T7

39,937 base pairs
GenBank Accession #: NC_001604
Not currently available from NEB.

There are no restriction sites for the following enzymes: AfeI, ApaI, AscI, AsiSI, BamHI, BsiWI, BspEI, EagI, Eco53KI, EcoRI, EcoRV, FseI, HindIII, I-CeuI, I-SceI, NaeI, NgoMIV, NotI, PI-PspI, PI-SceI, PaeR7I, PspOMI, PspXI, PstI, PvuI, SacI, SacII, SalI, SbfI, SexAI, SgrAI, SmaI, SphI, SrfI(x), TspMI, XhoI, XmaI

(x) = enzyme not available from NEB

T7 is a lytic *E. coli* bacteriophage with a linear, double-stranded DNA genome containing 56 genes (1-4). Genes are classified as early or late based on the order of transcription in the infected host and their dependence on host or phage RNA polymerase.

Numbering of the sequence begins at the first (5´-most) base of the left end (bottom of the diagram below) and continues rightward (upward) in the direction of early to late genes. The map below shows the positions of all known ORFs larger than 200 codons.

Enzymes with unique restriction sites are shown in **bold** type, and enzymes with two restriction sites are shown in regular type. Location of sites of all NEB restriction enzymes for select plasmids can be found on the NEB website (choose Tools & Resources > DNA Sequences and Maps tool). Restriction site coordinates refer to the position of the 5´-most base on the top strand in each recognition sequence.

References
(1) Oakley, J.L. and Coleman, J.E. (1977) *Proc. Natl. Acad. Sci. USA,* 74, 4266–4270.
(2) Stahl, S.J. and Zinn, K. (1981) *J. Mol. Biol.,* 148, 481–485.
(3) Dunn, J.J. and Studier, F.W. (1981) *J. Mol. Biol.,* 148, 303–330.
(4) Dunn, J.J. and Studier, F.W. (1983) *J. Mol. Biol.,* 166, 477–535.

Enzyme	Position	Gene	Description
PmlI	38058	19	(DNA maturation protein)
AgeI	37465		
AlwI - BstYI	36087	17	(tail fiber protein)
EaeI - MscI	35939		
BglI	35932		
SfiI	35931		
AgeI	35710	16	(internal virion protein)
EaeI - MscI	35538		
KasI-NarI-PluTI - SfoI	35504		
ApaLI	34112		
NcoI	29718	15	(internal virion protein)
EcoNI	28750		
EciI	27917		
PacI	27223	12	(tail protein)
AcuI	25431		
AatII - ZraI	24730		
BssHII	23893	10	(A/B; capsid protein)
BmtI - NheI	22970	9	(scaffolding protein)
RsrII	22770		
EciI	22421	8	(head-tail connector protein)
BstEII	20066		
BanII	19602		
StuI	19019	6	(T7 Exonuclease)
SpeI	17279		
		5	(T7 DNA Polymerase)
BglI	13517	4	(A/B; primase/helicase)
BglII - BstYI	11515		
KasI - NarI - PluTI - SfoI	11083		
PmeI	10720		
MluI	9489	2.5	(ssDNA Binding Protein)
PflFI - Tth111I	8894		
BclI	8311	1.3	(DNA Ligase)
BstNI - PspGI	8188		
SpeI	7694		
SwaI	5970	1	(T7 RNA Polymerase)
BstNI - PspGI	2366	0.7	(protein kinase)
PmeI	273		