



General Description

DNA pEF/Bsd

Entire molecule length: 4304 bp

Restriction Map

Enzyme	# of cuts	Positions
AatI	2	2392 2435
AatII	1	70
Acc65I	1	3211
AccI	1	3883
Acil	52	98(c) 145 244(c) 353(c) 430(c) 474 595(c) 641 832(c) 923(c) 1285 1294(c) 1429 1539(c) 1660(c) 1679(c) 1806(c) 1834(c) 1910(c) 1914 2121(c) 2158 2238 2272 2274(c) 2455 2458 2579(c) 2619 2621(c) 2625(c) 2668(c) 2683(c) 2750 2765 2774(c) 2810(c) 2822 2863(c) 2878(c) 2882(c) 3409 3491(c) 3558(c) 4017 4074(c) 4100(c) 4113 4153 4179 4189 4228
Acsl	4	2524 3110 3780 3860
AcyI	4	67 449 2960 4065
AfIII	1	2400
AfIII	1	2654
Agel	1	2099
AluI	22	636 699 799 1320 1577 1713 1906 1928 1983 2359 2717 2847 2991 3083 3207 3392 3497 3745 3902 3995 4242 4261
Alw44I	3	317 1563 4124
AlwI	13	350 354(c) 671 1134(c) 1135 1231(c) 1233 1319 2345(c) 3139 3605 3865(c) 3878
AlwNI	1	1468
Aosl	2	766 4045
Apal	2	1888 2638
ApaLI	3	317 1563 4124
Apol	4	2524 3110 3780 3860

Asel	2	814 3232
Asnl	2	814 3232
Asp700	2	389 2320
Asp718	1	3211
AspEl	1	989
AspHl	6	321 406 1567 1908 2849 4128
Aval	7	1929 2066 2168 2354 2869 2986 3865
Avall	5	625 847 1989 3217 3449
Avill	2	766 4045
BamHl	1	3870
Banl	11	1036 2027 2102 2475 2734 2794 2959 2970 3211 3564 4064
Banll	6	1888 1908 2410 2638 2849 3554
Bbsl	1	3375
Bbvl	21	555(c) 946 1249(c) 1455(c) 1458(c) 1548 1992 2319(c) 2482(c) 2527(c) 2824(c) 3401 3469(c) 3472(c) 3475(c) 3506 3645(c) 3754 3985 4058 4248(c)
Bcgl	1	451(c)
Bfal	10	796 1131 1384 1925 1996 2107 2513 3399 3815 3877
Bfrl	1	2400
Bgll	6	871 1892 2792 2968 3085 4055
Bglll	2	1898 2587
Bmyl	12	321 406 1567 1888 1908 2032 2410 2638 2849 3479 3554 4128
Bpml	1	920
Bpu1102l	1	3685
BpuAl	1	3375
BsaAl	1	2341
BsaBl	1	3588
BsaHl	4	67 449 2960 4065
Bsal	2	923 1929(c)
BsaJl	15	1717 2169 2272 2441 2619 2768 2769 2946 3105 3288 3593 3700 3865 3866 3945
BsaWl	6	693 1524 1671 2024

		2099 3214
BsgI	3	2217 2576(c) 3477
BsiEI	8	471 620 1543 1914 2792 3409 3525 4026
BsiHKAI	6	321 406 1567 1908 2849 4128
BsiYI	20	1399 1678 1844 1862 2037 2038 2112 2174 2175 2290 2361 2442 2696 2769 2770 2828 2840 2901 3561 4255
BsII	20	1399 1678 1844 1862 2037 2038 2112 2174 2175 2290 2361 2442 2696 2769 2770 2828 2840 2901 3561 4255
BsmAI	10	147(c) 923 1929(c) 2495 2514 2715 3059(c) 3309 4256 4298(c)
BsmFI	3	2048(c) 2629(c) 3462
BsmI	1	3810(c)
Bsp120I	2	1884 2634
Bsp1286I	12	321 406 1567 1888 1908 2032 2410 2638 2849 3479 3554 4128
BspHI	3	44 149 1157
BspMI	3	1947 2545 3895
BspWI	30	871 1259 1831 1892 2053 2204 2280 2405 2454 2492 2674 2683 2783 2792 2801 2968 3085 3384 3389 3408 3488 3491 3494 3549 3564 3904 4025 4055 4064 4071
BsrBI	3	147(c) 2810 2878
BsrDI	2	755 929(c)
BsrFI	4	904 1891 2099 2721
BsrI	16	344 514(c) 783 826 944 1350 1462(c) 1475(c) 2135 2156 2602 2798(c) 3424 3448 3914 3940
BstNI	12	1718 1731 1852 2280 2329 2437 2442 2739 2770

		2968 3594 3947
BstUI	19	98 430 923 1253 1834 1910 1916 2121 2274 2460 2484 2621 2683 2747 2863 3521 4197 4300 4302
BstYI	10	342 359 1127 1139 1225 1236 1898 2587 3131 3870
CellI	1	3685
CfoI	24	98 430 767 860 1253 1362 1536 1636 1703 2049 2121 2399 2448 2486 2652 2683 2749 2868 2962 3389 4046 4067 4199 4302
Cfr10I	4	904 1891 2099 2721
Csp6I	7	507 2149 2338 2953 3000 3212 4135
Ddel	11	62 488 1028 1194 1603 1902 2923 3054 3153 3685 4131
Dpnl	22	308 344 361 619 665 683 1024 1129 1141 1219 1227 1238 1313 1900 2352 2589 3133 3524 3585 3599 3872 4025
DpnII	22	306 342 359 617 663 681 1022 1127 1139 1217 1225 1236 1311 1898 2350 2587 3131 3522 3583 3597 3870 4023
DraI	5	411 1103 1122 1961 2522
DraII	5	9 2634 2671 2910 3449
DraIII	2	3057 3695
DrdI	3	1775 3377 4210
DsaI	4	2272 2619 2946 3288
DsaV	22	451 802 1498 1716 1729 1850 2278 2327 2435 2440 2737 2768 2786 2827 2955 2966 3592 3864 3865 3945 4219 4254

EaeI	10	596 1893 1911 2684 2719 2819 3291 3406 3697 3911
EagI	2	1911 3406
Eam1105I	1	989
EarI	2	190(c) 4004(c)
Ecl136II	2	1906 2847
EclXI	2	1911 3406
Eco57I	4	323 1335(c) 3090 3387
EcoNI	2	2110 2838
EcoO109I	5	9 2634 2671 2910 3449
EcoRI	1	3860
EcoRII	12	1716 1729 1850 2278 2327 2435 2440 2737 2768 2966 3592 3945
EcoRV	1	1920
Esp3I	2	4256 4298(c)
Espl	1	3685
Fnu4HI	41	245 474 569 596 935 1263 1469 1472 1537 1680 1835 1911 1914 1981 2238 2333 2455 2458 2496 2541 2619 2626 2684 2750 2775 2822 2838 2864 3390 3409 3483 3486 3489 3492 3495 3659 3743 3974 4047 4153 4262
FnuDII	19	98 430 923 1253 1834 1910 1916 2121 2274 2460 2484 2621 2683 2747 2863 3521 4197 4300 4302
FokI	7	550 837 1018 3341(c) 3576(c) 3965(c) 4211(c)
Fspl	2	766 4045
HaeII	5	1637 2449 2869 2963 4068
HaeIII	36	11 598 865 945 1403 1837 1855 1866 1886 1895 1913 2278 2283 2301 2392 2435 2440 2454 2583 2618 2636 2673 2686 2721 2725 2742 2786 2821 2832

		2912 3079 3293 3408 3699 3913 4015
Hgal	8	457 1187(c) 1765(c) 2554 2631(c) 2869 3367(c) 4203
HgiAI	6	321 406 1567 1908 2849 4128
Hhal	24	98 430 767 860 1253 1362 1536 1636 1703 2049 2121 2399 2448 2486 2652 2683 2749 2868 2962 3389 4046 4067 4199 4302
HinP1I	24	96 428 765 858 1251 1360 1534 1634 1701 2047 2119 2397 2446 2484 2650 2681 2747 2866 2960 3387 4044 4065 4197 4300
HincII	2	3226 3884
HindII	2	3226 3884
HindIII	1	3900
Hinfl	11	990 1507 1972 2344 2466 2694 2888 2942 3314 3646 3880
HpaII	20	452 694 804 871 905 1309 1499 1525 1672 1892 2025 2100 2722 2788 2829 2956 3215 3866 4221 4255
HphI	10	262(c) 297 503(c) 919 1146 2883(c) 2897 3286 4273(c) 4282(c)
Ital	41	245 474 569 596 935 1263 1469 1472 1537 1680 1835 1911 1914 1981 2238 2333 2455 2458 2496 2541 2619 2626 2684 2750 2775 2822 2838 2864 3390 3409 3483 3486 3489 3492 3495 3659 3743 3974 4047 4153 4262
KasI	2	2959 4064

Kpnl	1	3215
Ksp632l	2	190(c) 4004(c)
Kspl	2	2275 2622
Mael	10	796 1131 1384 1925 1996 2107 2513 3399 3815 3877
Maell	8	67 387 760 1176 2214 2340 3002 3927
Maelll	14	328 516 669 727 1058 1341 1457 1520 2889 2939 3754 3931 3951 4244
Maml	1	3588
Mbol	22	306 342 359 617 663 681 1022 1127 1139 1217 1225 1236 1311 1898 2350 2587 3131 3522 3583 3597 3870 4023
Mboll	10	207 316 394 1149 1220(c) 3170(c) 3323 3380 3406(c) 4021
Mcrl	8	471 620 1543 1914 2792 3409 3525 4026
Mfel	1	2092
MluNI	1	3293
Mnll	33	22 616(c) 822(c) 969 1050 1450 1700(c) 1774 1925(c) 1962(c) 2075(c) 2164(c) 2294 2382(c) 2425(c) 2427 2658(c) 2753 2850(c) 2932 2984 3016(c) 3162 3191(c) 3270(c) 3332 3673 3673(c) 3695(c) 3734 3884 4005(c) 4267(c)
MscI	1	3293
Msel	15	38 410 775 814 1049 1102 1116 1121 1173 1960 2401 2521 3232 3962 4161
MslI	3	218 577 736
MspA1I	8	353 1294 1539 2274 2621 3497 3995 4191
Mspl	20	452 694 804 871 905 1309 1499 1525 1672 1892 2025 2100 2722 2788

		2829 2956 3215 3866 4221 4255
Munl	1	2092
Mval	12	1718 1731 1852 2280 2329 2437 2442 2739 2770 2968 3594 3947
Mvnl	19	98 430 923 1253 1834 1910 1916 2121 2274 2460 2484 2621 2683 2747 2863 3521 4197 4300 4302
Mwol	30	871 1259 1831 1892 2053 2204 2280 2405 2454 2492 2674 2683 2783 2792 2801 2968 3085 3384 3389 3408 3488 3491 3494 3549 3564 3904 4025 4055 4064 4071
Nael	2	1893 2723
Narl	2	2960 4065
Ncil	10	453 804 1500 2788 2829 2957 3866 3867 4221 4256
Ncol	1	3288
Ndell	22	306 342 359 617 663 681 1022 1127 1139 1217 1225 1236 1311 1898 2350 2587 3131 3522 3583 3597 3870 4023
NgoMI	2	1891 2721
Nhel	1	1924
NlaIII	14	48 153 546 582 660 670 1161 1881 2658 2940 3292 3856 3898 4268
NlaIV	29	102 692 903 944 1038 1810 1849 1886 2023 2029 2104 2156 2269 2407 2453 2477 2617 2635 2636 2672 2736 2796 2961 2972 3213 3450 3566 3872 4066
Notl	1	1911
Nrul	1	3521
Nspl	4	1881 2658 3898



		4268
PaeR7I	2	1929 2986
PinAI	1	2099
PleI	5	998 1501(c) 2896 2936(c) 3888
PpuMI	1	3449
Psp1406I	3	387 760 2214
PstI	3	2337 2842 3892
PvuI	3	620 3525 4026
PvuII	2	3497 3995
RcaI	3	44 149 1157
RsaI	7	508 2150 2339 2954 3001 3213 4136
RsrII	1	3217
SacI	2	1908 2849
SacII	2	2275 2622
SalI	1	3882
Sau3AI	22	306 342 359 617 663 681 1022 1127 1139 1217 1225 1236 1311 1898 2350 2587 3131 3522 3583 3597 3870 4023
Sau96I	22	9 625 847 864 943 1884 1885 1989 2276 2300 2452 2581 2616 2634 2635 2671 2785 2831 2910 3217 3449 4014
Scal	1	508
ScrFI	22	453 804 1500 1718 1731 1852 2280 2329 2437 2442 2739 2770 2788 2829 2957 2968 3594 3866 3867 3947 4221 4256
SfaNI	13	288(c) 537 728(c) 1780(c) 3363 3420 3552 3598 3782 4061(c) 4101 4139(c) 4233
Sfcl	7	743 1421 1612 2333 2838 3373 3888
Sfil	1	1892
Smal	1	3867
Snol	3	317 1563 4124
SphI	1	3898
Sspl	1	184
StuI	2	2392 2435
StyI	2	3105 3288
TaqI	11	335 1779 1930 2387

		2502 2976 2987 3582 3720 3726 3883
Tfil	6	1972 2344 2466 2694 3314 3646
Thal	19	98 430 923 1253 1834 1910 1916 2121 2274 2460 2484 2621 2683 2747 2863 3521 4197 4300 4302
Tru9I	15	38 410 775 814 1049 1102 1116 1121 1173 1960 2401 2521 3232 3962 4161
Tsp509I	14	556 811 1117 2016 2092 2316 2524 3098 3110 3201 3229 3653 3780 3860
Xbal	1	3876
XhoI	2	1929 2986
XhoII	10	342 359 1127 1139 1225 1236 1898 2587 3131 3870
XmaI	1	3865
XmaIII	2	1911 3406
XmnI	2	389 2320

No cuts: AccIII, AscI, AspI, AsuII, AvrII, BbrPI, BclI, BlnI, BseAI, BsiWI, BspDI, BspEI, BsrGI, BssHII, Bst1107I, BstBI, BstEII, BstXI, Bsu36I, ClaI, Csp45I, Eco47III, HpaI, MluI, MroI, NdeI, NsiI, NspV, PacI, PflMI, PmaCI, PmeI, PmlI, Ppu10I, SapI, SexAI, SfuI, SgrAI, SnaBI, SpeI, SspBI, SwaI, Tth111I, Van91I, XcmI