



Figure 2.32

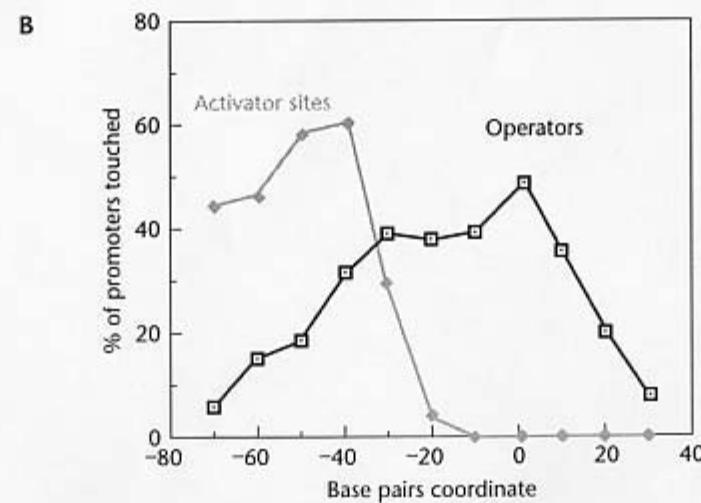
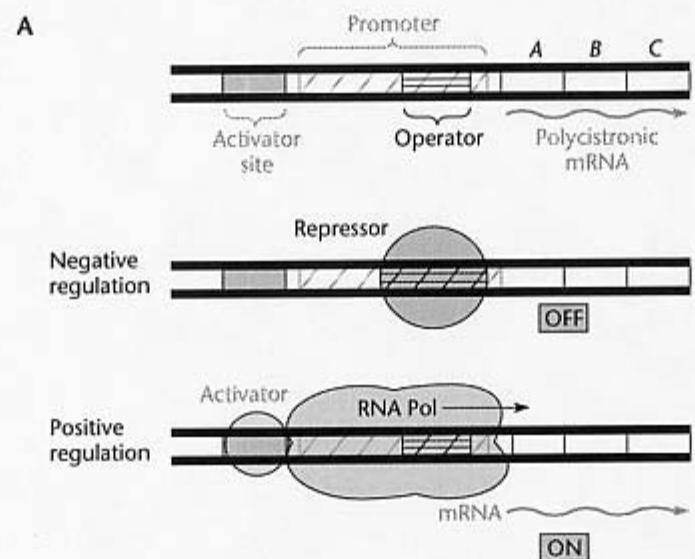
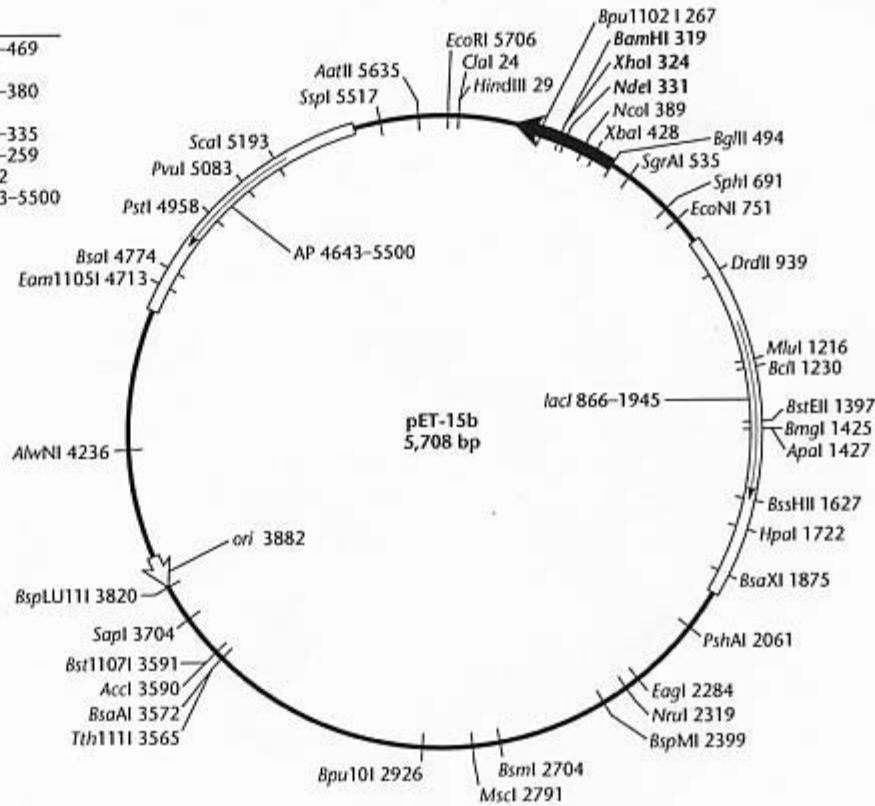




Figure 2.35

## pET-15b sequence landmarks

T7 promoter	453-469
T7 transcription start	452
His-Tag coding sequence	362-380
Multiple cloning sites (NdeI - BamHI)	319-335
T7 terminator	213-259
pBR322 origin	3882
<i>bla</i> coding sequence	4643-5500



Sequence details:

Top sequence: AGATCTCGATCCCGCGAATTAAATACCACTCACTATAGGGAATTGTGAGCGGATAACAATTCCCGCTAGAAATAATTTGTTAACCTTAAGAACCGAGA

Bottom sequence: TATACCATGGCAGCACCATCATCATCATCACAGCAGCGGCCTGGTGGCCGCCGAGCCATATGCTCGAGGATCCCGCTGCTAACAAAGCCGA

Protein sequence: Met Gly Ser Ser His His His His Ser Ser Gly Leu Val Pro Arg Gly Ser His Met Leu Glu Asp Pro Ala Ala Asn Lys Ala Arg

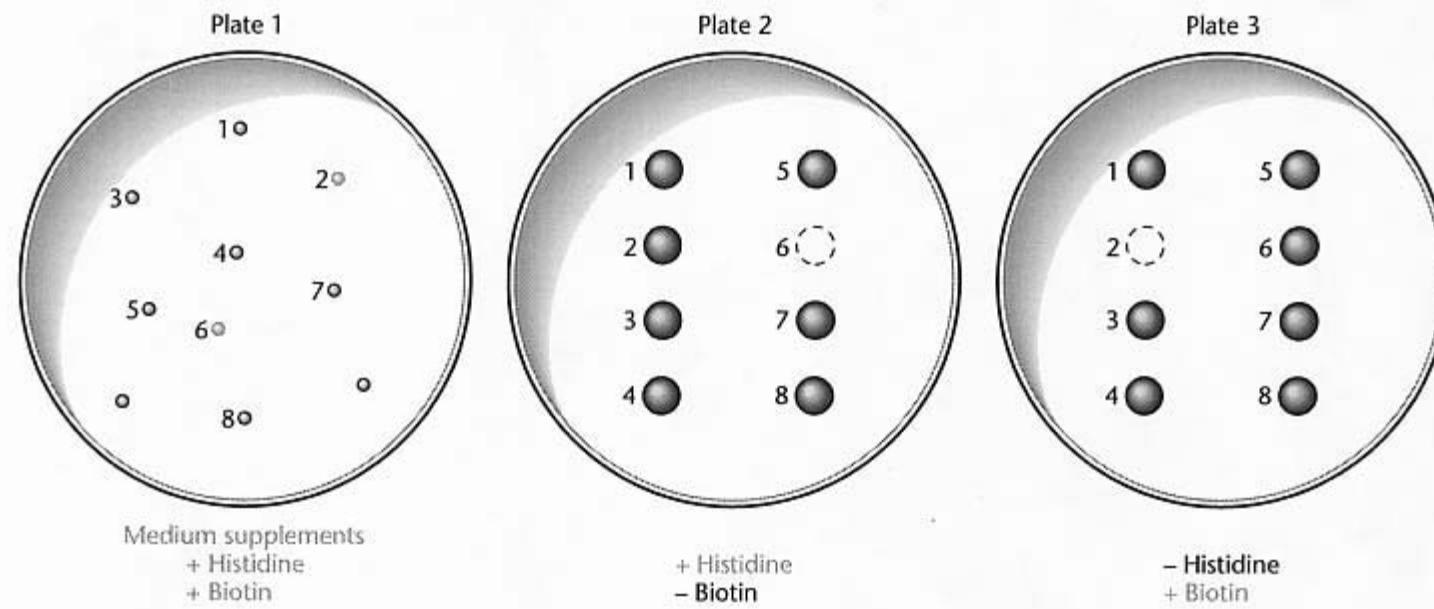
Enzyme and protein locations:

- Bgl*II: T7 promoter
- Nco*I: His-Tag
- Xba*I: *lac* operator
- Nde*I: Thrombin
- Xba*I: *Bam*H I
- Bpu*1102 I: T7 terminator
- RBS: Ribosome Binding Site

Bottom sequence continuation: AAGGAAGCTGAGTTGGCTGGCCACCGCTGAGCAAATAACTAGCATAACCCCTGGGGCTCTAAACCGGTCTTGAGGGTTTTG

Bottom sequence end: Lys Glu Ala Glu Leu Ala Ala Ala Thr Ala Glu Gln End

**Figure 3.1**



**Table 3.1**

TABLE 3.1 Some resistance mutations		
Substance	Toxicity	Resistance mutation
Bacteriophage T1	Infects and kills	Inactivates <i>tonB</i> outer membrane protein; phage cannot absorb
Streptomycin	Binds to ribosomes; inhibits translation	Changes ribosomal protein S12 so that it no longer binds
Chlorate	Converted to chlorite, which is toxic	Inactivates nitrate reductase, which converts chlorate to chlorite
High concentrations of valine, no isoleucine	Feedback inhibits acetolactate synthetase; starves for isoleucine	Activates a valine-insensitive acetolactate synthetase



**Figure 3.3**

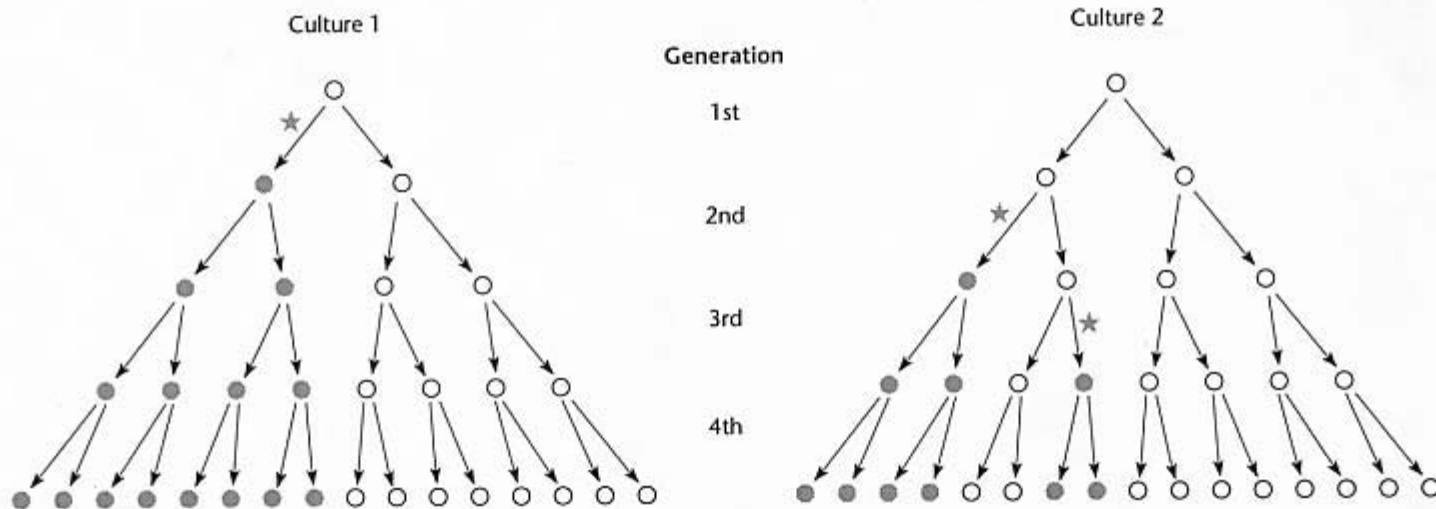
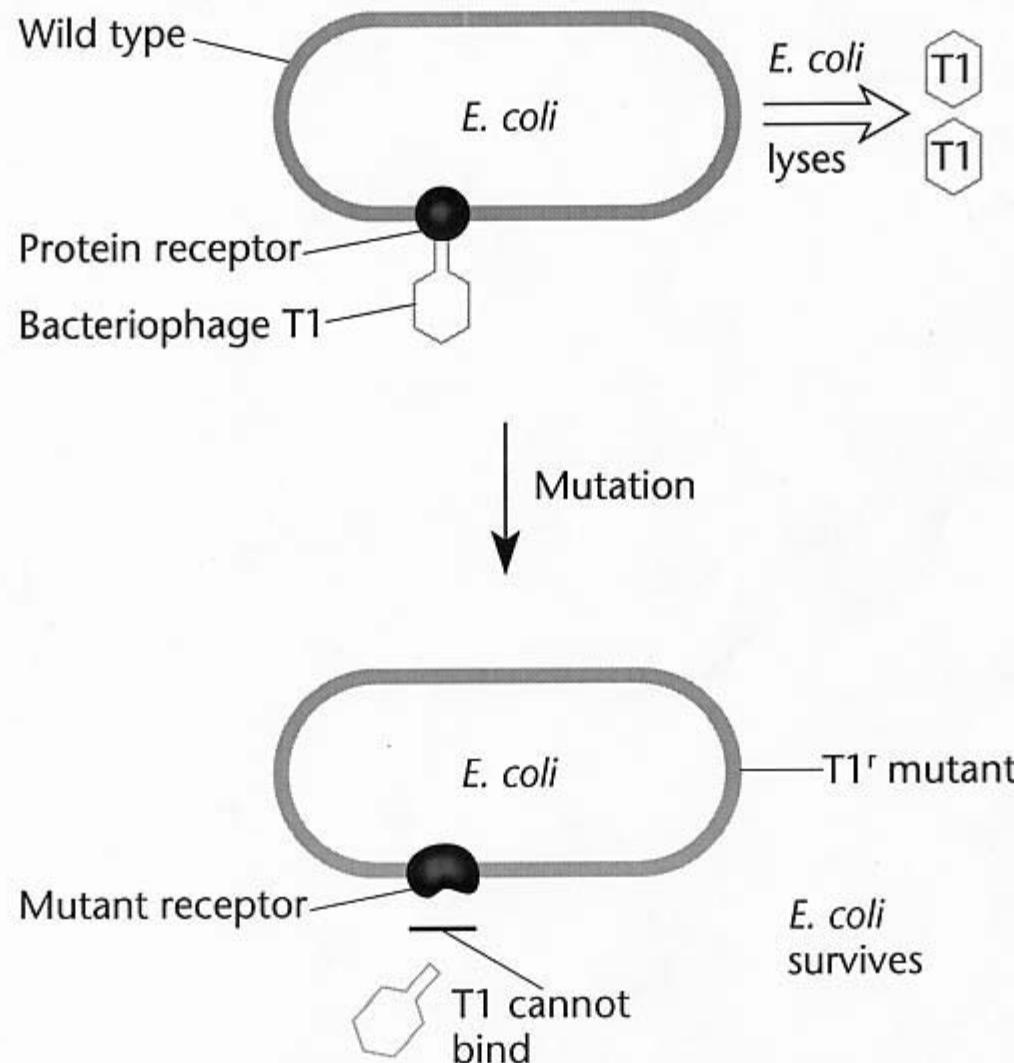


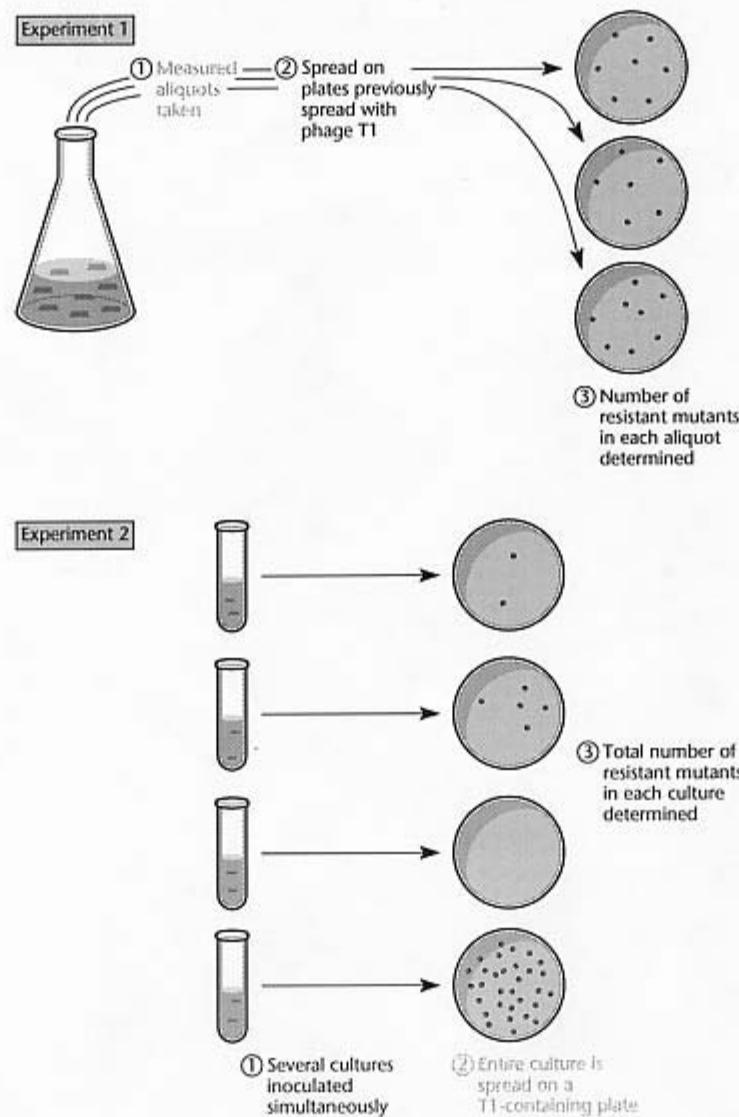


Figure 3.4





**Figure 3.5**

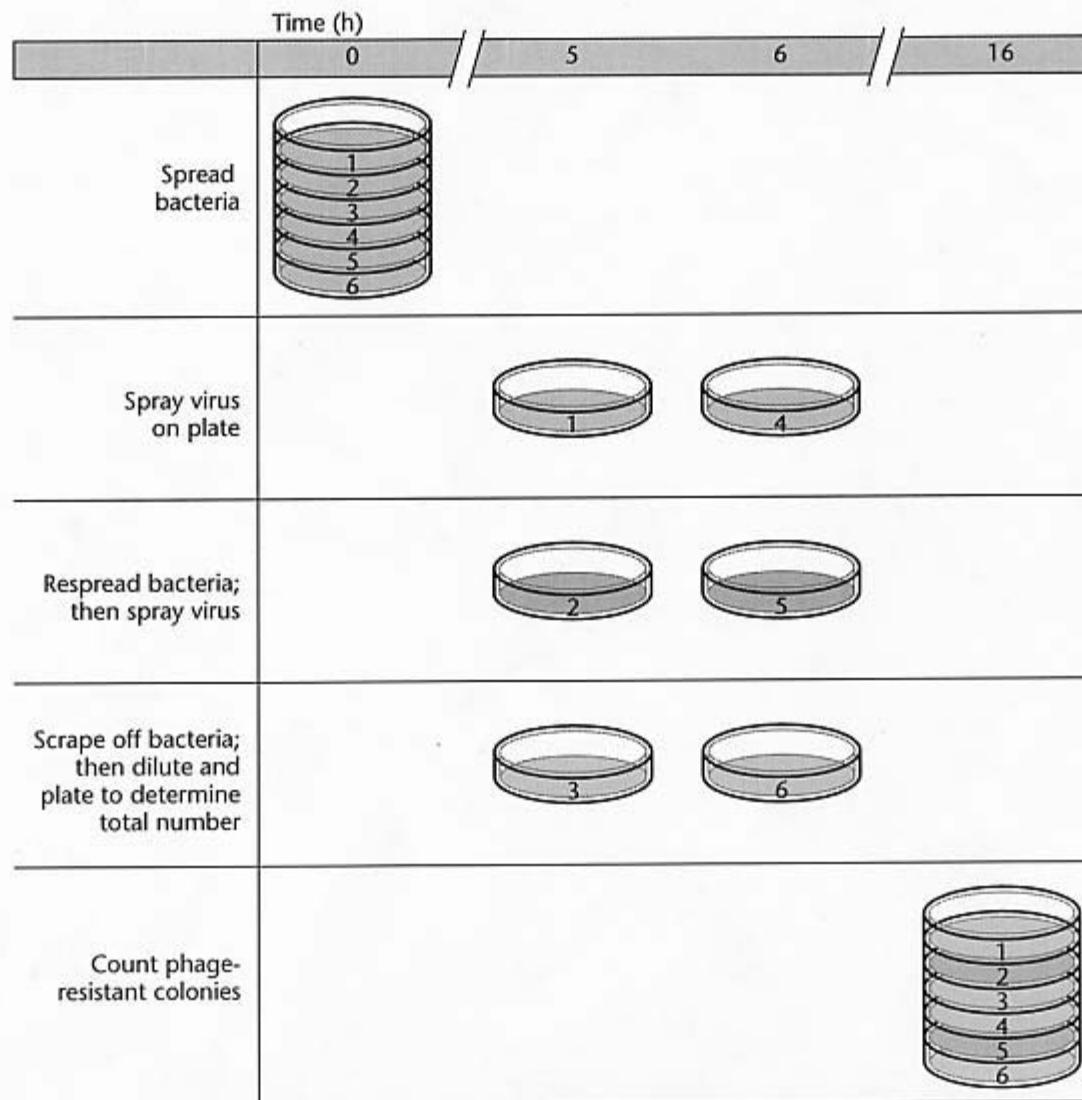


**Table 3.2**

TABLE 3.2 The Luria and Delbrück experiment			
Experiment 1		Experiment 2	
Aliquot no.	No. of resistant bacteria	Culture no.	No. of resistant bacteria
1	14	1	1
2	15	2	0
3	13	3	3
4	21	4	0
5	15	5	0
6	14	6	5
7	26	7	0
8	16	8	5
9	20	9	0
10	13	10	6
		11	107
		12	0
		13	0
		14	0
		15	1
		16	0
		17	0
		18	64
		19	0
		20	35



Figure 3.6



**Table 3.3**

TABLE 3.3 The Newcombe experiment			No. of resistant colonies <sup>a</sup>	
Incubation time (h)	No. of bacteria plated	Ending no. of bacteria	unsp	sp
5	$5.1 \times 10^4$	$2.6 \times 10^8$ (plate 3)	8 (plate 1)	13 (plate 2)
6	$5.1 \times 10^4$	$2.8 \times 10^9$ (plate 6)	49 (plate 4)	3,719 (plate 5)

<sup>a</sup>unsp, unspread; sp, spread.