3427 3572<br>3642 3697 4018<br>4148 4233 4669<br>5244 5295 6480<br>6786 7041 7606<br>7610 |
| Tth111I | 1  | 5467  |
| Van91I  | 2  | 191 3310  |
| XbaI    | 1  | 1718  |
| XcmI    | 1  | 707   |
| XhoI    | 13 | 2 1279 1625 1739<br>1927 4278 5307<br>6361 6372 6458<br>6470 7238 7255  |
| XmnI    | 5  | 2380 3812 4816<br>7212 7610   |

No cuts: AflII, ApaI, AscI, AvaI, AvrII, BbrPI, BfrI, BlnI, Bsp120I, BssHII, BstEII, EagI, EclXI, KspI, MluI, NotI, NruI, PacI, PaeR7I, PmaCI, PmlI, RsrII, SacII, SexAI, SfiI, SmaI, SnaBI, SpeI, SwaI, XhoI, XmaI, XmaIII