
Restriction enzymes and their isoschizomers

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INTRODUCTION

Since the last compilation of restriction enzymes (1), 156 new entries have been added including 12 new specificities. With the growing size of this database and the recognition that the most widespread use of the information is as a database for computer programs predicting restriction enzyme cleavage patterns, the new format has been continued. This format is intended to contain the minimal amount of information required by a computer program. It should be noted that only enzymes for which the recognition sequence is known are included. This new list is shown in the first Table, while an alphabetical listing of all Type II enzymes is presented in the second Table. A copy of the restriction enzyme data base in its previous format (2), including enzymes of unknown recognition sequence, will be available upon request. It should also be noted that an alternative compilation of these enzymes has recently been produced (3).

The database shown in these Tables is available online through the BIONET computer resource. A version corresponding to the printed text is located in the file <ROBERTS>RESTRICT.NAR. Several alternative versions are available and are documented in <ROBERTS>RESTRICT.DOC.

In forming this list, all endonucleases cleaving DNA at a specific sequence have been considered to be restriction enzymes, although in most cases there is no direct genetic evidence for the presence of a restriction-modification system. The endonucleases are named in accordance with the proposal of Smith and Nathans (4).

Several enzymes appear in this list with revised names. These revisions were made to avoid confusion with existing enzymes or to increase the uniformity of the names. In each case the name changes were made with the approval of the appropriate authors. The specific changes are as follows. *EagKI* replaces *EagI* (5) and *AniMI* replaces *AniI* (130), since the latter names had been used for other enzymes. *NspI-V* replaces *Nsp(7524)I-V* (6). This had already been used in many publications and catalogs. *CviQI* replaces *CviII* (7) to show that this enzyme comes from a strain different from that encoding *CviI*.

Type II enzymes

Enzyme ¹	Isoschizomers	Recognition ² Sequence	Me ³ site	Commercial ⁴ source	Reference
<i>Aat</i> II		GACGT↓C		MNRU	8
<i>Acc</i> I		GT↓MKAC		ABGIMNPRU	9
<i>Acy</i> I		GR↓CGYC			10
	<i>Aha</i> II	GR↓CGYC		N	11
	<i>Aos</i> II	GR↓CGYC			12
	<i>Ast</i> WI	GR↓CGYC			13
	<i>Asu</i> III	GR↓CGYC			13
	<i>Bbi</i> II	GR↓CGYC		A	14
	<i>Hgi</i> DI	GR↓CGYC			15
	<i>Hgi</i> GI	GR↓CGYC			15
	<i>Hgi</i> HII	GR↓CGYC			16
	<i>Nla</i> SII	GRCGYC			17
<i>Afl</i> II		C↓TTAAG		AGN	18
<i>Afl</i> III		A↓CRYGT		G	18
<i>Aha</i> III		TTT↓AAA			19
	<i>Dra</i> I	TTT↓AAA		ABGIMNPRU	20
<i>Alu</i> I		AG↓CT	3(5)	ABGIMNPRU	17,21-24
	<i>Mli</i> I	AG↓CT			25,26
	<i>Otu</i> I	AGCT			27
	<i>Otu</i> NI	AGCT			28
	<i>Oxa</i> I	AGCT			29
<i>Alw</i> NI		CAGNNN↓CTG		N	30
<i>Apa</i> I		GGGCC↓C	4(5)	BGIMNPRU	31,32
<i>Apa</i> LI		G↓TGCAC		AGN	33
	<i>Ame</i> I	GTGCAC			27
	<i>Sno</i> I	G↓TGCAC			34,35
	<i>Vne</i> I	G↓TGCAC			36
<i>Asu</i> I		G↓GNCC		P	37
	<i>Apu</i> I	GGNCC			38
	<i>Bac</i> 36	G↓GNCC			38
	<i>Bsp</i> BII	G↓GNCC			39
	<i>Cfr</i> 4I	GGNCC			41,44
	<i>Cfr</i> 8I	GGNCC			41,44

Enzyme ¹	Isoschizomers	Recognition ² Sequence	Me ³ site	Commercial ⁴ source	Reference
	<i>Cfr</i> 13I	G↓GNCC	4(5)	AU	40,41
	<i>Cfr</i> 23I	GGNCC			42
	<i>Cfr</i> 33I	GGNCC			43
	<i>Cfr</i> 45I	GGNCC			43
	<i>Cfr</i> 46I	GGNCC			43
	<i>Cfr</i> 47I	GGNCC			43
	<i>Cfr</i> NI	GGNCC			45
	<i>Eco</i> 39I	GGNCC			46
	<i>Eco</i> 47II	GGNCC			47
	<i>Mja</i> II	GGNCC			48
	<i>Nla</i> DII	GGNCC			49
	<i>Nmu</i> EII	GGNCC			50
	<i>Nmu</i> SI	GGNCC			51
	<i>Nsp</i> IV	G↓GNCC		R	6
	<i>Psp</i> I	GGNCC			52
	<i>Sau</i> 96I	G↓GNCC		BGMNP	53
	<i>Sdy</i> I	GGNCC			54
<i>Asu</i> II		TT↓CGAA		GP	13,55
	<i>Bst</i> BI	TTCGAA		N	56
	<i>Fsp</i> II	TT↓CGAA			57
	<i>Lsp</i> I	TT↓CGAA			34,35
	<i>Mla</i> I	TT↓CGAA			58
	<i>Nsp</i> V	TTCGAA		AR	6
	<i>Nsp</i> BI	TTCGAA			59
<i>Ava</i> I		C↓YCGRG		ABGIMNPRU	60,61
	<i>Aqu</i> I	C↓YCGRG	1(5)		62,63
	<i>Avr</i> I	CYCGRG			64
	<i>Bst</i> SI	C↓YCGRG			56
	<i>Eco</i> 88I	CYCGRG			65
	<i>Nsp</i> III	C↓YCGRG		R	6
	<i>Nsp</i> SAI	C↓YCGRG			66
<i>Ava</i> II		G↓GWCC		ABGIMNPR	60,61,67,68
	<i>Afl</i> I	G↓GWCC			18
	<i>Asp</i> 697I	GGWCC			69

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Enzyme ¹	Isoschizomers	Recognition ² Sequence	Me ³ site	Commercial ⁴ source	Reference
	<i>Bam</i> N _x I	G↓GWCC			70-72
	<i>Bme</i> 216I	G↓GWCC			73,74
	<i>Bti</i> I	GGWCC			75
	<i>Cau</i> I	G↓GWCC			76,77
	<i>Cln</i> II	GGWCC			78
	<i>Eag</i> MI	G↓GWCC			79
	<i>Eco</i> 47I	G↓GWCC		U	47,80
	<i>Erp</i> I	G↓GWCC			38
	<i>Fdi</i> I	G↓GWCC			81,82
	<i>Fsp</i> MSI	G↓GWCC			38
	<i>Gsp</i> AI	GGWCC			83
	<i>Hgi</i> BI	G↓GWCC			15
	<i>Hgi</i> CII	G↓GWCC			15
	<i>Hgi</i> EI	G↓GWCC			15
	<i>Hgi</i> HIII	G↓GWCC			16
	<i>Hgi</i> JI	G↓GWCC			16
	<i>Nsp</i> HII	GGWCC			59
	<i>Sfn</i> I	GGWCC			84
	<i>Sin</i> AI	GGWCC			85
	<i>Sin</i> BI	GGWCC			85
	<i>Sin</i> CI	GGWCC			85
	<i>Sin</i> DI	GGWCC			85
	<i>Sin</i> EI	GGWCC			85
	<i>Sin</i> FI	GGWCC			85
	<i>Sin</i> GI	GGWCC			85
	<i>Sin</i> HI	GGWCC			85
	<i>Sin</i> I	G↓GWCC		P	86,87
	<i>Sin</i> JI	GGWCC			85
	<i>Tru</i> I	GGWCC			88
<i>Ava</i> III		ATGCAT		G	89,90
	<i>Eco</i> T22I	ATGCA↓T		U	91
	<i>Nsi</i> I	ATGCA↓T		BMNP	92
<i>Avr</i> II		C↓CTAGG		N	64,93
<i>Bal</i> I		TGG↓CCA	4(5)	ABGIN	94,32
<i>Bam</i> HI		G↓GATCC	5(5)	ABGIMNPRU	95-97

Enzyme ¹	Isoschizomers	Recognition ² Sequence	Me ³ site	Commercial ⁴ source	Reference
	<i>AacI</i>	GGATCC			98
	<i>AaeI</i>	GGATCC			98
	<i>AccEBI</i>	G↓GATCC			99
	<i>Ali12257I</i>	GGATCC			100
	<i>Ali12258I</i>	GGATCC			100
	<i>Alil</i>	G↓GATCC			101
	<i>BamFI</i>	GGATCC			102
	<i>BamKI</i>	GGATCC			102
	<i>BamNI</i>	GGATCC			71
	<i>BstI</i>	G↓GATCC		GR	103,104
	<i>BstQI</i>	GGATCC			56
	<i>CelI</i>	GGATCC			105
	<i>DdsI</i>	GGATCC			106
	<i>GdoI</i>	GGATCC			98
	<i>GinI</i>	GGATCC			107
	<i>GoxI</i>	GGATCC			98
	<i>MleI</i>	GGATCC			25
	<i>NasBI</i>	GGATCC			25
	<i>NspSAIV</i>	G↓GATCC			66
	<i>RhsI</i>	GGATCC			108
<i>BbvI</i>		GCAGC(8/12)		GIN	97,109-111
	<i>AtwXI</i>	GCAGC(8/12)			112
<i>BbvII</i>		GAAGAC(2/6)			113
<i>BclI</i>		T↓GATCA		ABGIMNRU	114
	<i>AtuCI</i>	TGATCA			115
	<i>BspXII</i>	T↓GATCA			116
	<i>BstGI</i>	TGATCA			117
	<i>BstKI</i>	TGATCA			56
	<i>CpeI</i>	TGATCA			118
	<i>CthI</i>	TGATCA			119
	<i>FbaI</i>	TGATCA			84
	<i>PovI</i>	T↓GATCA			120
	<i>SstIV</i>	TGATCA			121
<i>BglI</i>		GCCNNNN↓NGGC		BGIMNPRU	122-125
	<i>VanI</i>	GCCNNNNNGGC			126

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Enzyme ¹	Isoschizomers	Recognition ² Sequence	Me ³ site	Commercial ⁴ source	Reference
<i>Bgl</i> III		A↓GATCT		ABGIMNPRU	122,123,127
	<i>Nsp</i> MACI	A↓GATCT			128
<i>Bin</i> I		GGATC(4/5)			129
	<i>Alw</i> I	GGATC(4/5)		N	130
	<i>Bth</i> II	GGATC			131
<i>Bse</i> PI		GCGCGC			117
	<i>Bso</i> PI	GCGCGC			117
	<i>Bsr</i> HI	GCGCGC			117
	<i>Bss</i> HIII	G↓CGCGC		GN	117,476
<i>Bsm</i> AI		GTCTC			132
<i>Bsm</i> I		GAATGC(1/-1)		GN	55
<i>Bsp</i> HI		T↓CATGA		N	133
	<i>Rsp</i> XI	T↓CATGA		G	134
<i>Bsp</i> MI		ACCTGC(4/8)		N	130,135
<i>Bsp</i> MII		T↓CCGGA		N	130,135
	<i>Acc</i> III	T↓CCGGA		AG	55,136
	<i>Kpn</i> 2I	TCCGGA			137
	<i>Mro</i> I	T↓CCGGA		U	138
<i>Bsr</i> I		ACTGG(1/-1)			27
<i>Bst</i> EII		G↓GTNACC		BGMNRU	139,140
	<i>Asp</i> AI	G↓GTNACC			35
	<i>Bst</i> 31I	GGTNACC			141
	<i>Bst</i> DI	GGTNACC			56
	<i>Bst</i> PI	G↓GTNACC			142
	<i>Cfr</i> 7I	GGTNACC			41
	<i>Cfr</i> 19I	GGTNACC			43
	<i>Eca</i> I	G↓GTNACC			143
	<i>Eco</i> 91I	GGTNACC			144
	<i>Eco</i> O65I	G↓GTNACC			145,146
	<i>Kox</i> I	G↓GTNACC			147
	<i>Nsp</i> SAII	G↓GTNACC			66
<i>Bst</i> XI		CCANNNNN↓NTGG		GNP	117,148
	<i>Bss</i> GI	CCANNNNNNTGG			117
	<i>Bst</i> TI	CCANNNNNNTGG			117
<i>Cau</i> II		CC↓SGG			76,77,149

Enzyme ¹	Isoschizomers	Recognition ² Sequence	Me ³ site	Commercial ⁴ source	Reference
	<i>AhaI</i>	CC↓SGG			11
	<i>AseII</i>	CC↓SGG			150
	<i>BcnI</i>	CC↓SGG	2(4)	A	151-155
	<i>HgiS21I</i>	CCSGG			156
	<i>NciI</i>	CC↓SGG		BGMNU	157,158
	<i>RshII</i>	CCSGG			73
<i>Cfr10I</i>		R↓CCGGY	2(5)	AU	41,44,155,159
<i>CfrI</i>		Y↓GGCCR	4(5)		44,155,160,161
	<i>Cfr14I</i>	YGGCCR			41
	<i>Cfr38I</i>	YGGCCR			42
	<i>Cfr39I</i>	YGGCCR			43
	<i>Cfr40I</i>	YGGCCR			43
	<i>EaeI</i>	Y↓GGCCR	4(5)	GN	162,163
	<i>Eco90I</i>	YGGCCR			144
	<i>Eco164I</i>	YGGCCR			164
	<i>EcoHI</i>	YGGCCR			28
<i>ClaI</i>		AT↓CGAT		ABGMNR	165
	<i>Asp707I</i>	ATCGAT			69
	<i>BanIII</i>	ATCGAT		U	8
	<i>BcmI</i>	AT↓CGAT			166
	<i>BscI</i>	AT↓CGAT			35,167
	<i>Bsp106I</i>	AT↓CGAT			168
	<i>BspXI</i>	AT↓CGAT			116
<i>CviJI</i>		RG↓CY			169
	<i>CviKI</i>	RGCY			170
	<i>CviLI</i>	RGCY			170
	<i>CviMI</i>	RGCY			170
	<i>CviNI</i>	RGCY			170
	<i>CviOI</i>	RGCY			170
<i>DdeI</i>		C↓TNAG	1(5)	BGIMNPRU	171-173
<i>DpnI*</i>		GA↓TC		ABGIMNP	174-176
	<i>CfuI*</i>	GA↓TC			177,178
	<i>NanII*</i>	GATC			179
	<i>NgoDIII*</i>	GATC			180
	<i>NmuDI*</i>	GATC			50

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Enzyme ¹	Isoschizomers	Recognition ² Sequence	Me ³ site	Commercial ⁴ source	Reference
	<i>NmuEI</i> *	GATC			181
	<i>NsuDI</i> *	GATC			50
<i>DraII</i>		RG↓GNCCY		GM	182-184
	<i>EcoO109I</i>	RG↓GNCCY		AGN	185
	<i>PssI</i>	RGGNC↓CY		I	106,186
<i>DraIII</i>		CACNNN↓GTG		MN	182-184
<i>DsaI</i>		C↓CRYGG			187
<i>EarI</i>		CTCTC			27
<i>Eco31I</i>		GGTCTC(1/5)			188
	<i>Eco42I</i>	GGTCTC			189
	<i>Eco51I</i>	GGTCTC			164
	<i>Eco95I</i>	GGTCTC			191
	<i>Eco97I</i>	GGTCTC			192
	<i>Eco101I</i>	GGTCTC			189
	<i>Eco120I</i>	GGTCTC			189
	<i>Eco127I</i>	GGTCTC			190
	<i>Eco129I</i>	GGTCTC			190
	<i>Eco155I</i>	GGTCTC			189
	<i>Eco156I</i>	GGTCTC			189
	<i>Eco157I</i>	GGTCTC			189
	<i>Eco162I</i>	GGTCTC			190
	<i>PpaI</i>	GGTCTC			130
<i>Eco47III</i>		AGC↓GCT		AU	47
	<i>AitI</i>	AGC↓GCT			193
<i>Eco57I</i>		CTGAAG(16/14)			194
	<i>Fsfl</i>	CTGAAG			195
<i>EcoNI</i>		CCTNN↓NNNAGG			196
	<i>BstWI</i>	CCTNNNNNAGG			132
<i>EcoRI</i>		G↓AATTC	3(6)	ABGIMNPRU	197-199
	<i>Eco82I</i>	GAATTC			191
	<i>Eco159I</i>	GAATTC			190
	<i>RsrI</i>	G↓AATTC			200,201
	<i>SsoI</i>	G↓AATTC			202
<i>EcoRII</i> ⁵		↓CCWGG	2(5)	BG	203-205
	<i>AeuI</i>	CC↓WGG			150

Enzyme ¹	Isoschizomers	Recognition ² Sequence	Me ³ site	Commercial ⁴ source	Reference
+	<i>AorI</i>	CC↓WGG			98
+	<i>ApyI</i>	CC↓WGG		M	206
	<i>AtuBI</i>	CCWGG			207
	<i>AtuII</i>	CCWGG			208
	<i>BinSI</i>	CCWGG			131
	<i>BstGII</i>	CCWGG			117
+	<i>BstNI</i>	CC↓WGG		N	209
	<i>BstOI</i>	CCWGG			56
	<i>Cdi27I</i>	CCWGG			210
	<i>Cfr5I</i>	CCWGG			41,44
	<i>Cfr11I</i>	CCWGG			41,44
	<i>Cfr20I</i>	CCWGG			43
	<i>Cfr22I</i>	CCWGG			43
	<i>Cfr24I</i>	CCWGG			43
	<i>Cfr25I</i>	CCWGG			43
	<i>Cfr27I</i>	CCWGG			43
	<i>Cfr28I</i>	CCWGG			43
	<i>Cfr29I</i>	CCWGG			43
	<i>Cfr30I</i>	CCWGG			43
	<i>Cfr31I</i>	CCWGG			43
	<i>Cfr35I</i>	CCWGG			43
	<i>CfrS37I</i>	CCWGG			156
	<i>CthII</i>	CC↓WGG			119
	<i>EagKI</i>	CCWGG			5
	<i>EcaII</i>	CCWGG			55
	<i>Ecl66I</i>	CCWGG			192
	<i>EcIII</i>	CCWGG			211
	<i>EclS39I</i>	CCWGG			156
	<i>Eco38I</i>	CCWGG			46
	<i>Eco40I</i>	CCWGG			46
	<i>Eco41I</i>	CCWGG			46
	<i>Eco60I</i>	CCWGG			44
	<i>Eco61I</i>	CCWGG			44
	<i>Eco67I</i>	CCWGG			191
	<i>Eco70I</i>	CCWGG			191

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Enzyme ¹	Isoschizomers	Recognition ² Sequence	Me ³ site	Commercial ⁴ source	Reference
	<i>Eco71I</i>	CCWGG			212
	<i>Eco128I</i>	CCWGG			190
	<i>Eco136I</i>	CCWGG			190
	<i>Eco165I</i>	CCWGG			164
	<i>MphI</i>	CCWGG			213
+	<i>MvaI</i>	CC↓WGG	2(4)	AU	214,215
	<i>SgrII</i>	CCWGG			216
	<i>TaqXI</i>	CC↓WGG			217
	<i>ZanI</i>	CC↓WGG			218
<i>EcoRV</i>		GAT↓ATC		ABGIMNPRU	219,220
	<i>BstRI</i>	GATATC			56
	<i>CeqI</i>	GAT↓ATC			221
	<i>Eco32I</i>	GAT↓ATC			44,222
	<i>HjaI</i>	GATATC			477
	<i>NanI</i>	GATATC			179
	<i>NfiAI</i>	GATATC			223
	<i>NsiCI</i>	GAT↓ATC			224
<i>EspI</i>		GC↓TNAGC		G	225
	<i>CelII</i>	GCTNAG			105
<i>FinI</i>		GTCCC			130
<i>Fnu4HI</i>		GC↓NGC		N	226
	<i>FbrI</i>	GC↓NGC			84
<i>FnuDII</i>		CG↓JCG			227
	<i>AccII</i>	CG↓JCG		AG	9,228
	<i>BceFI</i>	CGCG			229
	<i>BceRI</i>	CGCG			102
	<i>BepI</i>	CG↓JCG			230
	<i>BstUI</i>	CG↓JCG		N	56
	<i>Bsu1192II</i>	CGCG			54
	<i>Bsu1193I</i>	CGCG			54,102
	<i>Bsu6633I</i>	CGCG			102,231
	<i>BsuEII</i>	CGCG			54,232
	<i>FspMI</i>	CGCG			130
	<i>Hin1056I</i>	CGCG			233
	<i>MvnI</i>	CG↓JCG		M	234

Enzyme ¹	Isoschizomers	Recognition ² Sequence	Me ³ site	Commercial ⁴ source	Reference
	<i>Pfl</i> AI	CGCG			27
	<i>Tha</i> I	CG↓CG		BI	235
<i>Fok</i> I		GGATG(9/13)		AMN	236
	<i>Hin</i> GUII	GGATG			237-239
<i>Gdi</i> III		YGGCCG(-5/-1)			240
<i>Gsu</i> I		CTGGAG(16/14)			241,242
<i>Hae</i> I		WGG↓CCW			238
<i>Hae</i> II		RGCGC↓Y		ABGIMNR	243,244
	<i>Hin</i> HI	RGCGCY			245
	<i>Ngo</i> I	RGCGCY			246
<i>Hae</i> III		GG↓CC	3(5)	ABGIMNPRU	247,248,249
	<i>Asp</i> 742I	GGCC			156
	<i>Bce</i> 71I	GGCC			250
	<i>Bli</i> I	GGCC			251
	<i>Blu</i> II	GGCC			240
	<i>Bse</i> I	GGCC			252
	<i>Bsh</i> AI	GGCC			83
	<i>Bsh</i> BI	GGCC			83
	<i>Bsh</i> CI	GGCC			83
	<i>Bsh</i> DI	GGCC			83
	<i>Bsh</i> EI	GGCC			83
	<i>Bsh</i> FI	GGCC			83
	<i>Bsh</i> I	GGCC			83
	<i>Bsp</i> 71I	GGCC			250
	<i>Bsp</i> 211I	GG↓CC			250
	<i>Bsp</i> 226I	GGCC			250
	<i>Bsp</i> RI	GG↓CC			253-255
	<i>Bss</i> CI	GGCC			117
	<i>Bst</i> CI	GGCC			117
	<i>Bst</i> JI	GGCC			56
	<i>Bsu</i> 1076I	GGCC			102
	<i>Bsu</i> 1114I	GGCC			102
	<i>Bsu</i> RI	GG↓CC	3(5)	G	248,256,257
	<i>Clm</i> I	GGCC			78
	<i>Clf</i> I	GG↓CC			258

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Enzyme ¹	Isoschizomers	Recognition ² Sequence	Me ³ site	Commercial ⁴ source	Reference
	<i>DsaII</i>	GG↓CC			187
	<i>FinSI</i>	GGCC			84
	<i>FnuDI</i>	GG↓CC			227
	<i>Hhgl</i>	GGCC			55
	<i>MniI</i>	GGCC			213
	<i>MnnII</i>	GGCC			259
	<i>NgolI</i>	GGCC			260
	<i>NgolPII</i>	GG↓CC			224
	<i>NgolSI</i>	GGCC			49
	<i>NlaI</i>	GGCC			261
	<i>PaiI</i>	GGCC			107
	<i>PalI</i>	GG↓CC		R	262,263
	<i>PpuI</i>	GGCC			107
	<i>SfaI</i>	GG↓CC			264
	<i>SplIII</i>	GGCC			265
	<i>SuaI</i>	GG↓CC			266
	<i>SulI</i>	GGCC			267
	<i>TspZNI</i>	GGCC			268
	<i>TtnI</i>	GGCC			82
	<i>VhaI</i>	GGCC			108
<i>HgaI</i>		GACGC(5/10)		N	181,245,269
<i>HgiAI</i>		GWGCW↓C		N	270
	<i>AspHI</i>	GWGCW↓C			479
<i>HgiCI</i>		G↓GYRCC			15,271
	<i>BanI</i>	G↓GYRCC		GIMNRU	8,271
	<i>Eco50I</i>	GGYRCC			164
	<i>Eco64I</i>	GGYRCC			191
	<i>HgiHI</i>	G↓GYRCC			16
<i>HgiEII</i>		ACCNNNNNNGGT			15
<i>HgiJII</i>		GRGCY↓C			16
	<i>BanII</i>	GRGCY↓C		GIMNRU	8
	<i>BvuI</i>	GRGCY↓C			272
	<i>Cfr48I</i>	GRGCYC			43
	<i>Eco24I</i>	GRGCYC			210
	<i>Eco25I</i>	GRGCYC			210

Enzyme ¹	Isoschizomers	Recognition ² Sequence	Me ³ site	Commercial ⁴ source	Reference
	<i>Eco26I</i>	GRGCYC			44
	<i>Eco35I</i>	GRGCYC			210
	<i>Eco68I</i>	GRGCYC			192
	<i>Eco113I</i>	GRGCYC			189
	<i>EcoT38I</i>	GRGCYC			91
	<i>KoxII</i>	GRGCY↓C			147
<i>HhaI</i>		GCG↓C	2(5)	ABGNPRU	273,274
	<i>BcaI</i>	GCGC			28
	<i>CfoI</i>	GCGC		BIMP	106
	<i>FnuDIII</i>	GCG↓C			227
	<i>HinGUI</i>	GCGC			237,275
	<i>HinPII</i>	G↓CGC		N	276
	<i>HinS1I</i>	GCGC			276
	<i>HinS2I</i>	GCGC			276
	<i>MnnIV</i>	GCGC			259
	<i>SciNI</i>	G↓CGC			277
<i>HindII</i>		GTY↓RAC	5(6)	M	278-281
	<i>ChuII</i>	GTYRAC			282
	<i>Hin1160II</i>	GTYRAC			233
	<i>Hin1161II</i>	GTYRAC			233
	<i>HinJCI</i>	GTY↓RAC			283
	<i>HincII</i>	GTY↓RAC		ABGINPRU	284
	<i>MnnI</i>	GTYRAC			259
<i>HindIII</i>		A↓AGCTT	1(6)	ABGIMNPRU	280,281,285
	<i>Asp52I</i>	AAGCTT			156
	<i>BbrI</i>	AAGCTT			55
	<i>BpeI</i>	AAGCTT			286,287
	<i>BstFI</i>	A↓AGCTT			288
	<i>Cfr32I</i>	AAGCTT			43
	<i>ChuI</i>	AAGCTT			282
	<i>Eco65I</i>	AAGCTT			192
	<i>Eco98I</i>	AAGCTT			192
	<i>EcoVIII</i>	A↓AGCTT			289
	<i>Hin173I</i>	AAGCTT			237
	<i>Hin1076III</i>	AAGCTT			233

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Enzyme ¹	Isoschizomers	Recognition ² Sequence	Me ³ site	Commercial ⁴ source	Reference
	<i>Hin</i> JCII	AAGCTT			283
	<i>Hin</i> bIII	AAGCTT			55,290
	<i>Hin</i> fII	AAGCTT			291
	<i>Hsu</i> I	A↓AGCTT			55
	<i>Mki</i> I	AAGCTT			213
<i>Hin</i> fI		G↓ANTC		ABGIMNPRU	290,292,293
	<i>Cvi</i> BI	G↓ANTC			294
	<i>Cvi</i> CI	GANTC			294
	<i>Cvi</i> DI	GANTC			294
	<i>Cvi</i> EI	GANTC			294
	<i>Cvi</i> FI	GANTC			294
	<i>Cvi</i> GI	GANTC			294
	<i>Fnu</i> AI	G↓ANTC			227
	<i>Hha</i> II	G↓ANTC	2(6)		295-297
	<i>Nca</i> I	GANTC			298
	<i>Nov</i> II	GANTC			298
	<i>Nsi</i> HI	GANTC			299
<i>Hpa</i> I		GTT↓AAC	5(6)	ABGIMNPRU	300-302
	<i>Bse</i> II	GTTAAC			252
<i>Hpa</i> II		C↓CGG	2(5)	BGMNPRU	249,300,301
	<i>Asp</i> 748I	CCGG			156
	<i>Bsu</i> 1192I	CCGG			54,102
	<i>Bsu</i> FI	CCGG	1(5)		54,102,232
	<i>Fin</i> II	CCGG			130
	<i>Hap</i> II	C↓CGG		AGI	245,303
	<i>Mni</i> II	CCGG			213
	<i>Mno</i> I	C↓CGG			55,304
	<i>Msp</i> I	C↓CGG	1(5)	ABGIMNPRU	111,305,306
	<i>Sec</i> II	CCGG			307
	<i>Sfa</i> GUI	CCGG			308
<i>Hph</i> I		GGTGA(8/7)		N	290,309
	<i>Ngo</i> BI	GGTGA	-2(5)		49,480
<i>Kpn</i> I		GGTAC↓C		ABGIMNPRU	310,311
	<i>Asp</i> 718I	G↓GTACC		M	312
	<i>Eco</i> 149I	GGTACC			190

Enzyme ¹	Isoschizomers	Recognition ² Sequence	Me ³ site	Commercial ⁴ source	Reference
	<i>Kpn</i> K14I	GGTACC			156
	<i>Nmi</i> I	GGTACC			313
	<i>Sth</i> AI	GGTACC			85
	<i>Sth</i> BI	GGTACC			85
	<i>Sth</i> CI	GGTACC			85
	<i>Sth</i> DI	GGTACC			85
	<i>Sth</i> EI	GGTACC			85
	<i>Sth</i> FI	GGTACC			85
	<i>Sth</i> GI	GGTACC			85
	<i>Sth</i> HI	GGTACC			85
	<i>Sth</i> I	G↓GTACC			85
	<i>Sth</i> JI	GGTACC			85
	<i>Sth</i> KI	GGTACC			85
	<i>Sth</i> LI	GGTACC			85
	<i>Sth</i> MI	GGTACC			85
	<i>Sth</i> NI	GGTACC			314
<i>Ksp</i> 632I		CTCTTC(1/4)			478
<i>Mae</i> I		C↓TAG		M	315
	<i>Mja</i> I	CTAG			48
<i>Mae</i> II		A↓CGT		M	315
<i>Mae</i> III		↓GTNAC		M	315
<i>Mbo</i> I ⁶		↓GATC		BGINR	316
+	<i>Bce</i> 243I	↓GATC			317
	<i>Bsa</i> PI	GATC			117
	<i>Bsp</i> 64I	GATC			250
+	<i>Bsp</i> 67I	↓GATC			250
	<i>Bsp</i> 74I	GATC			250
	<i>Bsp</i> 76I	GATC			250
	<i>Bsp</i> 105I	↓GATC			250
+	<i>Bsp</i> AI	↓GATC			39
+	<i>Bsr</i> PII	GATC			117
	<i>Bss</i> GII	GATC			117
	<i>Bst</i> EIII	GATC			55,139,318
	<i>Bst</i> XII	GATC			117
	<i>Cpa</i> I	GATC			254
+	<i>Cpf</i> I	↓GATC			182

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Enzyme ¹	Isoschizomers	Recognition ² Sequence	Me ³ site	Commercial ⁴ source	Reference
	<i>Cvi</i> AI	↓GATC	2(6)		319,320
	<i>Cvi</i> BII	GATC			321
	<i>Cvi</i> HI	GATC			170
	<i>Dpn</i> II	GATC			174,176
	<i>Fnu</i> AII	GATC			55,227
	<i>Fnu</i> CI	↓GATC			227
+	<i>Fnu</i> EI	↓GATC			227
	<i>Hac</i> I	↓GATC			322
	<i>Meu</i> I	GATC			25
	<i>Mme</i> II	GATC			323
	<i>Mno</i> III	GATC			55
	<i>Mos</i> I	GATC			316
	<i>Msp</i> 67II	GATC			38
	<i>Mth</i> I	GATC			117
	<i>Nde</i> II	↓GATC		B	298
	<i>Nfi</i> AII	GATC			223
	<i>Nfi</i> BI	GATC			324
	<i>Nfi</i> II	GATC			298
	<i>Nla</i> DI	GATC			49
	<i>Nla</i> II	↓GATC			261
	<i>Nme</i> CI	↓GATC			224
	<i>Nph</i> I	↓GATC			224
	<i>Nsi</i> AI	GATC			325
	<i>Nsp</i> AI	GATC			25
	<i>Nsu</i> I	GATC			50
	<i>Pfa</i> I	GATC			305
	<i>Sal</i> AI	GATC			196
	<i>Sal</i> HI	GATC			196
+	<i>Sau</i> 3AI	↓GATC	4(5)	ABGIMNPRU	326,327
	<i>Sau</i> 6782I	GATC			328
	<i>Sin</i> MI	GATC			50
	<i>Tru</i> II	GATC			88
<i>Mbo</i> II		GAAGA(8/7)	5(6)	BGINR	316,329-331
	<i>Ncu</i> I	GAAGA			332
	<i>Tce</i> I	GAAGA			267

Enzyme ¹	Isoschizomers	Recognition ² Sequence	Me ³ site	Commercial ⁴ source	Reference
<i>MluI</i>		A↓CGCGT		ABGIMNPRU	236
	<i>ApeI</i>	ACGCGT			196
<i>MmeI</i>		TCCRAC(20/18)			323
<i>MnII</i>		CCTC(7/7)		GN	111,333
<i>MseI</i>		T↓TAA		N	130
<i>MstI</i>		TGC↓GCA			110,334
	<i>AosI</i>	TGC↓GCA		G	12
	<i>AviII</i>	TGC↓GCA			87
	<i>FdiII</i>	TGC↓GCA			81,82
	<i>FspI</i>	TGC↓GCA		GN	57,335
	<i>GspAII</i>	TGCGCA			83
<i>NaeI</i>		GCC↓GGC		GMNU	336
	<i>AmeII</i>	GCCGGC			27
	<i>AniMI</i>	GCCGGC			130
	<i>ApeAI</i>	GCCGGC			27
	<i>AprI</i>	GCCGGC			25
	<i>Eco56I</i>	GCCGGC			44
	<i>MisI</i>	GCCGGC			139
	<i>NasWI</i>	GCCGGC			25
	<i>NbaI</i>	GCCGGC			54
	<i>NbrI</i>	GCCGGC			54
	<i>NgoMI</i>	GCCGGC			337
	<i>NmuFI</i>	GCCGGC			50
	<i>NmuI</i>	GCCGGC			298
	<i>NspWI</i>	GCCGGC			25
	<i>NtaSII</i>	GCCGGC			84
	<i>PglI</i>	GCCGGC			338
	<i>Psp61I</i>	GCCGGC			38
	<i>RluI</i>	GCCGGC			339-341
	<i>SacAI</i>	GCCGGC			45
	<i>SalCI</i>	GCCGGC			27
	<i>SaoI</i>	GCCGGC			342
	<i>SauAI</i>	GCCGGC			324
	<i>SauBMKI</i>	GCC↓GGC			343
	<i>Skal</i>	GCCGGC			50

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Enzyme ¹	Isoschizomers	Recognition ² Sequence	Me ³ site	Commercial ⁴ source	Reference
<i>NarI</i>		GG↓CGCC		BGN	344
	<i>BbeAI</i>	GGCGCC			131
	<i>BbeI</i>	GGCGC↓C		A	345
	<i>BinSII</i>	GGCGCC			131
	<i>Eco78I</i>	GGC↓GCC			346
	<i>NamI</i>	GGCGCC			347
	<i>NdaI</i>	GG↓CGCC			348
	<i>NunII</i>	GG↓CGCC		G	117
	<i>SfoI</i>	GGCGCC			130
<i>NcoI</i>		C↓CATGG		ABGMNPR	117
	<i>NspSAIII</i>	CCATGG			66
<i>NdeI</i>		CA↓TATG		BNR	349
<i>NheI</i>		G↓CTAGC		BGMNPR	313
<i>NlaIII</i>		CATG↓		N	261
<i>NlaIV</i>		GGN↓NCC		N	261
	<i>BcrI</i>	GGNNCC			193
<i>NotI</i>		GC↓GGCCGC		AGMNPRU	350,351
<i>NruI</i>		TCG↓CGA		ABGMNRU	313
	<i>AmaI</i>	TCGCGA			108
	<i>SalDI</i>	TCGCGA			27
	<i>Sbo13I</i>	TCG↓CGA			91
<i>NspI</i>		RCATG↓Y		A	6
	<i>NspHI</i>	RCATG↓Y		G	59
<i>NspBII</i>		CMG↓CKG		G	59
<i>PflMI</i>		CCANNNN↓NTGG		N	130
<i>PleI</i>		GAGTC(4/5)		N	352
<i>PmaCI</i>		CAC↓GTG			353
	<i>Eco72I</i>	CAC↓GTG			354
<i>PpuMI</i>		RG↓GWCCY		N	130,355
<i>PstI</i>		CTGCA↓G	5(6)	ABGIMNPRU	332,356,357
	<i>Ali2882I</i>	CTGCAG			100
	<i>AliAJI</i>	CTGCA↓G			358
	<i>Asp36I</i>	CTGCAG			210
	<i>Asp708I</i>	CTGCAG			69
	<i>BbiI</i>	CTGCAG			14

Enzyme ¹	Isoschizomers	Recognition ² Sequence	Me ³ site	Commercial ⁴ source	Reference
	<i>Bce</i> 170I	CTGCAG			102
	<i>Bsp</i> 63I	CTGCA↓G			250
	<i>Bsp</i> 78I	CTGCAG			250
	<i>Bsp</i> BI	CTGCA↓G			39
	<i>Bsu</i> BI	CTGCAG			102,359
	<i>Cau</i> III	CTGCAG			360
	<i>Cfl</i> I	CTGCA↓G			322
	<i>Cfr</i> A4I	CTGCA↓G			361
	<i>Eae</i> PI	CTGCAG			229
	<i>Ecl</i> 77I	CTGCAG			192
	<i>Ecl</i> 593I	CTGCAG			156
	<i>Eco</i> 48I	CTGCAG			164
	<i>Eco</i> 49I	CTGCAG			164
	<i>Eco</i> 83I	CTGCAG			192
	<i>Eco</i> 133I	CTGCAG			190
	<i>Eco</i> 141I	CTGCAG			189
	<i>Eco</i> 161I	CTGCAG			190
	<i>Eco</i> 167I	CTGCAG			190
	<i>Mau</i> I	CTGCAG			107
	<i>Mkr</i> I	CTGCAG			25
	<i>Nas</i> I	CTGCAG			84
	<i>Ngb</i> I	CTGCAG			25
	<i>Noc</i> I	CTGCAG			313
	<i>Pma</i> 44I	CTGCA↓G			361
	<i>Pma</i> I	CTGCAG			111
	<i>Pmy</i> I	CTGCAG			362
	<i>Sal</i> PI	CTGCA↓G			363,364
	<i>Sfi</i> I	CTGCA↓G			213
	<i>Ska</i> II	CTGCAG			50
	<i>Xma</i> II	CTGCAG			365
	<i>Xor</i> I	CTGCAG			366
	<i>Xph</i> I	CTGCAG			367
	<i>Yen</i> AI	CTGCAG			368
	<i>Yen</i> BI	CTGCAG			368
	<i>Yen</i> CI	CTGCAG			368

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Enzyme ¹	Isoschizomers	Recognition ² Sequence	Me ³ site	Commercial ⁴ source	Reference
	<i>YenDI</i>	CTGCAG			368
	<i>YenEI</i>	CTGCAG			368
	<i>YenI</i>	CTGCA↓G			368
<i>PvuI</i>		CGAT↓CG		ABGMNPRU	369
	<i>BmaAI</i>	CGATCG			27
	<i>BmaBI</i>	CGATCG			27
	<i>BmaCI</i>	CGATCG			27
	<i>BmaDI</i>	CGATCG			27
	<i>BmaI</i>	CGATCG			28
	<i>EcII</i>	CGAT↓CG			370
	<i>NbII</i>	CGAT↓CG			111
	<i>RshI</i>	CGAT↓CG			371
	<i>RspI</i>	CGATCG			372
	<i>XniI</i>	CGATCG			259
	<i>XorII</i>	CGAT↓CG		B	366,369
<i>PvuII</i>		CAG↓CTG	4(4)	ABGIMNPRU	369,373
	<i>BavI</i>	CAG↓CTG			374
	<i>Cfr6I</i>	CAG↓CTG	4(4)		41,44,373,375
	<i>MziI</i>	CAGCTG			376
<i>RsaI</i>		GT↓AC		ABGIMNPRU	377
	<i>CviQI</i>	G↓TAC			7
<i>RsrII</i>		CG↓GWCCG		GN	378
	<i>CpoI</i>	CGGWCCG			27
<i>SacI</i>		GAGCT↓C		AGIMNPRU	379
	<i>Eco136II</i>	GAGCTC			190
	<i>EcoICRI</i>	GAGCTC			107
	<i>NasSI</i>	GAGCTC			84
	<i>ScoI</i>	GAGCTC			342
	<i>SstI</i>	GAGCT↓C		B	380,381
<i>SacII</i>		CCG↓GG		GINPRU	379
	<i>BacI</i>	CCGCGG			55,258
	<i>Cfr37I</i>	CCGCGG			42
	<i>Cfr41I</i>	CCGCGG			42
	<i>Cfr42I</i>	CCGCGG			43
	<i>Cfr43I</i>	CCGCGG			43

Enzyme ¹	Isoschizomers	Recognition ² Sequence	Me ³ site	Commercial ⁴ source	Reference
	<i>Cfr45II</i>	CCGCGG			43
	<i>CscI</i>	CCGC↓GG			382
	<i>EccI</i>	CCGCGG			55,383
	<i>Ecl28I</i>	CCGCGG			210
	<i>Ecl37I</i>	CCGCGG			46
	<i>Eco55I</i>	CCGCGG			164
	<i>Eco92I</i>	CCGCGG			192
	<i>Eco96I</i>	CCGCGG			192
	<i>Eco99I</i>	CCGCGG			192
	<i>Eco100I</i>	CCGCGG			189
	<i>Eco104I</i>	CCGCGG			212
	<i>Eco134I</i>	CCGCGG			190
	<i>Eco135I</i>	CCGCGG			190
	<i>Eco158I</i>	CCGCGG			189
	<i>GalI</i>	CCGC↓GG			322
	<i>GceGLI</i>	CCGC↓GG			384
	<i>GceI</i>	CCGC↓GG			322
	<i>MraI</i>	CCGCGG			385
	<i>NgoDI</i>	CCGCGG			180
	<i>NgoIII</i>	CCGCGG			386
	<i>NgoPIII</i>	CCGC↓GG			224
	<i>NlaDIII</i>	CCGCGG			49
	<i>NlaSI</i>	CCGCGG			17
	<i>PaeAI</i>	CCGC↓GG			387
	<i>SaaI</i>	CCGCGG			130
	<i>SabI</i>	CCGCGG			342
	<i>SakI</i>	CCGCGG			45
	<i>SboI</i>	CCGCGG			388,389
	<i>SfrI</i>	CCGCGG			388,389
	<i>ShyI</i>	CCGCGG			390
	<i>SstII</i>	CCGC↓GG		B	380
	<i>TgII</i>	CCGCGG			109
<i>SalI</i>		G↓TCGAC		ABGIMNPRU	391
	<i>HgiCIII</i>	G↓TCGAC			15
	<i>HgiDII</i>	G↓TCGAC			15

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Enzyme ¹	Isoschizomers	Recognition ² Sequence	Me ³ site	Commercial ⁴ source	Reference
	<i>NopI</i>	G↓TCGAC			111
	<i>RheI</i>	GTCGAC			108
	<i>RhpI</i>	GTCGAC			108
	<i>RrhI</i>	GTCGAC			54
	<i>RroI</i>	GTCGAC			54
	<i>XamI</i>	GTCGAC			391
	<i>XciI</i>	G↓TCGAC			392
<i>SauI</i>		CC↓TNAGG		M	393
	<i>AocI</i>	CC↓TNAGG			87
	<i>AxyI</i>	CC↓TNAGG		G	394
	<i>Bsu36I</i>	CC↓TNAGG		N	395
	<i>CvnI</i>	CC↓TNAGG		B	396,397
	<i>Eco76I</i>	CCTNAGG			192
	<i>Eco81I</i>	CC↓TNAGG		AU	398
	<i>Eco115I</i>	CCTNAGG			189
	<i>Eco118I</i>	CCTNAGG			189
	<i>MstII</i>	CC↓TNAGG			111
	<i>OxaNI</i>	CC↓TNAGG			112
	<i>SecIII</i>	CCTNAGG			307
<i>ScaI</i>		AGT↓ACT		ABGMNPRU	399,400
	<i>Asp763I</i>	AGTACT			156
	<i>BstMI</i>	AGTACT			56
<i>ScrFI</i>		CC↓NGG		N	401
	<i>Eco43I</i>	CCNGG			402
	<i>Eco51II</i>	CCNGG			164
	<i>Eco80I</i>	CCNGG			192
	<i>Eco85I</i>	CCNGG			402
	<i>Eco93I</i>	CCNGG			192
	<i>Eco153I</i>	CCNGG			189
	<i>Msp67I</i>	CC↓NGG			38
	<i>SsoII</i>	↓CCNGG	2(5)		202,403
<i>SduI</i>		GDGCH↓C		G	404,405
	<i>AocII</i>	GDGCH↓C			87
	<i>Bsp1286I</i>	GDGCH↓C		N	55,102,406
	<i>NspII</i>	GDGCH↓C		R	6

Enzyme ¹	Isoschizomers	Recognition ² Sequence	Me ³ site	Commercial ⁴ source	Reference
<i>SecI</i>		C↓CNNGG			307
<i>SfaNI</i>		GCATC(5/9)		N	115
<i>SfiI</i>		GGCCNNNN↓NGGCC		GNPRU	407
<i>SmaI</i>		CCC↓GGG	3(5)	ABGIMNPRU	365,408,409
	<i>Cfr9I</i>	C↓CCGGG	2(4)		41,44,375,410
	<i>XcyI</i>	C↓CCGGG		R	411
	<i>XmaI</i>	C↓CCGGG		INP	365
<i>SnaBI</i>		TAC↓GTA		GMN	412
	<i>Eco105I</i>	TAC↓GTA			413
	<i>Eco158II</i>	TACGTA			189
<i>SnaI</i>		GTATAC			414
	<i>XcaI</i>	GTA↓TAC			415
<i>SpeI</i>		A↓CTAGT		BMN	313
<i>SphI</i>		GCATG↓C		ABGIMNPRU	416
	<i>PaeI</i>	GCATG↓C			417
	<i>SpaXI</i>	GCATGC			107
<i>SpII</i>		C↓GTACG		A	265
	<i>PfuI</i>	CGTACG			27
<i>SspI</i>		AAT↓ATT		BMN	400
<i>StuI</i>		AGG↓CCT		ABGMNPR	418
	<i>AatI</i>	AGG↓CCT		IU	8
	<i>Asp78I</i>	AGGCCT			156
	<i>ChyI</i>	AGGCCT			28
	<i>Eco147I</i>	AGGCCT			137
	<i>GdiI</i>	AGG↓CCT			240
	<i>NtaSI</i>	AGGCCT			84
<i>StyI</i>		C↓CWWGG		BGNP	419
	<i>Eco130I</i>	CCWWGG			137
	<i>EcoT14I</i>	C↓CWWGG		A	420
	<i>EcoT104I</i>	CCWWGG			420
	<i>SblAI</i>	CCWWGG			421
	<i>SblBI</i>	CCWWGG			421
	<i>SblCI</i>	CCWWGG			421
<i>TaqI</i>		T↓CGA	4(6)	BGIMNPRU	422,423
	<i>CviBIII</i>	TCGA			321

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Enzyme ¹	Isoschizomers	Recognition ² Sequence	Me ³ site	Commercial ⁴ source	Reference
	<i>TfII</i>	TCGA			423
	<i>TthHB8I</i>	T↓CGA	4(6)	A	423-426
<i>TaqII</i> ⁷		GACCGA(11/9)			55,427
<i>TaqII</i> ⁷		CACCCA(11/9)			
<i>Tsp45I</i>		GTSAC			428
<i>TspEI</i>		AATT			429
<i>Tth111I</i>		GACN↓NNGTC		AGINR	310
	<i>FsuI</i>	GACNNGTC			342
	<i>NtaI</i>	GACNNGTC			84
	<i>SplIII</i>	GACNNGTC			265
	<i>TteI</i>	GACNNGTC			310
	<i>TtrI</i>	GACNNGTC			310
<i>Tth111II</i>		CAARCA(11/9)			430
<i>VspI</i>		AT↓TAAT			431
	<i>AseI</i>	AT↓TAAT		N	150
<i>XbaI</i>		T↓CTAGA		ABGIMNPRU	432
<i>XhoI</i>		C↓TCGAG		ABGIMNPRU	433
	<i>AbrI</i>	C↓TCGAG			434
	<i>Asp47I</i>	CTCGAG			156
	<i>Asp703I</i>	CTCGAG			69
	<i>BbiIII</i>	CTCGAG			14
	<i>BluI</i>	C↓TCGAG			433
	<i>BssHI</i>	CTCGAG			117
	<i>BstHI</i>	CTCGAG			117
	<i>BstLI</i>	CTCGAG			56
	<i>BstVI</i>	CTCGAG			435
	<i>BsuMI</i>	CTCGAG	3(5)		102,232
	<i>BthI</i>	CTCGAG			131
	<i>CcrI</i>	C↓TCGAG			436
	<i>DdeII</i>	CTCGAG			55
	<i>McaI</i>	CTCGAG			69
	<i>MecI</i>	CTCGAG			376
	<i>MpuI</i>	CTCGAG			376
	<i>MsiI</i>	CTCGAG			55,290
	<i>PaeR7I</i>	C↓TCGAG	5(6)	N	437,438

Enzyme ¹	Isoschizomers	Recognition ² Sequence	Me ³ site	Commercial ⁴ source	Reference
	<i>PanI</i>	C↓TCGAG			107
	<i>PfNI</i>	CTCGAG			28
	<i>PfWI</i>	CTCGAG			439
	<i>Sau3239I</i>	C↓TCGAG			440,441
	<i>SciI</i>	CTC↓GAG			38
	<i>ScuI</i>	CTCGAG			388
	<i>SexI</i>	CTCGAG			388
	<i>SgaI</i>	CTCGAG			388
	<i>SgoI</i>	CTCGAG			388
	<i>SlaI</i>	C↓TCGAG			442
	<i>SluI</i>	CTCGAG			389
	<i>SpaI</i>	CTCGAG			388
	<i>XpaI</i>	C↓TCGAG			433
<i>XhoII</i>		R↓GATCY		GM	109,233,443
	<i>AitAI</i>	RGATCY			27
	<i>AitII</i>	RGATCY			193
	<i>BstYI</i>	R↓GATCY		N	56
	<i>MflI</i>	R↓GATCY		A	444
<i>XmaIII</i>		C↓GGCCG	4(5)	B	32,445
	<i>BstZI</i>	CGGCCG			56
	<i>EagI</i>	C↓GGCCG		N	446
	<i>Eco52I</i>	C↓GGCCG		AU	34,80
<i>XmnI</i>		GAANN↓NNTTC		GN	54,447
	<i>Asp700I</i>	GAANN↓NNTTC		M	69

Type I enzymes

Enzyme	Recognition sequence	Me site ³	Reference
<i>EcoAI</i>	GAGNNNNNNNGTCA	2(6) -3(6)	448,449
<i>EcoBI</i>	TGANNNNNNNNNGCT	3(6)	450-454
<i>EcoDI</i>	TTANNNNNNNNGTCY		455
<i>EcoDXXI</i>	TCANNNNNNNNATTC		456,457
<i>EcoKI</i>	AACNNNNNNNGTGC		458-461

Enzyme	Recognition sequence	Me site ³	Reference
<i>Eco</i> R124I	GAANNNNNNRTCG		462
<i>Eco</i> R124/3I	GAANNNNNNRTCG	-3(6)	462
<i>Sty</i> SBI	GAGNNNNNNRTAYG	2(6) -4(6)	463
<i>Sty</i> SPI	AACNNNNNNGTRC	2(6) -3(6)	463
<i>Sty</i> SQI	AACNNNNNNRTAYG		464

Type III enzymes

Enzyme	Isoschizomers	Recognition Sequence	Me ³ site	Reference
<i>Eco</i> P15I		CAGCAG		465,466
<i>Eco</i> PI		AGACC	3(6)	467-471
<i>Hin</i> fIII		CGAAT		472,473
	<i>Hin</i> eI	CGAAT		474

FOOTNOTES

1. * signifies that *Dpn*I and its isoschizomers require the presence of 6-methyladenosine within the recognition sequence GATC.
2. Recognition sequences are given using the standard abbreviations (475) to represent ambiguity:

R = G or A
 Y = C or T
 M = A or C
 K = G or T
 S = G or C
 W = A or T
 H = A or C or T
 B = G or T or C
 V = G or C or A
 D = G or A or T
 N = A or C or G or T

3. The site of methylation by the cognate methylase when known is indicated as follows. The first number shows the base within the recognition sequence that is modified. A negative number indicates the complementary strand. The number in parentheses indicates the specific methylation involved. (6) = N6-methyladenosine (5) = 5-methylcytosine (4) = N4-methylcytosine.
4. Commercial sources of restriction enzymes are abbreviated as follows:
 - A Amersham (4/87)
 - B Bethesda Research Laboratories (9/87)
 - G Anglian Biotechnology Ltd. (1/88)
 - I International Biotechnologies Inc (7/87)
 - M Boehringer-Mannheim (3/88)
 - N New England Biolabs (3/88)
 - P Pharmacia P-L Biochemicals (3/88)
 - R Promega Biotec (9/87)
 - U United States Biochemical Corporation (2/88)
5. *EcoRII* isoschizomers fall into two classes based upon their sensitivity to methylation. *EcoRII* will not cleave when the second cytosine in the recognition sequence is methylated to 5-methylcytosine whereas *MvaI* will cleave such a sequence. Isoschizomers of *EcoRII* that are like *MvaI* are indicated by +.
6. *MboI* isoschizomers fall into two classes based upon their sensitivity to methylation. *MboI* will not cleave when the recognition sequence contains 6-methyladenosine whereas *Sau3AI* will not cleave when its recognition sequence contains 5-methylcytosine. Isoschizomers of *MboI* that are like *Sau3AI* are indicated by +.
7. *TaqI* differs from other restriction enzymes in recognizing two distinct sequences: GACCGA(11/9) and CACCCA(11/9).

Alphabetical listing of Type II restriction enzymes

<i>AacI</i> (<i>Bam</i> HI)	<i>AaeI</i> (<i>Bam</i> HI)	<i>AatI</i> (<i>Stu</i> I)
<i>AatII</i>	<i>AbrI</i> (<i>Xho</i> I)	<i>AccEBI</i> (<i>Bam</i> HI)
<i>AccI</i>	<i>AccII</i> (<i>Fnu</i> DII)	<i>AccIII</i> (<i>Bsp</i> MII)
<i>AcyI</i>	<i>AeuI</i> (<i>Eco</i> RII)	<i>AflI</i> (<i>Ava</i> II)
<i>AflII</i>	<i>AflIII</i>	<i>AhaI</i> (<i>Cau</i> II)
<i>AhaII</i> (<i>Acy</i> I)	<i>AhaIII</i>	<i>AitAI</i> (<i>Xho</i> II)
<i>AitI</i> (<i>Eco</i> 47III)	<i>AitII</i> (<i>Xho</i> II)	<i>AlI</i> (<i>Bam</i> HI)
<i>Ali2882I</i> (<i>Pst</i> I)	<i>Ali12257I</i> (<i>Bam</i> HI)	<i>Ali12258I</i> (<i>Bam</i> HI)
<i>AliAJI</i> (<i>Pst</i> I)	<i>AluI</i>	<i>AlwI</i> (<i>Bin</i> I)
<i>AlwNI</i>	<i>AlwXI</i> (<i>Bbv</i> I)	<i>AmaI</i> (<i>Nru</i> I)
<i>AmeI</i> (<i>Apa</i> LI)	<i>AmelI</i> (<i>Nae</i> I)	<i>AniMI</i> (<i>Nae</i> I)
<i>AocI</i> (<i>Sau</i> I)	<i>AocII</i> (<i>Sdu</i> I)	<i>AorI</i> (<i>Eco</i> RII)
<i>AosI</i> (<i>Mst</i> I)	<i>AosII</i> (<i>Acy</i> I)	<i>Apal</i>
<i>ApaLI</i>	<i>ApeI</i> (<i>Mlu</i> I)	<i>ApeAI</i> (<i>Nae</i> I)
<i>AprI</i> (<i>Nae</i> I)	<i>Apul</i> (<i>Asu</i> I)	<i>ApyI</i> (<i>Eco</i> RII)

<i>Aql</i> (<i>Ava</i> I)	<i>Ase</i> I (<i>Vsp</i> I)	<i>Ase</i> II (<i>Cau</i> II)
<i>Asp</i> 36I (<i>Pst</i> I)	<i>Asp</i> 47I (<i>Xho</i> I)	<i>Asp</i> 52I (<i>Hind</i> III)
<i>Asp</i> 78I (<i>Stu</i> I)	<i>Asp</i> 697I (<i>Ava</i> II)	<i>Asp</i> 700I (<i>Xmn</i> I)
<i>Asp</i> 703I (<i>Xho</i> I)	<i>Asp</i> 707I (<i>Cl</i> aI)	<i>Asp</i> 708I (<i>Pst</i> I)
<i>Asp</i> 718I (<i>Kpn</i> I)	<i>Asp</i> 742I (<i>Hae</i> III)	<i>Asp</i> 748I (<i>Hpa</i> II)
<i>Asp</i> 763I (<i>Sca</i> I)	<i>Asp</i> AI (<i>Bst</i> EII)	<i>Asp</i> HI (<i>Hgi</i> AI)
<i>Ast</i> WI (<i>Acy</i> I)	<i>Asu</i> I	<i>Asu</i> II
<i>Asu</i> III (<i>Acy</i> I)	<i>Atu</i> II (<i>Eco</i> RII)	<i>Atu</i> BI (<i>Eco</i> RII)
<i>Atu</i> CI (<i>Bcl</i> I)	<i>Ava</i> I	<i>Ava</i> II
<i>Ava</i> III	<i>Avi</i> II (<i>Mst</i> I)	<i>Avr</i> I (<i>Ava</i> I)
<i>Avr</i> II	<i>Axy</i> I (<i>Sau</i> I)	<i>Bac</i> 36I (<i>Asu</i> I)
<i>Bac</i> I (<i>Sac</i> II)	<i>Bal</i> I	<i>Bam</i> FI (<i>Bam</i> HI)
<i>Bam</i> HI	<i>Bam</i> KI (<i>Bam</i> HI)	<i>Bam</i> NI (<i>Bam</i> HI)
<i>Bam</i> NxI (<i>Ava</i> II)	<i>Ban</i> I (<i>Hgi</i> CI)	<i>Ban</i> II (<i>Hgi</i> II)
<i>Ban</i> III (<i>Cl</i> aI)	<i>Bav</i> I (<i>Pvu</i> II)	<i>Bbe</i> AI (<i>Nar</i> I)
<i>Bbe</i> I (<i>Nar</i> I)	<i>Bbi</i> I (<i>Pst</i> I)	<i>Bbi</i> II (<i>Acy</i> I)
<i>Bbi</i> III (<i>Xho</i> I)	<i>Bbr</i> I (<i>Hind</i> III)	<i>Bbv</i> I
<i>Bbv</i> II	<i>Bcal</i> (<i>Hha</i> I)	<i>Bce</i> 71I (<i>Hae</i> III)
<i>Bce</i> 170I (<i>Pst</i> I)	<i>Bce</i> 243I (<i>Mbo</i> I)	<i>Bce</i> FI (<i>Fnu</i> DII)
<i>Bce</i> RI (<i>Fnu</i> DII)	<i>Bcl</i> I	<i>Bcm</i> I (<i>Cl</i> aI)
<i>Bcn</i> I (<i>Cau</i> II)	<i>Bcr</i> I (<i>Nla</i> IV)	<i>Bep</i> I (<i>Fnu</i> DII)
<i>Bgl</i> I	<i>Bgl</i> II	<i>Bin</i> I
<i>Bin</i> SI (<i>Eco</i> RII)	<i>Bin</i> SII (<i>Nar</i> I)	<i>Bli</i> I (<i>Hae</i> III)
<i>Blu</i> I (<i>Xho</i> I)	<i>Blu</i> II (<i>Hae</i> III)	<i>Bma</i> I (<i>Pvu</i> I)
<i>Bma</i> AI (<i>Pvu</i> I)	<i>Bma</i> BI (<i>Pvu</i> I)	<i>Bma</i> CI (<i>Pvu</i> I)
<i>Bma</i> DI (<i>Pvu</i> I)	<i>Bme</i> 216I (<i>Ava</i> II)	<i>Bpe</i> I (<i>Hind</i> III)
<i>Bsa</i> PI (<i>Mbo</i> I)	<i>Bsc</i> I (<i>Cl</i> aI)	<i>Bse</i> I (<i>Hae</i> III)
<i>Bse</i> II (<i>Hpa</i> I)	<i>Bse</i> PI	<i>Bsh</i> I (<i>Hae</i> III)
<i>Bsh</i> AI (<i>Hae</i> III)	<i>Bsh</i> BI (<i>Hae</i> III)	<i>Bsh</i> CI (<i>Hae</i> III)
<i>Bsh</i> DI (<i>Hae</i> III)	<i>Bsh</i> EI (<i>Hae</i> III)	<i>Bsh</i> FI (<i>Hae</i> III)
<i>Bsm</i> I	<i>Bsm</i> AI	<i>Bso</i> PI (<i>Bse</i> PI)
<i>Bsp</i> 63I (<i>Pst</i> I)	<i>Bsp</i> 64I (<i>Mbo</i> I)	<i>Bsp</i> 67I (<i>Mbo</i> I)
<i>Bsp</i> 71I (<i>Hae</i> III)	<i>Bsp</i> 74I (<i>Mbo</i> I)	<i>Bsp</i> 76I (<i>Mbo</i> I)
<i>Bsp</i> 78I (<i>Pst</i> I)	<i>Bsp</i> 105I (<i>Mbo</i> I)	<i>Bsp</i> 106I (<i>Cl</i> aI)
<i>Bsp</i> 211I (<i>Hae</i> III)	<i>Bsp</i> 226I (<i>Hae</i> III)	<i>Bsp</i> 1286I (<i>Sdu</i> I)
<i>Bsp</i> AI (<i>Mbo</i> I)	<i>Bsp</i> BI (<i>Pst</i> I)	<i>Bsp</i> BII (<i>Asu</i> I)
<i>Bsp</i> HI	<i>Bsp</i> MI	<i>Bsp</i> MII
<i>Bsp</i> RI (<i>Hae</i> III)	<i>Bsp</i> XI (<i>Cl</i> aI)	<i>Bsp</i> XII (<i>Bc</i> II)
<i>Bsr</i> I	<i>Bsr</i> HI (<i>Bse</i> PI)	<i>Bsr</i> PII (<i>Mbo</i> I)
<i>Bss</i> CI (<i>Hae</i> III)	<i>Bss</i> GI (<i>Bst</i> XI)	<i>Bss</i> GII (<i>Mbo</i> I)
<i>Bss</i> HI (<i>Xho</i> I)	<i>Bss</i> HII (<i>Bse</i> PI)	<i>Bst</i> I (<i>Bam</i> HI)
<i>Bst</i> 31I (<i>Bst</i> EII)	<i>Bst</i> BI (<i>Asu</i> II)	<i>Bst</i> CI (<i>Hae</i> III)
<i>Bst</i> DI (<i>Bst</i> EII)	<i>Bst</i> EII	<i>Bst</i> EIII (<i>Mbo</i> I)
<i>Bst</i> FI (<i>Hind</i> III)	<i>Bst</i> GI (<i>Bcl</i> I)	<i>Bst</i> GII (<i>Eco</i> RII)
<i>Bst</i> HI (<i>Xho</i> I)	<i>Bst</i> JI (<i>Hae</i> III)	<i>Bst</i> KI (<i>Bcl</i> I)
<i>Bst</i> LI (<i>Xho</i> I)	<i>Bst</i> MI (<i>Sca</i> I)	<i>Bst</i> NI (<i>Eco</i> RII)
<i>Bst</i> OI (<i>Eco</i> RII)	<i>Bst</i> PI (<i>Bst</i> EII)	<i>Bst</i> QI (<i>Bam</i> HI)
<i>Bst</i> RI (<i>Eco</i> RV)	<i>Bst</i> SI (<i>Ava</i> I)	<i>Bst</i> TI (<i>Bst</i> XI)
<i>Bst</i> UI (<i>Fnu</i> DII)	<i>Bst</i> VI (<i>Xho</i> I)	<i>Bst</i> WI (<i>Eco</i> NI)
<i>Bst</i> XI	<i>Bst</i> XII (<i>Mbo</i> I)	<i>Bst</i> YI (<i>Xho</i> II)
<i>Bst</i> ZI (<i>Xma</i> III)	<i>Bsu</i> 36I (<i>Sau</i> I)	<i>Bsu</i> 1076I (<i>Hae</i> III)
<i>Bsu</i> 1114I (<i>Hae</i> III)	<i>Bsu</i> 1192I (<i>Hpa</i> II)	<i>Bsu</i> 1192II (<i>Fnu</i> DII)
<i>Bsu</i> 1193I (<i>Fnu</i> DII)	<i>Bsu</i> 6633I (<i>Fnu</i> DII)	<i>Bsu</i> BI (<i>Pst</i> I)
<i>Bsu</i> EII (<i>Fnu</i> DII)	<i>Bsu</i> FI (<i>Hpa</i> II)	<i>Bsu</i> MI (<i>Xho</i> I)
<i>Bsu</i> RI (<i>Hae</i> III)	<i>Bth</i> I (<i>Xho</i> I)	<i>Bth</i> II (<i>Bin</i> I)
<i>Bti</i> I (<i>Ava</i> II)	<i>Bvu</i> I (<i>Hgi</i> II)	<i>Cau</i> I (<i>Ava</i> II)
<i>Cau</i> II	<i>Cau</i> III (<i>Pst</i> I)	<i>Ccr</i> I (<i>Xho</i> I)

<i>Cdi271</i> (<i>EcoRII</i>)	<i>Cell</i> (<i>BamHI</i>)	<i>CellII</i> (<i>EspI</i>)
<i>CeqI</i> (<i>EcoRV</i>)	<i>CflI</i> (<i>PstI</i>)	<i>CfoI</i> (<i>HhaI</i>)
<i>CfrI</i>	<i>Cfr41</i> (<i>AsuI</i>)	<i>Cfr51</i> (<i>EcoRII</i>)
<i>Cfr6I</i> (<i>PvuII</i>)	<i>Cfr71</i> (<i>BstEII</i>)	<i>Cfr81</i> (<i>AsuI</i>)
<i>Cfr91</i> (<i>SmaI</i>)	<i>Cfr10I</i>	<i>Cfr111</i> (<i>EcoRII</i>)
<i>Cfr131</i> (<i>AsuI</i>)	<i>Cfr141</i> (<i>CfrI</i>)	<i>Cfr191</i> (<i>BstEII</i>)
<i>Cfr201</i> (<i>EcoRII</i>)	<i>Cfr221</i> (<i>EcoRII</i>)	<i>Cfr231</i> (<i>AsuI</i>)
<i>Cfr241</i> (<i>EcoRII</i>)	<i>Cfr251</i> (<i>EcoRII</i>)	<i>Cfr271</i> (<i>EcoRII</i>)
<i>Cfr281</i> (<i>EcoRII</i>)	<i>Cfr291</i> (<i>EcoRII</i>)	<i>Cfr301</i> (<i>EcoRII</i>)
<i>Cfr311</i> (<i>EcoRII</i>)	<i>Cfr321</i> (<i>HindIII</i>)	<i>Cfr331</i> (<i>AsuI</i>)
<i>Cfr351</i> (<i>EcoRII</i>)	<i>Cfr371</i> (<i>SacII</i>)	<i>Cfr381</i> (<i>CfrI</i>)
<i>Cfr391</i> (<i>CfrI</i>)	<i>Cfr401</i> (<i>CfrI</i>)	<i>Cfr411</i> (<i>SacII</i>)
<i>Cfr421</i> (<i>SacII</i>)	<i>Cfr431</i> (<i>SacII</i>)	<i>Cfr451</i> (<i>AsuI</i>)
<i>Cfr451I</i> (<i>SacII</i>)	<i>Cfr461</i> (<i>AsuI</i>)	<i>Cfr471</i> (<i>AsuI</i>)
<i>Cfr481</i> (<i>HgiII</i>)	<i>CfrA41</i> (<i>PstI</i>)	<i>CfrNI</i> (<i>AsuI</i>)
<i>CfrS371</i> (<i>EcoRII</i>)	<i>CfuI</i> (<i>DpnI</i>)	<i>Chul</i> (<i>HindIII</i>)
<i>ChulI</i> (<i>HindII</i>)	<i>ChyI</i> (<i>StuI</i>)	<i>Clai</i>
<i>ClmI</i> (<i>HaeIII</i>)	<i>ClmII</i> (<i>AvaII</i>)	<i>ClfI</i> (<i>HaeIII</i>)
<i>CpaI</i> (<i>MboI</i>)	<i>CpeI</i> (<i>BclI</i>)	<i>Cpfl</i> (<i>MboI</i>)
<i>Cpol</i> (<i>RsrII</i>)	<i>CscI</i> (<i>SacII</i>)	<i>CthI</i> (<i>BclI</i>)
<i>CthII</i> (<i>EcoRII</i>)	<i>CviAI</i> (<i>MboI</i>)	<i>CviBI</i> (<i>HinfI</i>)
<i>CviBII</i> (<i>MboI</i>)	<i>CviBIII</i> (<i>TaqI</i>)	<i>CviCI</i> (<i>HinfI</i>)
<i>CviDI</i> (<i>HinfI</i>)	<i>CviEI</i> (<i>HinfI</i>)	<i>CviFI</i> (<i>HinfI</i>)
<i>CviGI</i> (<i>HinfI</i>)	<i>CviHI</i> (<i>MboI</i>)	<i>CviJI</i>
<i>CviKI</i> (<i>CviJI</i>)	<i>CviLI</i> (<i>CviJI</i>)	<i>CviMI</i> (<i>CviJI</i>)
<i>CviNI</i> (<i>CviJI</i>)	<i>CviOI</i> (<i>CviJI</i>)	<i>CviQI</i> (<i>RsaI</i>)
<i>Cvni</i> (<i>SauI</i>)	<i>DdeI</i>	<i>DdeII</i> (<i>XhoI</i>)
<i>DdsI</i> (<i>BamHI</i>)	<i>DpnI</i>	<i>DpnII</i> (<i>MboI</i>)
<i>Dral</i> (<i>AhaIII</i>)	<i>DraII</i>	<i>DraIII</i>
<i>DsaI</i>	<i>DsaII</i> (<i>HaeIII</i>)	<i>EaeI</i> (<i>CfrI</i>)
<i>EaePI</i> (<i>PstI</i>)	<i>EagI</i> (<i>XmaIII</i>)	<i>EagKI</i> (<i>EcoRII</i>)
<i>EagMI</i> (<i>AvaII</i>)	<i>EarI</i>	<i>EcaI</i> (<i>BstEII</i>)
<i>EcaII</i> (<i>EcoRII</i>)	<i>EccI</i> (<i>SacII</i>)	<i>EclII</i> (<i>EcoRII</i>)
<i>Ecl281</i> (<i>SacII</i>)	<i>Ecl371</i> (<i>SacII</i>)	<i>Ecl661</i> (<i>EcoRII</i>)
<i>Ecl771</i> (<i>PstI</i>)	<i>Ecl593I</i> (<i>PstI</i>)	<i>EclJI</i> (<i>PvuI</i>)
<i>EclS391</i> (<i>EcoRII</i>)	<i>Eco241</i> (<i>HgiII</i>)	<i>Eco251</i> (<i>HgiII</i>)
<i>Eco261</i> (<i>HgiIII</i>)	<i>Eco311</i>	<i>Eco321</i> (<i>EcoRV</i>)
<i>Eco351</i> (<i>HgiIII</i>)	<i>Eco381</i> (<i>EcoRII</i>)	<i>Eco391</i> (<i>AsuI</i>)
<i>Eco401</i> (<i>EcoRII</i>)	<i>Eco411</i> (<i>EcoRII</i>)	<i>Eco421</i> (<i>Eco311</i>)
<i>Eco431</i> (<i>ScrFI</i>)	<i>Eco471</i> (<i>AvaII</i>)	<i>Eco471I</i> (<i>AsuI</i>)
<i>Eco471II</i>	<i>Eco481</i> (<i>PstI</i>)	<i>Eco491</i> (<i>PstI</i>)
<i>Eco501</i> (<i>HgiCI</i>)	<i>Eco511</i> (<i>Eco311</i>)	<i>Eco511I</i> (<i>ScrFI</i>)
<i>Eco521</i> (<i>XmaIII</i>)	<i>Eco551</i> (<i>SacII</i>)	<i>Eco561</i> (<i>NaeI</i>)
<i>Eco571</i>	<i>Eco601</i> (<i>EcoRII</i>)	<i>Eco611</i> (<i>EcoRII</i>)
<i>Eco641</i> (<i>HgiCI</i>)	<i>Eco651</i> (<i>HindIII</i>)	<i>Eco671</i> (<i>EcoRII</i>)
<i>Eco681</i> (<i>HgiIII</i>)	<i>Eco701</i> (<i>EcoRII</i>)	<i>Eco711</i> (<i>EcoRII</i>)
<i>Eco721</i> (<i>PmaCI</i>)	<i>Eco761</i> (<i>SauI</i>)	<i>Eco781</i> (<i>NarI</i>)
<i>Eco801</i> (<i>ScrFI</i>)	<i>Eco811</i> (<i>SauI</i>)	<i>Eco821</i> (<i>EcoRI</i>)
<i>Eco831</i> (<i>PstI</i>)	<i>Eco851</i> (<i>ScrFI</i>)	<i>Eco881</i> (<i>AvaI</i>)
<i>Eco901</i> (<i>CfrI</i>)	<i>Eco911</i> (<i>BstEII</i>)	<i>Eco921</i> (<i>SacII</i>)
<i>Eco931</i> (<i>ScrFI</i>)	<i>Eco951</i> (<i>Eco311</i>)	<i>Eco961</i> (<i>SacII</i>)
<i>Eco971</i> (<i>Eco311</i>)	<i>Eco981</i> (<i>HindIII</i>)	<i>Eco991</i> (<i>SacII</i>)
<i>Eco1001</i> (<i>SacII</i>)	<i>Eco1011</i> (<i>Eco311</i>)	<i>Eco1041</i> (<i>SacII</i>)
<i>Eco1051</i> (<i>SnaBI</i>)	<i>Eco1131</i> (<i>HgiIII</i>)	<i>Eco1151</i> (<i>SauI</i>)
<i>Eco1181</i> (<i>SauI</i>)	<i>Eco1201</i> (<i>Eco311</i>)	<i>Eco1271</i> (<i>Eco311</i>)
<i>Eco1281</i> (<i>EcoRII</i>)	<i>Eco1291</i> (<i>Eco311</i>)	<i>Eco1301</i> (<i>StyI</i>)
<i>Eco1331</i> (<i>PstI</i>)	<i>Eco1341</i> (<i>SacII</i>)	<i>Eco1351</i> (<i>SacII</i>)

<i>Eco136I</i> (<i>EcoRII</i>)	<i>Eco136II</i> (<i>SacI</i>)	<i>Eco141I</i> (<i>PstI</i>)
<i>Eco147I</i> (<i>StuI</i>)	<i>Eco149I</i> (<i>KpnI</i>)	<i>Eco153I</i> (<i>ScrFI</i>)
<i>Eco155I</i> (<i>Eco31I</i>)	<i>Eco156I</i> (<i>Eco31I</i>)	<i>Eco157I</i> (<i>Eco31I</i>)
<i>Eco158I</i> (<i>SacII</i>)	<i>Eco158II</i> (<i>SnaBI</i>)	<i>Eco159I</i> (<i>EcoRI</i>)
<i>Eco161I</i> (<i>PstI</i>)	<i>Eco162I</i> (<i>Eco31I</i>)	<i>Eco164I</i> (<i>CfrI</i>)
<i>Eco165I</i> (<i>EcoRII</i>)	<i>Eco167I</i> (<i>PstI</i>)	<i>EcoHI</i> (<i>CfrI</i>)
<i>EcoICRI</i> (<i>SacI</i>)	<i>EcoNI</i>	<i>EcoO65I</i> (<i>BstEII</i>)
<i>EcoO109I</i> (<i>DraII</i>)	<i>EcoRI</i>	<i>EcoRII</i>
<i>EcoRV</i>	<i>EcoT14I</i> (<i>StyI</i>)	<i>EcoT22I</i> (<i>AvaIII</i>)
<i>EcoT38I</i> (<i>HgiII</i>)	<i>EcoT104I</i> (<i>StyI</i>)	<i>EcoVIII</i> (<i>HindIII</i>)
<i>ErpI</i> (<i>AvaII</i>)	<i>EspI</i>	<i>FbaI</i> (<i>BclI</i>)
<i>FbrI</i> (<i>Fnu4HI</i>)	<i>FdII</i> (<i>AvaII</i>)	<i>FdII</i> (<i>MstI</i>)
<i>FinI</i>	<i>FinII</i> (<i>HpaII</i>)	<i>FinSI</i> (<i>HaeII</i>)
<i>Fnu4HI</i>	<i>FnuAI</i> (<i>HinfI</i>)	<i>FnuAII</i> (<i>Mbol</i>)
<i>FnuCI</i> (<i>Mbol</i>)	<i>FnuDI</i> (<i>HaeII</i>)	<i>FnuDII</i>
<i>FnuDIII</i> (<i>HhaI</i>)	<i>FnuEI</i> (<i>Mbol</i>)	<i>FokI</i>
<i>FspI</i> (<i>Eco57I</i>)	<i>FspI</i> (<i>MstI</i>)	<i>FspII</i> (<i>AsuII</i>)
<i>FspMI</i> (<i>FnuDII</i>)	<i>FspMSI</i> (<i>AvaII</i>)	<i>FsuI</i> (<i>Tth111I</i>)
<i>Gall</i> (<i>SacII</i>)	<i>GceI</i> (<i>SacII</i>)	<i>GceGLI</i> (<i>SacII</i>)
<i>GdiI</i> (<i>StuI</i>)	<i>GdiII</i>	<i>GdoI</i> (<i>BamHI</i>)
<i>GinI</i> (<i>BamHI</i>)	<i>GoxI</i> (<i>BamHI</i>)	<i>GspAI</i> (<i>AvaII</i>)
<i>GspAII</i> (<i>MstI</i>)	<i>Gsul</i>	<i>Hacl</i> (<i>Mbol</i>)
<i>HaeI</i>	<i>HaeII</i>	<i>HaeIII</i>
<i>HapII</i> (<i>HpaII</i>)	<i>Hgal</i>	<i>HgiAI</i>
<i>HgiBI</i> (<i>AvaII</i>)	<i>HgiCI</i>	<i>HgiCII</i> (<i>AvaII</i>)
<i>HgiCIII</i> (<i>Sall</i>)	<i>HgiDI</i> (<i>AcyI</i>)	<i>HgiDII</i> (<i>Sall</i>)
<i>HgiEI</i> (<i>AvaII</i>)	<i>HgiEII</i>	<i>HgiGI</i> (<i>AcyI</i>)
<i>HgiHI</i> (<i>HgiCI</i>)	<i>HgiHIII</i> (<i>AcyI</i>)	<i>HgiHIII</i> (<i>AvaII</i>)
<i>HgiII</i> (<i>AvaII</i>)	<i>HgiII</i>	<i>HgiS21I</i> (<i>CauII</i>)
<i>HhaI</i>	<i>HhaII</i> (<i>HinfI</i>)	<i>HhgI</i> (<i>HaeIII</i>)
<i>Hin173I</i> (<i>HindIII</i>)	<i>Hin1056I</i> (<i>FnuDII</i>)	<i>Hin1076III</i> (<i>HindIII</i>)
<i>Hin1160II</i> (<i>HindII</i>)	<i>Hin1161II</i> (<i>HindII</i>)	<i>HinGUI</i> (<i>HhaI</i>)
<i>HinGUI</i> (<i>FokI</i>)	<i>HinHI</i> (<i>HaeII</i>)	<i>HinJCI</i> (<i>HindII</i>)
<i>HinJCI</i> (<i>HindIII</i>)	<i>HinP1I</i> (<i>HhaI</i>)	<i>HinS1I</i> (<i>HhaI</i>)
<i>HinS2I</i> (<i>HhaI</i>)	<i>HinbIII</i> (<i>HindIII</i>)	<i>HincII</i> (<i>HindII</i>)
<i>HindII</i>	<i>HindIII</i>	<i>HinfI</i>
<i>HinfII</i> (<i>HindIII</i>)	<i>HjaI</i> (<i>EcoRV</i>)	<i>HpaI</i>
<i>HpaII</i>	<i>HphI</i>	<i>HsuI</i> (<i>HindIII</i>)
<i>KoxI</i> (<i>BstEII</i>)	<i>KoxII</i> (<i>HgiII</i>)	<i>KpnI</i>
<i>KpnK14I</i> (<i>KpnI</i>)	<i>Kpn2I</i> (<i>BspMII</i>)	<i>Ksp632I</i>
<i>LspI</i> (<i>AsuII</i>)	<i>MaeI</i>	<i>MaeII</i>
<i>MaeIII</i>	<i>MauI</i> (<i>PstI</i>)	<i>Mbol</i>
<i>MboII</i>	<i>McaI</i> (<i>XhoI</i>)	<i>Mecl</i> (<i>XhoI</i>)
<i>MeuI</i> (<i>Mbol</i>)	<i>MfiI</i> (<i>XhoII</i>)	<i>MisI</i> (<i>NaeI</i>)
<i>Mjal</i> (<i>MaeI</i>)	<i>MjaII</i> (<i>AsuI</i>)	<i>MkiI</i> (<i>HindIII</i>)
<i>MkrI</i> (<i>PstI</i>)	<i>MlaI</i> (<i>AsuII</i>)	<i>MleI</i> (<i>BamHI</i>)
<i>MltI</i> (<i>AluI</i>)	<i>MluI</i>	<i>Mmel</i>
<i>MmeII</i> (<i>Mbol</i>)	<i>MniI</i> (<i>HaeIII</i>)	<i>MniII</i> (<i>HpaII</i>)
<i>MnII</i>	<i>MnnI</i> (<i>HindII</i>)	<i>MnnII</i> (<i>HaeIII</i>)
<i>MnnIV</i> (<i>HhaI</i>)	<i>MnoI</i> (<i>HpaII</i>)	<i>MnoIII</i> (<i>Mbol</i>)
<i>MosI</i> (<i>Mbol</i>)	<i>MphI</i> (<i>EcoRII</i>)	<i>MpuI</i> (<i>XhoI</i>)
<i>MraI</i> (<i>SacII</i>)	<i>MroI</i> (<i>BspMII</i>)	<i>MseI</i>
<i>MsiI</i> (<i>XhoI</i>)	<i>MspI</i> (<i>HpaII</i>)	<i>Msp67I</i> (<i>ScrFI</i>)
<i>Msp67II</i> (<i>Mbol</i>)	<i>MstI</i>	<i>MstII</i> (<i>SauI</i>)
<i>MthI</i> (<i>Mbol</i>)	<i>MtaI</i> (<i>EcoRII</i>)	<i>MvnI</i> (<i>FnuDII</i>)
<i>MziI</i> (<i>PvuII</i>)	<i>NaeI</i>	<i>NamI</i> (<i>NarI</i>)
<i>NanI</i> (<i>EcoRV</i>)	<i>NanII</i> (<i>DpnI</i>)	<i>NarI</i>

<i>NasI</i> (<i>PstI</i>)	<i>NasBI</i> (<i>BamHI</i>)	<i>NasSI</i> (<i>SacI</i>)
<i>NasWI</i> (<i>NaeI</i>)	<i>NbaI</i> (<i>NaeI</i>)	<i>NbII</i> (<i>PvuI</i>)
<i>NbrI</i> (<i>NaeI</i>)	<i>NcaI</i> (<i>HinI</i>)	<i>NciI</i> (<i>CauII</i>)
<i>NcoI</i>	<i>NcuI</i> (<i>MbolI</i>)	<i>NdaI</i> (<i>NarI</i>)
<i>NdeI</i>	<i>NdeII</i> (<i>MbolI</i>)	<i>NfiI</i> (<i>MbolI</i>)
<i>NflAI</i> (<i>EcoRV</i>)	<i>NflAII</i> (<i>MbolI</i>)	<i>NfIBI</i> (<i>MbolI</i>)
<i>Ngbl</i> (<i>PstI</i>)	<i>NgoI</i> (<i>HaeII</i>)	<i>NgoII</i> (<i>HaeIII</i>)
<i>NgolIII</i> (<i>SacII</i>)	<i>NgoBI</i> (<i>HphI</i>)	<i>NgoDI</i> (<i>SacII</i>)
<i>NgoDIII</i> (<i>DpnI</i>)	<i>NgoMI</i> (<i>NaeI</i>)	<i>NgoPII</i> (<i>HaeIII</i>)
<i>NgoPIII</i> (<i>SacII</i>)	<i>NgoSI</i> (<i>HaeIII</i>)	<i>NheI</i>
<i>NlaI</i> (<i>HaeIII</i>)	<i>NlaII</i> (<i>MbolI</i>)	<i>NlaIII</i>
<i>NlaIV</i>	<i>NlaDI</i> (<i>MbolI</i>)	<i>NlaDII</i> (<i>AsuI</i>)
<i>NlaDIII</i> (<i>SacII</i>)		<i>NlaSI</i> (<i>SacII</i>)
<i>NlaSII</i> (<i>AcyI</i>)	<i>NmeCI</i> (<i>MbolI</i>)	<i>NmiI</i> (<i>KpnI</i>)
<i>NmuI</i> (<i>NaeI</i>)	<i>NmuDI</i> (<i>DpnI</i>)	<i>NmuEI</i> (<i>DpnI</i>)
<i>NmuEII</i> (<i>AsuI</i>)	<i>NmuFI</i> (<i>NaeI</i>)	<i>NmuSI</i> (<i>AsuI</i>)
<i>NocI</i> (<i>PstI</i>)	<i>NopI</i> (<i>SalI</i>)	<i>NotI</i>
<i>NovII</i> (<i>HinI</i>)	<i>NphI</i> (<i>MbolI</i>)	<i>NruI</i>
<i>NsiI</i> (<i>AvaIII</i>)	<i>NsiAI</i> (<i>MbolI</i>)	<i>NsiCI</i> (<i>EcoRV</i>)
<i>NsiHI</i> (<i>HinI</i>)	<i>NspI</i>	<i>NspII</i> (<i>SduI</i>)
<i>NspIII</i> (<i>AvaI</i>)	<i>NspIV</i> (<i>AsuI</i>)	<i>NspV</i> (<i>AsuII</i>)
<i>NspAI</i> (<i>MbolI</i>)	<i>NspBI</i> (<i>AsuII</i>)	<i>NspBII</i>
<i>NspHI</i> (<i>NspI</i>)	<i>NspHII</i> (<i>AvaII</i>)	<i>NspMACI</i> (<i>BglIII</i>)
<i>NspSAI</i> (<i>AvaI</i>)	<i>NspSAII</i> (<i>BstEII</i>)	<i>NspSAIII</i> (<i>NcoI</i>)
<i>NspSAIV</i> (<i>BamHI</i>)	<i>NspWI</i> (<i>NaeI</i>)	<i>NsuDI</i> (<i>DpnI</i>)
<i>NsuI</i> (<i>MbolI</i>)	<i>NtaI</i> (<i>Tth111I</i>)	<i>NtaSI</i> (<i>StuI</i>)
<i>NtaSII</i> (<i>NaeI</i>)	<i>NunII</i> (<i>NarI</i>)	<i>OtuI</i> (<i>AluI</i>)
<i>OtuNI</i> (<i>AluI</i>)	<i>OxaI</i> (<i>AluI</i>)	<i>OxaNI</i> (<i>SauI</i>)
<i>PaeI</i> (<i>SphI</i>)	<i>PaeAI</i> (<i>SacII</i>)	<i>PaeR7I</i> (<i>XhoI</i>)
<i>PaiI</i> (<i>HaeIII</i>)	<i>PaiI</i> (<i>HaeIII</i>)	<i>PanI</i> (<i>XhoI</i>)
<i>PfaI</i> (<i>MbolI</i>)	<i>PflAI</i> (<i>FnuDII</i>)	<i>PfIMI</i>
<i>PflNI</i> (<i>XhoI</i>)	<i>PflWI</i> (<i>XhoI</i>)	<i>PfuI</i> (<i>SpeII</i>)
<i>PgII</i> (<i>NaeI</i>)	<i>PleI</i>	<i>PmaI</i> (<i>PstI</i>)
<i>Pma44I</i> (<i>PstI</i>)	<i>PmaCI</i>	<i>PmyI</i> (<i>PstI</i>)
<i>PovI</i> (<i>BclI</i>)	<i>PpaI</i> (<i>Eco31I</i>)	<i>PpuI</i> (<i>HaeIII</i>)
<i>PpuMI</i>	<i>PspI</i> (<i>AsuI</i>)	<i>Psp61I</i> (<i>NaeI</i>)
<i>PssI</i> (<i>DraII</i>)	<i>PstI</i>	<i>PvuI</i>
<i>PvuII</i>	<i>RheI</i> (<i>SalI</i>)	<i>RhpI</i> (<i>SalI</i>)
<i>RhsI</i> (<i>BamHI</i>)	<i>RluI</i> (<i>NaeI</i>)	<i>RrhI</i> (<i>SalI</i>)
<i>RroI</i> (<i>SalI</i>)	<i>RsaI</i>	<i>RshI</i> (<i>PvuI</i>)
<i>RshII</i> (<i>CauII</i>)	<i>RspI</i> (<i>PvuI</i>)	<i>RspXI</i> (<i>BspHI</i>)
<i>RsrI</i> (<i>EcoRI</i>)	<i>RsrII</i>	<i>SaaI</i> (<i>SacII</i>)
<i>SabI</i> (<i>SacI</i>)	<i>SacI</i>	<i>SacII</i>
<i>SacAI</i> (<i>NaeI</i>)	<i>SakI</i> (<i>SacII</i>)	<i>Sall</i>
<i>SalAI</i> (<i>MbolI</i>)	<i>SalCI</i> (<i>NaeI</i>)	<i>SaIDI</i> (<i>NruI</i>)
<i>SalHI</i> (<i>MbolI</i>)	<i>SalPI</i> (<i>PstI</i>)	<i>SaoI</i> (<i>NaeI</i>)
<i>SauI</i>	<i>Sau3AI</i> (<i>MbolI</i>)	<i>Sau96I</i> (<i>AsuI</i>)
<i>Sau3239I</i> (<i>XhoI</i>)	<i>Sau6782I</i> (<i>MbolI</i>)	<i>SauAI</i> (<i>NaeI</i>)
<i>SauBMKI</i> (<i>NaeI</i>)	<i>SblAI</i> (<i>StyI</i>)	<i>SblBI</i> (<i>StyI</i>)
<i>SblCI</i> (<i>StyI</i>)	<i>Sbo13I</i> (<i>NruI</i>)	<i>SboI</i> (<i>SacII</i>)
<i>ScaI</i>	<i>SciI</i> (<i>XhoI</i>)	<i>SciNI</i> (<i>HhaI</i>)
<i>ScoI</i> (<i>SacI</i>)	<i>ScrFI</i>	<i>ScuI</i> (<i>XhoI</i>)
<i>SduI</i>	<i>SdyI</i> (<i>AsuI</i>)	<i>SecI</i>
<i>SecII</i> (<i>HpaII</i>)	<i>SecIII</i> (<i>SauI</i>)	<i>SexI</i> (<i>XhoI</i>)
<i>SfaGVI</i> (<i>HpaII</i>)	<i>SfaI</i> (<i>HaeIII</i>)	<i>SfaNI</i>
<i>SfiI</i>	<i>SflI</i> (<i>PstI</i>)	<i>SfmI</i> (<i>AvaII</i>)
<i>SfoI</i> (<i>NarI</i>)	<i>Sfri</i> (<i>SacII</i>)	<i>SgaI</i> (<i>XhoI</i>)

<i>SgoI</i> (<i>XhoI</i>)	<i>SgrII</i> (<i>EcoRII</i>)	<i>ShyI</i> (<i>SacII</i>)
<i>SinI</i> (<i>AvaII</i>)	<i>SinAI</i> (<i>AvaII</i>)	<i>SinBI</i> (<i>AvaII</i>)
<i>SinCI</i> (<i>AvaII</i>)	<i>SinDI</i> (<i>AvaII</i>)	<i>SinEI</i> (<i>AvaII</i>)
<i>SinFI</i> (<i>AvaII</i>)	<i>SinGI</i> (<i>AvaII</i>)	<i>SinHI</i> (<i>AvaII</i>)
<i>SinJI</i> (<i>AvaII</i>)	<i>SinMI</i> (<i>MboI</i>)	<i>SkaI</i> (<i>NaeI</i>)
<i>SkalI</i> (<i>PstI</i>)	<i>SlalI</i> (<i>XhoI</i>)	<i>SlulI</i> (<i>XhoI</i>)
<i>SmaI</i>	<i>SnaI</i>	<i>SnaBI</i>
<i>SnoI</i> (<i>ApaLI</i>)	<i>SpaI</i> (<i>XhoI</i>)	<i>SpaXI</i> (<i>SphI</i>)
<i>SpeI</i>	<i>SphI</i>	<i>SpII</i>
<i>SpIII</i> (<i>Tth111I</i>)	<i>SpIII</i> (<i>HaeIII</i>)	<i>SsoI</i> (<i>EcoRI</i>)
<i>SsoII</i> (<i>ScrFI</i>)	<i>SspI</i>	<i>SstI</i> (<i>SacI</i>)
<i>SstII</i> (<i>SacII</i>)	<i>SstIV</i> (<i>BclI</i>)	<i>SthI</i> (<i>KpnI</i>)
<i>SthAI</i> (<i>KpnI</i>)	<i>SthBI</i> (<i>KpnI</i>)	<i>SthCI</i> (<i>KpnI</i>)
<i>SthDI</i> (<i>KpnI</i>)	<i>SthEI</i> (<i>KpnI</i>)	<i>SthFI</i> (<i>KpnI</i>)
<i>SthGI</i> (<i>KpnI</i>)	<i>SthHI</i> (<i>KpnI</i>)	<i>SthJI</i> (<i>KpnI</i>)
<i>SthKI</i> (<i>KpnI</i>)	<i>SthLI</i> (<i>KpnI</i>)	<i>SthMI</i> (<i>KpnI</i>)
<i>SthNI</i> (<i>KpnI</i>)	<i>StuI</i>	<i>StyI</i>
<i>SuaI</i> (<i>HaeIII</i>)	<i>SuII</i> (<i>HaeIII</i>)	<i>TaqI</i>
<i>TaqII</i>	<i>TaqXI</i> (<i>EcoRII</i>)	<i>TceI</i> (<i>MboII</i>)
<i>TfII</i> (<i>TaqI</i>)	<i>TgII</i> (<i>SacII</i>)	<i>ThaI</i> (<i>FnuDII</i>)
<i>TruI</i> (<i>AvaII</i>)	<i>TruII</i> (<i>MboI</i>)	<i>Tsp45I</i>
<i>TspEI</i>	<i>TspZNI</i> (<i>HaeIII</i>)	<i>TieI</i> (<i>Tth111I</i>)
<i>Tth111I</i>	<i>Tth111II</i>	<i>TthHB8I</i> (<i>TaqI</i>)
<i>TtnI</i> (<i>HaeIII</i>)	<i>TtrI</i> (<i>Tth111I</i>)	<i>VanI</i> (<i>BglII</i>)
<i>VhaI</i> (<i>HaeIII</i>)	<i>VneI</i> (<i>ApaLI</i>)	<i>VspI</i>
<i>XamI</i> (<i>SalI</i>)	<i>XbaI</i>	<i>XcaI</i> (<i>SnaI</i>)
<i>XciI</i> (<i>SalI</i>)	<i>XcyI</i> (<i>SmaI</i>)	<i>XhoI</i>
<i>XhoII</i>	<i>XmaI</i> (<i>SmaI</i>)	<i>XmaII</i> (<i>PstI</i>)
<i>XmaIII</i>	<i>XmnI</i>	<i>XniI</i> (<i>PvuI</i>)
<i>XorI</i> (<i>PstI</i>)	<i>XorII</i> (<i>PvuI</i>)	<i>XpaI</i> (<i>XhoI</i>)
<i>XphI</i> (<i>PstI</i>)	<i>YenI</i> (<i>PstI</i>)	<i>YenAI</i> (<i>PstI</i>)
<i>YenBI</i> (<i>PstI</i>)	<i>YenCI</i> (<i>PstI</i>)	<i>YenDI</i> (<i>PstI</i>)
<i>YenEI</i> (<i>PstI</i>)	<i>ZanI</i> (<i>EcoRII</i>)	

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