Nontransducible Gal_x- W2312

(51)

Expt	No Addition	HFT Lysate Gal₁-	HFT Lysate Gal₂-	HFT Lysate Galy-	NFT wild type lysates
206 (1)	0	0	0	0	—
(2)	0	—	—	—	0
220 (1)	0	0	0	0	0
(2)	0	0*	0*	0*	0*

* = NFT lysate

Action of Lysate of W2312 on Known Gal- Cultures.

Gal-	No Addition	~~K~~Numbers of Papillae W2312 lysate
Gal_1-Lp^+	4	37
Gal_2-Lp^+ (220)	8	7
(221)	19	28*
Gal_4-Lp^+	17	74
Gal_6-Lp^s	3	121

* 12/12 examined found stable +

Crosses of W2312 with Known Gal-

Thiogalactoside-		Number total prototrophic recombinants	% (+)
Gal 2 - F-	(+) 1	2112	~~[illegible]~~ (0.05)%
Gal 4 - F+	1	198	0.5

(52)

Table 8

Adsorption of the Transducing Activity

% Adsorbed

Adsorbing Cells	Phage titer	Cell titer	1st Adsorption Phage	1st Adsorption Transd	2nd Adsorption Phage	2nd Adsorption Transd	3rd Adsorption Phage	3rd Adsorption Transd
W811 gal_1^- tp^+	1.8×10^{10}	2.6×10^{10}	—	72%	—	56%	—	0
W750 gal_8^- tp^+	1.8×10^{8}	6.5×10^{9}	—	45%	—	110%	—	0
W2175 gal_2^- tp^+	1.8×10^{10}	6.0×10^{9}	—	35%	—	33%	—	0
W518 gal_4^- tp^s (1)	2.5×10^{9}	7.1×10^{8}	60 50	79	50	41	16	46
(2)	3.9×10^{9}	5.5×10^{8}	52	33	—	—	—	—
W811 gal_7^- tp^+	1.4×10^{10}	c. 10^{10}	—	79	—	—	—	—
W1736 gal_4^- tp^+	1.4×10^{10}	c. 10^{10}	—	97	—			

2801 | 31.00
2801
2990

Table 10

Number Colonies ~~Observed~~

Exposure	Post Exposure Cell titer	Gal -	Gal +	~~Gal~~ - Partially lysed	Total
Broth	4.1X109	3280	0	0	3280
HFT lysate	3.5X10^9	2801*	31**(1.1%)	54	2286

Table 11

Examination of Colonies after ~~H~~HFT Exposure

Colony	Number	bpt Lysogenic	λ Sensitive	kp^R
Gal(-)	31	0	31	0
Gal(+)	26	23	0	3

Transductions to Gal-

Culture	tp	Gal$_1^-$ locus transduced	Resultant culture and	tp genotype	Comment
W1485	tp^s	Gal$_2^-$	—	tp^+ or tp^r	8 distinct (–) obtained from single clone.
		Gal$_2^-$	—?	~~tp^+~~	2 distinct (–) obtained from separate clones
		Gal$_1^-$	—	tp^+ and tp^s	2 distinct (–) obtained from separate clones.
W1673	tp^s	Gal$_2^-$	—	tp^+ or tp^R	3 (–) obtained not known whether from same clone
W1765	tp^s	Gal$_1^-$	W2373	s	3 (–) obtained not known whether clonal or not
W2252	tp^s	Gal$_1^-$	W2345	tp^R?	2 (–) obtained from different clones.
		Gal$_2^-$	W2341	tp^R	2 (–) obtained from [illegible] clones.

(53)

M. L. Morse

Transduction in E. coli K-12
Progress Report ~~Aug~~ 1953
September

1. References

λ Source

Recipient Cells	K-12 Gal +	W750 Gal$_1$ -	W902 Gal$_2$ -	W2238 Gal$_3$ -	W811 Gal$_4$ -
Gal$_1^-$ prototroph	Experiment M aside page 190 192A	————	Experiment N aside page 190 192B, 192C	~~not done~~ ~~in~~ progress 221	doesn't go ? page 206
Gal$_2$ - W2175 (prototroph)	Experiment O aside page 191 196	Experiment T aside page 206 209	————	~~not done~~ in progress 222	Experiment U aside page 206 207
Gal$_3$ - W2297 (prototroph	not done	page 208	page 208	————	page 208
Gal$_4^-$ Lp^s W518	Experiment Q ok page 200D 205	doesn't go? page 189	Experiment R ok page 191 198	~~not done~~ doesn't go ? 222	————
Gal$_4^-$ Lp$^+$ W811	Experiment V ok page 212	doesn't go? page 185	Experiment S ok page 202	~~not done~~ doesn't go ? 222	————
Gal$_4^-$ Lp^r W1924	Experiment X ok page 216	doesn't go? page 208	Experiment W ok page 213	not done	————

Lysates

cells	K-12	Gal⁻ W750	Gal₂⁻ 902 W1210	Gal₄⁻ (1607) W811
W750 lp^+	248 + ~~Redone~~ seq anal. complete		by 902 p 230 + seq anal complete + by 1210. p. 243 seq anal complete	Doesn't go? p 206
W2373 lp^s W2765 gal_1^-	249 D + Do seq anal complete		by 1210 249B + seq anal complete Do by 902 249C + seq anal complete	249 A + Do. seq anal complete
W1210 lp^+	247A + seq anal complete Do	247C + seq anal complete		247B + seq anal complete
W2281 lp^s	+ p 233 seq anal complete lysogenic almost complete	pg: + 236B seq anal complete		p 236C + seq anal complete
W811 lp^+	Expt. V + p. 242 seq. anal complete	doesn't go? 189	by 1210 (do) – + by 902 p 202 (Expt S) seq anal complete	
W518 lp^s	Expt Q + p. 205 seq anal. complete lys anal. almost complete	doesn't go? 192	by 1210 p. 242 + seq anal complete b 902 p 198 (Expt R) + seq anal complete	
W1924 lp^R	Redone Expt. seq.	doesn't go? 208	by 902 p 213 (Expt W) + seq anal complete by 1210 (do)	
W2475	+ Expt O. 196 complete	Expt. T page 208 seq anal complete	X	Expt U p 207. seq anal complete
W2342 (W750 prom)	Expt. M 192A + Seq anal complete	X	Expt N 192B + seq anal complete.	not done

3. Status of the Segregant Analysis

Recipient Cells	λ Source K-12	Gal$_1^-$ W750	Gal$_2^-$ W902	Gal$_3^-$ W2238	Gal$_4^-$ W811
Gal$_1^-$	17 17/17 gal_1^- 4/4 gal_1^- 4/4 gal_1^- (incomplete)	—	23 18 gal_1^-, 5 gal_2^- 5/5 gal_2^-, ④/4 gal_1^- 5/5 gal_2^-, 4/4 gal_1^- (incomplete)	not done in progress	stable (+) ?
Gal$_2^-$	20 20/20 gal_2^- 4/4 gal_2^- 4/4 gal_2^- (incomplete)	19 14 gal_2^-, ③ gal_1^-, (2 gal_x^-) (double ?) incomplete - incomplete -	—	not done in progress	16 7 8 gal_2^-, ~~8~~ gal_4^- [illegible] (doubt ?) incomplete incomplete
Gal$_3^-$	not done	stable (+)	stable (+)	—	stable (+) ?
Gal$_4^-$ λp^S	13 13/13 gal_4^- 4/4 gal_4^- 4/4 gal_4^- (incomplete)	stable (+) ?	21 18 gal_4^-, ③ gal_2^- 16/16 gal_4^-, gal_2^- incomplete) 4/4 gal_4^- complete gal_2^- incomplete	not done doesn't go ?	—
Gal$_4^-$ λp$^+$	20 20/20 gal_4^- incomplete incomplete	stable (+) ?	19 16 gal_4^-, ③ gal_2^- 15/15 gal_4^-, gal_2^- incomplete 4/4 gal_4^- (complete) gal_2^- incomplete	not done doesn't go ?	—
Gal$_4^-$ λp^r	29 29/29 gal_4^- incomplete incomplete	stable (+) ?	18 15 gal_4^-, 3 gal_2^- incomplete incomplete	not done	—

Explanation

17 = no (−) segregants

17 gal_1^- = "allele" by transduction test ← what a cell is not transduced by

4/4 gal_1 = "allele" by donor lysate test ← whose "allele" cannot be transd. by a lysate of segregant

4/4 gal_1^- = "allele" by cross with gal^-

The same segregants as in

(58)

Segregants from a single transduction – The ordering of the segregants is not specific

Transduced Cell Genotype	Lysate Source	Homotypic	Heterotypic	Homo-Hetero	Total
gal$_4^-$	gal$_2^-$	17	2	1	20

P	Gal	% +	No. Tested	Fraction Gal + in crosses (+) × (−)
190	Gal$_3^-$ × Gal+ (F−) 2238 × 1655 (F+)	12.4	864	
EML thesis 49	F(+) Gal$_1$ × Gal+ (F−) 750 Y-10	14.7		
169	F$^+$ Gal$_1^-$ × Gal+ (F−) 750 Y-10	0.66 %(F−)	c.300	
149	(F+) Gal 4$^-$ × Gal+ (F−) 811 Y10	3.5	480	
143	F Gal$_4^-$ Lp^d × F$^+$ Gal+ 518 1678	0	71	Genetic phenocopies
	F$^+$ Gal$_4^-$ Lp^d × F$^-$ Gal+ 518 1678	0.52	574	
	F− Gal4$^-$ Lp^d × F$^+$ Gal+ (Lp^d)	3.5	29	
	F+ Gal$_4^-$ Lp^d × F − Gal+ (Lp^d) 518 1673	3.8	427	

Transduction	Number of Segregants		Classification by Transduction	Classification by Lysate	Classification by Crossing Homotypic (+)	Homotypic total prototrophs	Heterotypic (+)	Heterotypic total prototrophs
u d → x gal$_4^-$	4	(1)	gal$_4^-$	gal$_4^-$	0	896	—	—
		(2)	gal$_4^-$	"	0	918	—	—
		(3)	"	"	0	1134	—	—
		(4)	"	"	0	863	—	—
gal$_1^-$ → x gal$_2^-$	4	(1)	gal$_2^-$	—	0	1077	—	—
		(2)	"	—	0	10512	—	—
		(3)	"	—	0	110	—	—
		(4)	"	—	0	800	—	—
no gal$_1^-$ segregant found								
gal$_4^-$ → x gal$_2^-$	2	(1)	gal$_2^-$	—	0	117	—	—
		(2)	gal$_2^-$	—	0	1096	—	—
		~~(2)~~	~~gal$_2^-$~~		~~0~~	~~12000~~		
	1	(1)	gal$_4^-$	gal$_4^-$	—	—	3+	391
	1	(1)	gal$_2^-$gal$_4^-$	—	—	—	0	12000

print

Omit

Transduction	Number of Segregant		Classification by Transduction Assay	Classification by Lysate	Classification by Crossing ~~Grouped~~ Was Crossed with Homotypic		Heterotypic	
					(+)	total prototrophs	(+)	total prototrophs
gal_2^- —x gal_4^- tp^s	5	(1)	gal_4^-	gal_4^-	0	2786	3	3183
		(2)	"	"	0	2675	2	3471
		(3)	"	"	0	3485	23	5342
		(4)	"	"	0	5952	1	1665
		(5)	"	"	0	5000	1	891
	2.	(1)	gal_2^-	gal_2^-	7	3102	0	1988
		(2)	gal_2^-	gal_2^-	10	4364	0	1187
gal_2^- —x gal_4^- tp$^+$	4	(1)	gal_4^-	gal_4^-	0	16184	3 ~~0~~	1359 ~~650~~
		(2)	"	"	0	5730	1	164
		(3)	"	"	0	3358	0	202 ~~142~~
		(4)	"	"	0	12848	1	171
	3	(1)	gal_2^-	gal_2^-	1	11200	0	827 ~~604~~
		(2)	"	"	6	10608 ~~6720~~	0	718 ~~540~~
		(3)	"	"	3 ~~0~~	5000 ~~2518~~	0	409 ~~272~~
wild —x gal_1^-	4	(1)	gal_1^-	gal_1^-	0	426	—	—
		(2)	"	"	0	554	—	—
		(3)	"	"	0	529	—	—
		(4)	"	"	0	391	—	—
Omit //								
wild —x gal_2^- (2281)	~~3~~4	(1)	gal_2^-	gal_2^-	0	7805	—	—
		(2)	"	"	0	4992	—	—
		(3)	"	"	0	106	—	—
		(4)	"	"	0	4552	—	—
2175	4	(1)	gal_2^-	gal_2^-	0	4071	—	—
		(2)	"	"	0	5384	—	—
		(3)	"	"	0	2072	—	—
		(4)	"	"	0	6988	—	—

Lysate Assay

Nature of Original Transduction	Homotypic	Heterotypic	Homo-hetero	Total
wild type on gal1-	21/[illegible]	0	0	21
gal1- on gal1-	39/39	16	—	55
	60	16		76

Lysate E

Page		No. Homotypic	Heterotypic	Total	wild-x	
205		4 lys	0	4	+	
196	2175	4 lys+	0	4	+	9
192A	proto gal₁	4 lys+	0	4	+	12 → 15
√192B	proto gal₁	4	5 gal₁ 902	9		→ 16
√202	w84	15	3 (902)	18 ~~[illegible]~~		52
√198	w518	16 ([illegible])	3 (902)	19 ([illegible]) 3	49 15 64	→
√212	w11 35	4	0	4	+	
√247A	w1210	4	0	4	+	
√248	w750	1	—	1	+	
	Total 56		11	67		→
√207	w2175 39	4	0 811	4		
	Total 60		11	71		→
√247B	w1210	=	w584 1 (84)	1		
	Total 60		12	72		→
√236C	w2211	[illegible]	1 (811)	1		
	Total 60		13	73		→
√242	w518	—	1 (1210)	1		→
√243	w750	—	2 (3)(1210)	2		
			16	76		
		60				
√209	w2175	—	gal₁⁻ 2 (750)			

19

4. Occurrence of HFT λ-

Recip. Cell	λ Source K-12	Gal_1^- W750	Gal_2^- W2175	Gal_3^- W2238	Gal_4^- W811
Gal_1^-	0/4 HFT	—	1/5 gal_2^- HFT 2/4 gal_1^- HFT 2/24 gal_1	~~not done~~	not done Stable(+)?
Gal_2^-	0/4 HFT	not done 1/1 unstable (+) HFT	—	~~not done~~	not done
Gal_3^-	not done	not done stable(+)	not done stable(+)	—	not done stable(+)$^-$?
$Gal_4^- Lp^s$	0/4 HFT	not done stable(+)?	0/16 gal_4^- HFT gal_2^- not done	~~not done~~	—
$Gal_4^- Lp^t$	not done	not done stable(+)?	1/15 gal_4^- HFT gal_2^- not done 1/3	not ~~done~~	—
$Gal_4^- Lp^r$	not done	not done stable(+)?	not done	not done.	—

Previously - unstable (+) from 518 t K-12
750 t 1821 (gal_1^- trnsd. by gal_4^-)
1436 t K-12 } examined and not found HFT

Explanation

$$0/4 = \frac{\text{no. lysates found HFT}}{\text{no. lysates examined}}$$

Misc.

pg	obs	culture
62	transduct. not affected by presence of other phage	W1786
80 [illegible]	~~spread of λ (K12)~~	~~W1786~~
~~87~~	~~adsorption of transd. factor~~	~~W811, W1786~~
99	F- gal-	W1574
121	pasteurization of lysate not possible	W811
141	no. cells vs transd.	W518
~~177~~	~~HFT induction~~ ~~4.2%~~	~~W518~~
178, 168, 169, 170	instability of D1	W1485
~~183 (186)~~	HFT (-) induction N16	~~W1485, W1673~~
	" " " N1, N16	W518.
(203)	HFT not destroyed by DNAase	D1 λ
197 (199)	anti λ sera on HFT	2175, 750, 811, 1938, 518
200A	~~U.V. effect on nat. λ~~	
206 (220 also 221 et seq)	~~nontransducible gal~~	— 811, 1924, 750, 518, 2280 2281, 2175
218	U.V. on HFT λ	
219a	u.v. lysate of λp^{R} ~~λgal~~	1924
223	~~HFT induction of N16 (3%)~~ also correlation c̄ lysogenicity	W518
224	u.v. lysate of λp^{R} also a look at $\left.\begin{matrix}1^-\\4^-\end{matrix}\right\}$ transd. 1X by adsorpt. effect	1027
~~225~~	~~adsorpt of λ~~	~~811~~ ~~750~~
~~226~~		750
~~240~~	~~transd. of by gal^{+R}~~	~~2175~~

Misc ②

pg	Topic	Cites
241	① HFT (−)	W1765 chr crss ⊗ 750F –
fu	② HFT (+) deletion correlation with hypogenicity	W518
	again	
244	AFT (−)	W2252 gel$_1$ – gel$_2$ –

HFT (+) ductions

Expt	Addition	Numbers of (+)	(−)	% (+)
177				
	No lysate	0	936	0
	HFT lysate	72	1708	4.0
223	No lysate	[illegible]	[illegible]	—
	HFT lysate	39	1312	3

4, 2

Exht	Page	ⓧ	keys	Descript
V	212	1, 10, 12, 18 x 1436	← ok	811 t K12
✓ Q	205	4, 6, 8, 10 x 1436	complete ok	518 t K12
247A	—	4, 13, 22, 23 x 902	← ok	1210 t K12
248	—	1, 7, 9, 11 x —?	← ok ? = 1	750 t K12
249D	—	4, ~~[illegible]~~, 8, 12, 14 x —?	←	1765 gal, - t K12
233		13 x 902F+	3, 7, 13, 16	2281 t K12
247C	—	11, 13, 22, 24 x 902	←	1210 t 750 (2 sets) ok
236B	—	4, 6, 21 x 902	4, 8, 12	2281 t 750 ok
✓ O	196	complete	complete	2175 t K12
M	192A	2, 14, 15, 17 x —?	complete	2342 (750 pr t K12)
N	192B	2 - complete wo 1 - confused	complete	750 pr t 902 (← 2342) ok
T	209	all	all	2175 t 750 ok
230	—	230-5 x 902 3 others	~~23~~ 5 + 3 others	250 t 902 ok
243	—	3, 6, 7 x 902	3, 6, 7	750 t 1210 ok
249B	—	10, 13, 20, 21 x —?	10, 13, 20, 21	1765 gal, - t 1210
249C	—	12 x —?	12	1765 gal, t 902
S	202	4 galy - x 1436 complete 14, 15, 17, 19 x 902 5, 9, 16 x 1436, 902 ✱	4 complete 5, 9, 16	811 t 902 ok
242	—	5, 8, 9, 20 x 1436, 902 ✱	5, 8, 9, 20	518 t 1210 ok
R ✓	198	4 Galy - x 1436 complete 4 " x 902 " 2 Gal2 x 902 complete 2 gal2 x 1436 " complete	complete 1, 4, 17 ok	518 t 902 ok
X	213	1, 4, 14, 17, 18 x 902 1436 ✱	←	1924 t 902 ok
249A	—	6 x —?	6	1765 gal, - t 811
247B	—	1, 8, 14, 18 x 902 1436 ✱	1, 8, 14, 18	1210 t 811 ok
236C	—	6, 10, 14, 23 x 902, 1436?	6, 10, 14, 23	2281 t ~~[illegible]~~ 811
U	207	1, 3, 7, 13 x —?	1, 3, 7, 13	2175 t 811

Confirm / $\Sigma = 3$ 1^-4^-

1 1^-

1 2^-

2 x^-

2 nontrans.

(68)

__Gal⁻ mutants induced__

pg of culture designation locus (if known)

206 W1673 -2 (2310) transd by 2, not by 1,4 = double? ✓ ✓

p. 206 -4 (2311) " " " " " " " ✓ ✓

~~non~~ transducable? (⊗ 811 → (+))

-5 (2312) ~~not " " " 1, 2, 4~~

-6 (2313) " " 1,4 " " 2 = 2^- ✓? ✓

______ = new locus? ✓ ✓

-7 (2314) " " 1,2,4 not by 3 = " " or 3^-? ✓ ✓

-8 (2315) " " 1,2,4

-9 (2316) " " 2,4 not by 1 = 1^-? ✓

-10 (2317) " " 2 not by 1,4 = double? ✓

-11 (2318) not transd by 1, 2, 4 = non transducable?

2312 x 811 → 1+/84

220 W2312 not transd. by 1, 2, 4 (HFT), 892(+), K12

" " " 1, 2, 4 (HFT), K12

made λ+ lysate

transd. 1, 4, 6 possibly not gal_2^-

~~W2318~~ not transd by 1, 2, 4 (HFT) –

221 W2318 x 811 0+/206

W2312 lysate of does not transd 2175 but others.

222 W2312 x 902 1+/2112⁻

x 811 Σ = 1+/198

225 W2312 x 1655 to see if 2 types (–) obtainable

only 17 pros (+) obtained

~~[illegible]~~ expt

W2312 X 1655 F- (with proline added) → $3^{(-)}/11$

Gal⁻ mutants induced
W1765

Req	orig designation			locus
238	2	W2645	not ~~+~~ 4⁻, 1⁻, 2⁻	non rand. ?
	5	W2646	+ by all	new ? ✓
	6	W2647	+ by all but 1	1⁻ ? ✓
	8	W2648	+ by all	new ? ✓
	10	W2649	" " " "	new ? ✓
	11	W2650	not + by 1⁻, 4⁻	1⁻ 4⁻ ?
	12	W2651	not + by 2⁻	2⁻ ✓
	13	W2652	" " " 2⁻	2⁻ ✓

Cross of #11 x 518 → 0+/6050
x 730 → 0+/2683

Σ

2	2⁻
3	x⁻
1	1⁻
1	1⁻4⁻
1	nonrand.

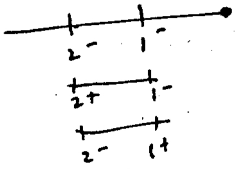
Page 245, 246, 246A

T18 .. 2175 t 750 = lac⁺ gal₂⁻ gal₁⁻ by transd. assay

① lac⁺ gal₂⁻ transd lac₁⁻ gal₁⁻

② transduced by mixture of HFT 1⁻ / HFT 2⁻ but not by the ones singly!

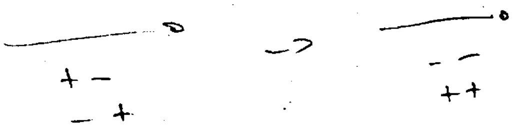
③ Proposed

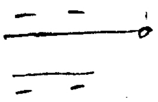


	Segregants	on lac	Assay transducibility	Reversion segregate	Found
Forward ①	1⁻ 2⁻	slow	not.	no	—
Forward ②	1⁻ 2⁺	slow	1⁻	no	—
Forward ③	1⁺ 2⁺	+	2⁻	yes	① 1⁻ 2⁻ ② 1⁻
④	1⁻ 2⁻ 1⁺ 2⁻	+	1⁻	yes	① Found 1⁻ 2⁻ ② Found 2⁻
Forward ⑤	1⁻ 2⁻ 1⁻ 2⁺	slow			

⑤ Lysate on 2070
7 seg tested

5	1⁻
2	2⁻





Double (– –)

237A -10 = 750 t N16

not t by N16, N1 (repeated), possibly by 518

culture Lp_2^s

Lysate apparently didn't transduce 2175, 750

Crossed with 902 0(+)/1650

209-18 2175 t 750

not t by N1, N16, 84, ~~[illegible]~~ but by 1612

Lysate failed to t 750, 2175, 2297, 2070 possibly 84, 518 weakly. — these gave all stable

actual results don't suggest this; see p. 209

209-19 similarly to T18

236C -W2350

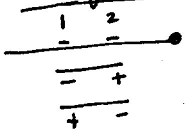
246
246A

=

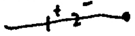
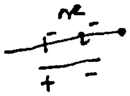
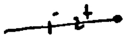
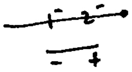
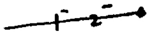
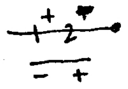
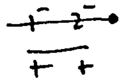
(72)

T18 = 2175t.750

1. The transduction

	Lysate HFT gal_1^-	HFT gal_2^-	gal_1^- gal_2^- HFT + HFT	Proposed Genotype
Gal_1 Gal_2 -	0	0	+ (>1t)	

2. The Segregants. (not possible to distinguish [illegible] per locus)
Ind. Papillae streaked on Gal and (-) classified by Transduction

	Transduced by Only HFT gal_1^-	Only HFT gal_2^-	Neither	Total
Number	5	10	17	32
Genotype (proposed)	Gal_2^-	Gal_1^-	Gal_1^- Gal_2^-	—
Structurally	 or 	 or 		
Number of Cultures found Giving Gal + unstable Reversions	0	1	—	
Possible Reversion Structure	—	 OR 	—	

Correlation of Lp Change with Transduction

(73)

Recipient Cells

P	Lysate	Transduction Lp^s	Transduction Lp*	Transduction Lp^R	Total	Segregant Lp^s	Segregant Lp^+	Segregant Lp^R	Total
Gal₁-	① wild	3	20	0	23	0	9	0	9
	② gal₂	6	25	5	36	(7 9 2)*			9
	③ gal₁-	5			22		1	0	1
					12		11*		12
Gal₂-	① wild	R N S	*		20		19*		20
	② gal₁	0	24		24	0	24		24
	③ gal₄	—			24	0	(1 P)*		18
Gal₄-	① ⓐ ⓑ wild	—	—		24	0	19	0	19
	② gal₂		—		48	0	45	0	45
	③ gal_x								
					29	0	1	28	29
Lp^R Gal₄-	① ⓐ wild	—	+ N R (10)	—		0	4	0	4
	ⓑ p.97	—		—	24	0	1	17	18
	② gal₅								

* test only against sensitive cells

( ) ** tested only against phage. Represent Lp⁺ + Lp^R

Segregant (from Lp⁺)

Lysed

tot	Lp⁺
23	20
36	25
22	17
12	11
20	19
24	24
127	116

20/23

$$127 \overline{)116.0}$$ 0.91

1143

170

Amended Table on Correlation between Lysog. + Transd.

74

Lp^s Gy - 2373	~~Transd~~ Lysate	Typeused.	Transd.	$+^4$	$+^u \lambda^{Rx}$
249 A	Gal4 -	30/1	5S, 17+,	(22) 1	1+
249 B		(1210) 56/0	3S, 18+, 3R	(24) 8	7+,
249 C		(902) 11/	3S, 7+, 2R	(13) 1	1R
249 D	Wild	33/1	3S, 20+	9+	
Gal - 224 → 229 A	wild	46/0	11	9S	7R
229 B	Gal4		2/	5S	16R
229 C	Gal4 -	9/0		4S	17R
Gal - 518 1709	wild	4/0	1S		18R
146	Gal2 -	1152/29		9+	
147, 150	galx -	247/41		45	4 Lp^+

Table 9

Lysates of Unstable Galactose (+)

Titres of

Page	Recipient Cells	Lysate	Plaque	Transduction Gal$_1$ -	Transduction Gal$_2$ -	Transduction Gal$_4$	Plaque * Transduction
271	② Gal$_1$ -	Gal$_2$	[illegible] X10^9	[illegible] X10^8	[illegible] X10^6	~~1~~	60
284	⑤ Gal$_4$ -	Gal$_1$ -	1.5X10^8	5X10^7	7.5X10		2
284	① Gal$_1$ -	wild type +				1.3X10^7	32
284	④ Gal$_2$ -	Gal$_1$		3X10^7	1.5X10^8	~~1.3X10^8~~	4.
286	③ Gal$_1$ -	Gal$_2$	X10^7	1.8X10^6	6.3X10^4		
286	⑥ Gal$_4$ -	Gal$_2$	7.3 X10^8	2.5X10^7	2.8X10^5	—	29

* the highest single assay of transduction activity

Table 10

Stable (pool used) Lysate (75)

Recipient cells		Vred Control	Experimental	Gal₁⁻ Sp	Gal₁⁻ Sample	Gal₂⁻ Sp	Gal₂⁻ Sample	Gal₄⁻ Sp	Gal₄⁻ Sample
Gal₁⁻	Lp^s	33/1 1	14 *	—		11/1 1	11	30/1 1	29 1/30
	Lp+	46/1 1	~~[illegible]~~	—		84/1 1	4	27/12 12	27 0/27
	Lp+	143/1 1	42 17/24	—		92/1 1	0 23/23	—	
Gal₂⁻	Lp^s	46/0 0	15	214/0 0	27	—		98/0 0	4
	Lp+	248/17 17	21 20/22	83/14 14	61	—		79/14 14	52
	Lp+	23/4 4	6	65/2 2	0	—		56/5 5	0
Gal₄⁻	Lp^s	835/19 19	383	72/29 29	72	472/11 11	20	—	
	Lp+	573/41 41	133	96/51 51	96	—		—	
	Lp^R	320/31 31	127	—		238/31 31	50	—	

Gal₁⁻ Lp^s

Total	Stable
33	14
11	11
56	20
30	29
130	74

74 St/130

stable observed / ~~samples tested~~ × transductions / sample taken

$\frac{\cancel{8}^{1}}{\cancel{24}_{3}} \times \frac{\cancel{100}^{4}}{\cancel{25}_{1}}$