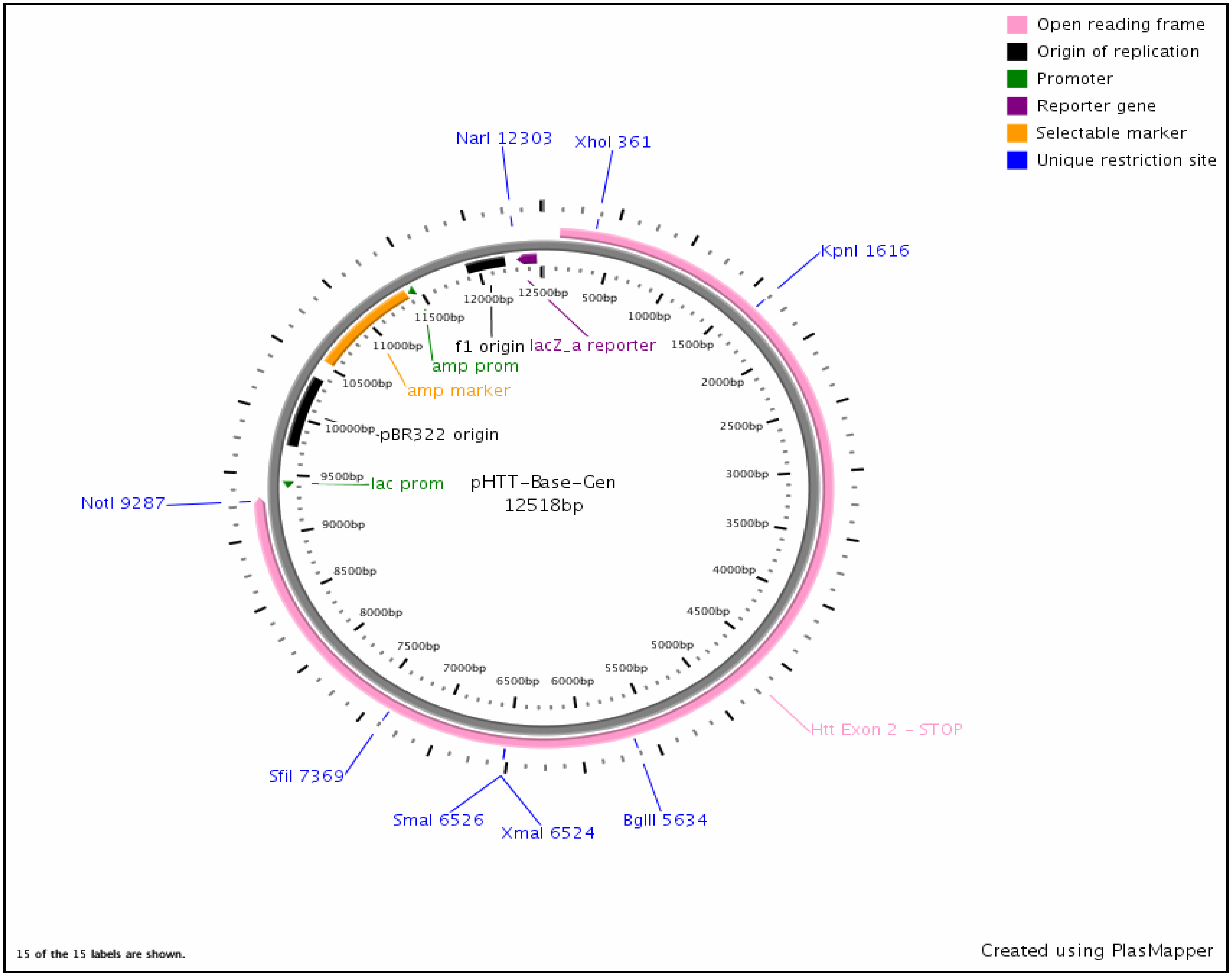
pHtt-Base-gen (Blue Heron)

Htt wt ORF at bp 114 (CAC) aa 88 to STOP at bp 9317



pHtt-Base-gen

Flanking vector sequence in **BLACK**, Htt wt ORF at bp 114 (CAC) aa 88 to STOP at bp 9317 in **GREEN**

```
   1 GACTCTCTTA AGGTAGCAAA TATTAGCACA GGTGGGTAGT TTTGAAGACA CACTCATGCG GAGACGTCGA TCGATCGAAG TCAGTCAGTC CAAATTGGCC
 101 AATTGGCGTC TCACACCGAC CAAAGAAAGA ACTTTCAGCT ACCAAGAAAG ACCGTGTGAA TCATTGTCTG ACAATATGTG AAAACATAGT GGCACAGTCT
 201 GTCAGAAATT CTCCAGAATT TCAGAAACTT CTGGGCATCG CTATGGAACT TTTTCTGCTG TGCAGTGATG ACGCAGAGTC AGATGTCAGG ATGGTGGCTG
 301 ACGAATGCCT CAACAAAGTT ATCAAAGCTT TGATGGATTC TAATCTTCCA AGGTTACAGC TCGAGCTCTA TAAGGAAATT AAAAAGAATG GTGCCCCTCG
 401 GAGTTTGCGT GCTGCCCTGT GGAGGTTTGC TGAGCTGGCT CACCTGGTTC GGCCTCAGAA ATGCAGGCCT TACCTGGTGA ACCTTCTGCC GTGCCTGACT
 501 CGAACAAGCA AGAGACCCGA AGAATCAGTC CAGGAGACCT TGGCTGCAGC TGTTCCCAAA ATTATGGCTT CTTTTGGCAA TTTTGCAAAT GACAATGAAA
 601 TTAAGGTTTT GTTAAAGGCC TTCATAGCGA ACCTGAAGTC AAGCTCCCCC ACCATTCGGC GGACAGCGGC TGGATCAGCA GTGAGCATCT GCCAGCACTC
 701 AAGAAGGACA CAATATTTCT ATAGTTGGCT ACTAAATGTG CTCTTAGGCT TACTCGTTCC TGTCGAGGAT GAACACTCCA CTCTGCTGAT TCTTGGCGTG
 801 CTGCTCACCC TGAGGTATTT GGTGCCCTTG CTGCAGCAGC AGGTCAAGGA CACAAGCCTG AAAGGCAGCT TCGGAGTGAC AAGGAAAGAA ATGGAAGTCT
 901 CTCCTTCTGC AGAGCAGCTT GTCCAGGTTT ATGAACTGAC GTTACATCAT ACACAGCACC AAGACCACAA TGTTGTGACC GGAGCCCTGG AGCTGTTGCA
1001 GCAGCTCTTC AGAACGCCTC CACCCGAGCT TCTGCAAACC CTGACCGCAG TCGGGGGCAT TGGGCAGCTC ACCGCTGCTA AGGAGGAGTC TGGTGGCCGA
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1301 TTCAGGGGTT TCCACTCCAG GGTCAGCAGG TCATGACATC ATCACAGAAC AGCCACGGTC ACAGCACACA CTGCAGGCGG ACTCAGTGGA TCTGGCCAGC
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2101 AGTATGTCTC AGACATCTTG AACTACATCG ATCATGGAGA CCCACAGGTT CGAGGAGCCA CTGCCATTCT CTGTGGGACC CTCATCTGCT CCATCCTCAG
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    12501 CTCTCTTAAG GTAGCAAA
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RESTRICTION MAP: ALL ENZYMES

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Enzyme      Cuts    [ --------- Base 5' to Cleave Sites ---------- ]
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AatII          3        67  2845 11525

AccI           3      4050  4804  5881

AclI           3     10829 11202 11786

AcyI          10        64   106  2842  3973  4848  7792  8212 1114011522 12302

AflII          3         7  6302 12505
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AflIII         7      2630  4176  6118  7083  7085  9080  9710

AgeI           0

AhaIII         5      2560  4156 10469 10488 11180

AluI          91       138   327   359   365   434   549   643   868
                       917   992  1004  1028  1067  1131  1246  1289
                      1399  1414  1456  1540  1572  1815  2008  2022
                      2334  2343  2380  2402  2459  2500  2669  2697
                      2940  3040  3087  3278  3483  3591  3695  4152
                      4220  4424  4530  4547  4689  4952  5135  5250
                      5308  5817  6221  6294  6404  6437  6719  6833
                      7078  7109  7425  7432  7470  7496  7646  7676
                      7690  7918  8012  8106  8261  8528  8561  9104
                      9176  9294  9353  9375  9470  9534  9652  9878
                      9968 10014 10271 10792 10892 10955 11634 11653
                     11831 12088 12374

AlwNI         11       669  3510  5250  5375  6198  6509  6542  7900
                      8081  8924 10126

ApaBI          3      1371  3157  7881

ApaI           3      3257  6530  8999

ApaLI          7      5849  6789  8046  8583 10024 11270 11767

ApoI          12       206   216  1794  4405  4882  5057  5924  6322
                      6609  8406 11803 11814

AscI           0

AsuI          48      1496  1510  1560  1631  1724  1994  2000  2027
                      2176  2203  3184  3248  3253  3254  3342  3507
                      3938  3962  4310  4781  5348  5942  6184  6377
                      6521  6526  6527  6632  6710  7055  7231  7261
                      7342  7930  8400  8599  8615  8951  8995  8996
                      9187 10645 10724 10741 10963 11579 11992 12352

AsuII          0

AvaI           7       360  1023  4019  6432  6523  7665 11890

AvaII         14      1496  1510  2176  2203  3248  3342  3507  6184
                      7231  7342  7930  8951 10741 10963
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AvrII           2      3737  6308

BalI           11        98  1395  3057  3236  3699  4443  4890  6334
                       8787  8895  9012

BamHI           4      5794  7589  7903  8791

BclI            5      1829  2404  5332  5638  7945

BetI            8       978  1964  4799  5233  6140  9916 10063 10894

BglI            7       862  1701  4476  7368  8607 10723 12317

BglII           1      5633

BsaAI           6      2216  6119  7086  8342  9016 12001

BsaBI           3       340  4258  5211

BseMII         24       468  1276  1396  2018  2122  2210  3034  3121
                       3517  3676  3696  5816  6018  7046  7257  7403
                       7933  7993  8088  8183  8507  9999 10408 10574

BsePI           0

BsiYI          64       421   655   658  1051  1318  1426  1493  1558
                       1628  1733  2036  3243  3257  3296  3323  3407
                       3462  3907  3982  4024  4319  4450  4562  4799
                       4897  5351  5408  5689  5867  6101  6105  6181
                       6530  6548  6640  7128  7184  7301  7413  7486
                       7670  7754  7973  8116  8120  8156  8597  8603
                       8828  8891  8953  8960  9058  9167  9295  9558
                       9732  9750  9916 10195 11643 11896 11897 12223

Bsp1407I        4      2337  4980  7891  8635

BspHI           9      1331  2359  2888  4739  6259  8836 10430 11438 11543

BspLU11I        4      2630  4176  9080  9710

BspMII          3      1964  5233  6140

BstEII          2      7117  9272

BstXI           7       563  2604  3843  5478  7102  8783 12464

Cac8I          53       409   436   465   693   798  1291  1375  1397
```

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                      1635  1767  3148  3238  3697  3977  3997  4213
                      5320  5705  5869  5873  5997  6001  6288  6292
                      6442  6451  6770  7008  7012  7058  7062  7369
                      7415  8089  8154  8166  8334  8592  9102  9503
                      9532  9641  9727  9764 10324 10715 11728 12104
                     12147 12161 12352 12372 12376

CauII         22      1825  2037  3252  5346  5901  6524  6525  7129
                      7451  7845  7935  8268  8598  8662  8936  8955
                      9000 10090 10786 11137 11638 11673

Cfr10I         7      4475  6449  7010  7413  9238 10683 12102

CfrI          23        96  1094  1393  2710  3055  3133  3234  3697
                      4441  4888  6332  7360  7411  7700  7936  8785
                      8893  9010  9286  9297  9549 10991 12454

ClaI           3        71  2128  2410

CviJI        290        98   138   297   327   359   365   434   438
                       452   467   543   549   567   618   643   669
                       728   748   856   868   917   984   992  1004
                      1028  1067  1096  1102  1131  1153  1206  1246
                      1260  1289  1293  1352  1395  1399  1414  1450
                      1456  1462  1518  1540  1562  1572  1633  1649
                      1671  1695  1704  1725  1772  1815  1844  1995
                      2001  2008  2022  2028  2157  2334  2343  2380
                      2402  2444  2459  2492  2500  2538  2555  2657
                      2669  2697  2712  2768  2815  2940  3040  3057
                      3087  3111  3135  3153  3186  3201  3213  3236
                      3240  3255  3278  3336  3360  3474  3483  3591
                      3666  3695  3699  3831  3847  3877  3895  3911
                      3916  3939  3963  3979  4152  4220  4276  4312
                      4424  4443  4458  4479  4487  4530  4547  4689
                      4713  4746  4782  4890  4952  5135  5250  5261
                      5278  5308  5322  5349  5508  5550  5612  5644
                      5657  5710  5806  5817  5843  5871  5919  5943
                      5999  6020  6221  6286  6294  6307  6334  6360
                      6378  6404  6431  6437  6449  6456  6522  6528
                      6633  6692  6711  6719  6727  6807  6821  6833
                      6870  6933  6981  7051  7056  7078  7109  7228
                      7263  7292  7318  7362  7371  7413  7425  7432
                      7448  7460  7470  7496  7614  7636  7646  7676
                      7690  7702  7727  7788  7848  7897  7918  7923
                      7938  8012  8106  8130  8141  8149  8179  8202
                      8261  8332  8402  8500  8528  8561  8590  8601
                      8610  8617  8691  8761  8775  8787  8876  8895
```

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                      8997  9012  9022  9055  9104  9176  9189  9219
                      9229  9242  9288  9294  9299  9337  9353  9375
                      9427  9448  9470  9534  9551  9633  9652  9725
                      9736  9754  9780  9878  9968 10014 10019 10044
                     10123 10188 10199 10242 10271 10634 10646 10687
                     10713 10717 10726 10792 10882 10892 10955 10993
                     11580 11634 11653 11686 11726 11730 11831 11851
                     11889 11993 12074 12088 12102 12320 12354 12374
                     12456 12471

CviRI         73       262   463   546   585   833   909   998  1034
                      1150  1373  1637  1765  1893  2278  2326  2371
                      2399  2475  2567  2756  2877  2974  3150  3480
                      3575  3707  3995  4095  4184  4484  4536  4634
                      4727  5420  5524  5851  5922  6059  6201  6216
                      6398  6444  6495  6575  6716  6791  6813  6818
                      6930  6968  7367  7395  7800  8048  8098  8207
                      8544  8585  8632  8688  8927  9216  9537 10026
                     10322 10657 10747 10940 11028 11272 11631 11769 12396

DdeI          51       430   454   743   810  1078  1190  1262  1382
                      2004  2092  2108  2196  2424  3012  3020  3107
                      3171  3390  3503  3662  3682  3981  4584  5463
                      5802  6004  6069  6282  6586  6669  6837  6916
                      7032  7156  7243  7389  7497  7749  7919  7979
                      8074  8169  8493  8521  8562  9985 10394 10560
                     11100 11526 11761

DpnI          52        70    74   674  1232  1278  1390  1831  2131
                      2406  2701  2725  3103  3622  3735  4261  4398
                      5208  5334  5635  5640  5796  6478  6651  6663
                      6679  6898  7161  7350  7591  7659  7905  7947
                      7964  8067  8307  8751  8793  9072 10278 10353
                     10364 10372 10450 10462 10567 10908 10926 10972
                     11230 11247 11283 12344

DraII         16      1510  1560  1994  2176  2203  3254  3507  3962
                      6527  6632  7342  7930  8995  8996  9187 11579

DraIII         4      3015  7721  8318 12001

DrdI           3      9818 11687 11956

DsaI          13      1353  1492  1720  2080  2713  3265  7165  8131
                      8602  8899  8947  9007  9057

Eam1105I       3       275  8702 10603
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Eco47III       0

EcoNI          3      1731  3294  7752

EcoRI          2      4405  4882

EcoRII        52       442   472   529   922   985  1316  1462  1513
                      1651  1996  2619  3241  3256  3322  3338  3425
                      3911  3958  5176  5299  5350  5719  5974  6186
                      6529  6541  6639  6682  6706  6722  6799  6821
                      7051  7177  7279  7357  7479  7702  7833  7923
                      8080  8500  8536  8787  8827  9133  9221  9448
                      9736  9857  9870 12419

EcoRV          2      1442  4876

EspI           4       430  3662  7497  7919

Fnu4HI       110       412   544   547   667   801   831   834   837
                       866   915   999  1002  1065  1075  1151  1244
                      1294  1770  1850  2020  2289  2372  2375  2378
                      2400  2638  2641  2766  2878  3151  3211  3276
                      3358  3481  4218  4485  4635  5157  5248  5251
                      5285  5358  5379  5421  5506  5701  5708  5920
                      5936  5993  6358  6389  6399  6402  6438  6454
                      6493  6701  6704  6717  6720  6819  6831  6931
                      7004  7290  7433  7443  7446  7647  7650  7898
                      8104  8107  8150  8177  8259  8337  8526  8608
                      8689  8874  9067  9217  9243  9286  9289  9292
                      9535  9616  9634  9637  9755  9910 10053 10118
                     10121 10327 10655 10994 11021 11116 11345 11632
                     11741 12181 12203 12217 12321 12394

FnuDII        17      9045  9066  9285  9557  9559  9757 10338 10668
                     11161 11493 11593 11595 11698 11809 12185 12205 12229

FseI           0

HaeI          25        98   467   618  1395  1518  1704  3057  3236
                      3474  3699  3831  3911  4443  4890  6334  6727
                      6981  7371  8500  8787  8895  9012  9725  9736 10188

HaeII          8      1474  3890  8510  9588  9958 12152 12160 12305

HaeIII        77        98   452   467   618  1096  1395  1518  1562
                      1633  1704  1725  1995  2001  2028  2712  3057
```

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                      3135  3186  3236  3255  3474  3699  3831  3877
                      3911  3939  3963  4312  4443  4782  4890  5349
                      5710  5943  6334  6378  6456  6522  6528  6633
                      6711  6727  6807  6981  7056  7263  7362  7371
                      7413  7702  7788  7938  8130  8402  8500  8601
                      8617  8787  8895  8997  9012  9189  9288  9299
                      9551  9725  9736  9754 10188 10646 10726 10993
                     11580 11851 11993 12354 12456

HgiAI         22       367   742  1189  2581  2918  3161  3884  4860
                      4954  5602  5824  5853  6793  7390  8050  8166
                      8587  9178 10028 11189 11274 11771

HgiCI         12       390   821  1611  2232  3260  6390  7623  8084
                      9454 10551 12038 12301

HgiJII        14       367   986  2540  3257  4954  5324  5552  6001
                      6530  7320  8204  8999  9178 12076

HhaI          30      1473  3889  4217  7999  8509  9045  9285  9494
                      9559  9587  9620  9890  9957 10057 10231 10340
                     10733 10826 11163 11495 11595 11698 12151 12159
                     12185 12207 12216 12229 12304 12325

HincII         6      4918  5387  5882  7073  7829  7856

HindIII        4       325  2938  4150  7107

HinfI         55         1   158   276   336   497   522   788  1086
                      1218  1224  1380  1566  1757  1887  2040  2310
                      2363  2420  3027  3065  3452  3809  4254  4323
                      4588  4734  5239  5493  5592  5971  6063  6137
                      6195  6227  6233  6371  6671  6911  6960  7529
                      8460  8547  8703  8921  9545  9610  9685 10081
                     10598 11588 11641 11928 11950 12489 12499

HpaI           0

HpaII         42       979  1824  1965  2037  3136  3251  4476  4800
                      5234  5346  5900  6141  6450  6524  7011  7128
                      7414  7451  7611  7844  7935  8268  8403  8597
                      8661  8935  8954  9000  9239  9428  9917 10064
                     10090 10280 10684 10718 10785 10895 11137 11638
                     11672 12103

KpnI           1      1615
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MaeI          16      3031  3487  3690  3738  5025  5184  5257  6291
                      6309  7224  7971  8808 10205 10458 10793 12152

MaeII         27        64   939  2215  2842  3319  3331  5607  6118
                      6157  7085  7354  8341  8395  8581  9015  9118
                     10413 10829 11202 11522 11786 11945 11957 12000
                     12110 12248 12440

MaeIII        44       352   875   940   974  1357  1401  1574  1758
                      1860  2318  2682  2843  3512  3611  3868  4079
                      4186  4228  4460  4579  4829  5123  5458  6121
                      6368  6758  7117  7283  7807  8021  9272 10066
                     10129 10245 10528 10859 10917 11070 11258 11646
                     12174 12186 12413 12433

MboI          52        68    72   672  1230  1276  1388  1829  2129
                      2404  2699  2723  3101  3620  3733  4259  4396
                      5206  5332  5633  5638  5794  6476  6649  6661
                      6677  6896  7159  7348  7589  7657  7903  7945
                      7962  8065  8305  8749  8791  9070 10276 10351
                     10362 10370 10448 10460 10565 10906 10924 10970
                     11228 11245 11281 12342

McrI          10        71    75  9004  9182  9289  9626 10050 10973
                     11122 12345

MfeI           2       100  3798

MluI           0

MseI          38         8   379   601   612  1254  2559  3304  4155
                      4237  4512  4758  4971  4990  4998  5604  6303
                      7195  9481  9540 10416 10468 10473 10487 10540
                     10775 10814 11179 11551 11732 11789 11800 11812
                     11823 11840 11938 12209 12405 12506

MslI          13        53   240  2412  2927  3118  4305  7086  7100
                      8631  8901 10855 11014 11373

MstI           2     10825 12324

MwoI          62       435   624   675   830   836   862   998  1257
                      1370  1468  1701  2025  2206  2340  2377  2762
                      3156  3207  3354  3480  3597  4001  4217  4476
                      5275  5284  6437  6446  6450  6665  6733  6827
                      7057  7368  7880  8045  8506  8513  8522  8558
                      8591  8607  9003  9028  9097  9291  9454  9498
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                      9582  9649  9763 10335 10723 12112 12142 12169
                     12211 12213 12301 12308 12317 12347

NaeI           4      6451  7012  7415 12104

NarI           1     12302

NcoI           6      1492  1720  3265  8602  8947  9007

NdeI           0

NheI           1      6290

NlaIII        53        58  1150  1335  1496  1724  1757  2136  2363
                      2634  2756  2760  2892  3184  3269  3579  3938
                      3992  4180  4442  4470  4743  4811  5333  5592
                      5765  5879  5942  6059  6263  6301  6423  6657
                      7588  7688  8354  8606  8636  8840  8894  8951
                      8969  9011  9084  9368  9714 10434 10925 10935
                     11013 11049 11442 11547 11631

NlaIV         49       392   823   983  1142  1511  1512  1613  1963
                      2156  2177  2178  2205  2234  3093  3249  3255
                      3262  3337  3344  3896  3940  4783  5796  6392
                      6528  7344  7591  7625  7905  7932  8086  8140
                      8201  8793  8997  8998  9021  9456  9742  9781
                     10553 10647 10688 10899 11489 12040 12061 12073 12303

NotI           1      9286

NruI           0

NspBII        27       549   666  1074  1399  1572  2008  2022  2343
                      2402  4220  5135  5250  5404  5707  5995  6101
                      6668  6719  7425  7900  8106  9534 10052 10297
                     11238 11704 12374

NspI           8      2634  4180  4470  4811  8636  9084  9714 11631

PacI           0

PflMI          5      1628  3323  6101  8891  9058

PmaCI          4      2216  6119  7086  9016

PmeI           0
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PpuMI          6      1510  2176  2203  3507  7342  7930

PshAI          1      1047

PstI          16       548   835   911  1375  1639  1767  2373  2401
                      3709  4486  4636  6446  6718  6932  6970  8690

PvuI           4        71    75 10973 12345

PvuII         15       549  1399  1572  2008  2022  2343  2402  4220
                      5135  5250  6719  7425  8106  9534 12374

RsaI          22      1613  2339  3044  3445  3921  3945  4164  4599
                      4982  5015  5539  5665  6156  6540  7241  7893
                      8079  8344  8637 11083 11759 12232

RsrII          0

SacI           3       367  4954  9178

SacII          0

SalI           1      5880

SanDI          2      1510  2176

SauI           5       810  2092  3503  3981  7749

ScaI           2      5015 11083

ScrFI         74       444   474   531   924   987  1318  1464  1515
                      1653  1825  1998  2037  2621  3243  3252  3258
                      3324  3340  3427  3913  3960  5178  5301  5346
                      5352  5721  5901  5976  6188  6524  6525  6531
                      6543  6641  6684  6708  6724  6801  6823  7053
                      7129  7179  7281  7359  7451  7481  7704  7835
                      7845  7925  7935  8082  8268  8502  8538  8598
                      8662  8789  8829  8936  8955  9000  9135  9223
                      9450  9738  9859  9872 10090 10786 11137 11638
                     11673 12421

SduI          43       367   395   742   826   986  1189  2235  2540
                      2581  2918  3161  3257  3265  3317  3884  4860
                      4954  5324  5552  5602  5824  5853  6001  6118
                      6347  6530  6793  7093  7320  7390  7628  8050
                      8166  8204  8492  8587  8999  9178 10028 11189
                     11274 11771 12076
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SecI            51       348   396   538   985  1207  1317  1353  1492
                        1513  1651  1696  1720  1996  2080  2619  2620
                        2687  2713  3241  3242  3256  3265  3667  3737
                        3890  3958  4018  4748  5299  5350  6308  6523
                        6529  6982  7165  7271  7449  7933  8114  8131
                        8602  8827  8899  8947  8998  9007  9057  9221
                        9449  9870 12420

SexAI            6       442   472  6186  6541  7479  8080

SfeI            26       544   719   831   907  1371  1635  1763  2369
                        2381  2397  3705  4482  4632  6442  6714  6928
                        6966  7618  7653  8686  9152  9975 10166 10844
                       12220 12472

SfiI             1      7368

SgfI             0

SgrAI            0

SmaI             1      6525

SmlI            13         7   360   698  1445  6302  6627  7884  9204
                        9816 10078 10355 11223 12505

SnaBI            0

SpeI             0

SphI             0

SplI             0

SrfI             1      6525

Sse8387I         0

Sse8647I         1      3507

SspI             5        21   714  7559 11407 11793

StuI             5       467   618  1518  1704  8500

StyI            18       348   538  1207  1492  1720  2687  3265  3667
                        3737  3890  4748  6308  6982  7271  8114  8602
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                       8947  9007

SwaI            0

TaqI           19        67    71    75   361   500   763  1227  2128
                       2150  2410  3764  4679  5881  7474  9178  9810
                      11254 11586 12034

TatI            9      2337  4162  4980  5013  5663  7891  8635 11081 11757

TfiI           22       158   336   522   788  1224  1566  2040  3065
                       4254  4323  5239  5493  5971  6195  6227  6233
                       6911  7529  8547  9545  9685 12489

TseI           87       411   543   546   800   830   833   836   865
                        914   998  1001  1064  1074  1150  1243  1293
                       1769  2019  2288  2371  2374  2377  2399  2640
                       2765  2877  3150  3210  3275  3357  3480  4217
                       4484  4634  5156  5247  5250  5357  5378  5420
                       5505  5700  5919  5935  5992  6357  6398  6401
                       6437  6492  6700  6703  6716  6719  6818  6830
                       6930  7289  7432  7442  7445  7646  7649  8103
                       8106  8176  8258  8336  8525  8688  8873  9216
                       9242  9291  9534  9615  9633 10052 10117 10120
                      10326 10654 11020 11631 12180 12320 12393

Tsp45I         26       875   974  1357  1401  1758  1860  2682  2843
                       3611  3868  4079  4460  4829  6121  6368  6758
                       7117  7283  7807  8021  9272 10859 11070 11646
                      12174 12433

Tsp4CI         42       153   196  1357  1590  1611  1873  2101  2355
                       2385  2433  2997  3047  3448  3785  4092  4162
                       4245  4291  4675  4862  4870  4985  5013  5037
                       5442  6134  6395  6499  6538  6786  7403  8487
                       8900  9674  9745 10215 10528 11043 11611 11976
                      12330 12476

TspEI          32        92   100   206   216   376   559   578   598
                       1597  1794  2650  3798  4238  4405  4882  4987
                       5057  5725  5924  6322  6609  8406  9390  9407
                       9482 10470 10776 11031 11777 11803 11814 12462

TspRI          59       269   685  1270  1286  1375  1390  1427  1767
                       1790  1883  2165  2305  2390  2738  2963  3000
                       3016  3161  3473  3482  3541  3709  3908  4451
                       4644  4865  5042  5197  5276  5684  5787  6130
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                      6139  6183  6208  6502  6820  6932  7102  7387
                      7397  7955  8255  8319  8366  8490  8713  9314
                      9503  9612 10118 10131 10402 10551 10656 11003
                     11030 12464 12485

Tth111I         3     5440  6188  8961

VspI            4     4990  9481  9540 10775

XbaI            2     3486  8807

XcmI            3     2974  7379  8609

XhoI            1      360

XhoII          21     1388  3101  3620  3733  5633  5794  6661  6677
                      6896  7159  7589  7903  7962  8065  8791 10351
                     10362 10448 10460 11228 11245

XmaIII          1     9286

XmnI            6      250  5911  5983  6255  9126 11202

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