DATE: 2/10/55 REF:

1. On the order of the loci
308-5 = 1-6-

(A) a loopful (c. 0.01 ml) of HFT 7- streaked on ½ plate B gal
control ½ : 0 (a faint background of very minute pop)
HFT 7- lysate ½ : 31 (on single gal (-) HFT 7- should have given c. 10^4)
The low titer here suggests the order 1-7-6 and that the pop. are the result of double crossovers.

B. The segregants. Of the 30 pop. examined, 18 were stable Galt at ② RETESTS AFTER PURIFICATION

	/1	/6	/7	∅	/1	/6	/7	∅
1.	—	—	0 1 pop.	1-6-7-	0	0	(2 pop) 0 *	1-6- ?
2.	—	+	— 2 pop	1-7- (?)	0	+	5 pop *	1-
3.	parental pop. (-)			1-6-7-	0	0	0 *	1-6-7-
4.	—	—	—	1-6-7-	+	+	0	7-
5.	—	—	—	1-6-7-	0	+	0 *	1-7-
6.	— val +			—	0	0	2 pop *	1-6- ?
7.	—	—	—	1-6-7-	+	+	0	7-
8.	+ 6 pop	+	—	7-	2 pop	+	0	7- ?
9.	—	—	—	1-6-7-	0	0	0 (1 pop) *	1-6- ?
10.	—	—	—	1-6-7-	0	0	0 (1 pop) *	1-6- ?
11.	—	—	+	1-6-	0	0	0 (2 pop) *	1-6- ?
12.					7 (1-6-7-)	amphitype		1-6- ? = 5
13.				RETEST	(?) 1-7- (1-7-)	amphitype		1- = 1 amphi
					1 (1-6-)	idea		1-7- = 1 amphi
					1 (7-)	amphi		7 = 3 amphi
							* many minute papillae throughout	1-6-7- = 1 amphi

0 = (-)
(-) = 0

(B) a loopful (c. 0.01 ml) of HFT 4- streaked on ½ plate B gal
control ½ = 0
HFT 4- lysate ½ = 500-1000 - this high titer suggests the order 1-6-4 and these pop. are the result of single crossovers } the overall order appears now to be 2-1-7-6-4

1. The segregants. - After ② 6 of 24 stable, the segregating streaks in each case have only 1 or 2 (-). Is this segregation from allotype? Should it if order is correct

	/1	/4	/6	∅
1	0	+	0	1-6-
2	0	+	0	
3	0	+	0	
4	0	+	0	
5	0	+	0	
6	0	+	0	
7	0	+	0	
8	0	+	0	
9	0	+	0	
10	0	+	0	
11	0	+	0	
12	0	+	0	
13	0	+	0	
14	0	+	0	
15	0	+	0	
16	0	+	0	
17	0	+	0	
18.	0	+	0	
				18 (1-6-)

Most of these have many small pop., in control and elsewhere. reminiscent of 24 33 + 4-)

DATE: 2/12/55 REF:

On the order of the loci — To complete the analysis of the position effect. With regard to the assays of this lysate on other (−−) see 305, 304

1. 307-1 ← (+)
no odd = 0
0.1 ml K12 = 294
(11/12/54)

This finding ~~[illegible]~~ indicates the structure $\frac{--}{++}$ is ∅ gal +

2. The segregants

A

	/1	/7	/+		/1	/7	/+
1	0	0	+	19	0	0	+
2	0	0	+	20			
3				21			
4				22			
5				23			
6				24			
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							

24 1-7

1. 308-5 ← (+)
no odd = 0
0.1 ml K12 = 238
(11/12/54)

The structure $\frac{1\ 6}{\frac{--}{++}}$ is ∅ gal (+)

← 320B-1 presumed heterogenate — W2876

2. The segregants

B

	/1	/6	~~[illegible]~~ +
1	0	0	+
2	0	0	
3	0	0	
4	0	0	
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21	mixed c̄ (+)		

3 stable (+) 20 1-6

DATE: 2/13/54 REF: (321)

Gal$_1$ - Gal$_6$ - interaction. Gal$_2$ - x —— Gal$_1$ - Gal$_6$ - , is the product Gal+?

W1210

no odd = 0

0.1 mm hp. 308.5 = 50

W1210 = gal$_8$ -

Seq	/1	/2	/6	Genotype				
1	+	0	+	~~1-6-~~ 2-				
2	+	0	+	"				
3	0	+	0	1-6-	<-321-3	M-1-6-	←	W2864
4	+	0	+	2-				
5	0	+	0	1-6-				
6	+	0	+	2-				
7	+	0	+	"				
8	+	0	+	"				
9	+	0	+	"				
10	+	0	+	"				
11	+	0	+	"				
12	+	0	+	"				
13	0	+	0	1-6-				
14	+	0	+	2-				
15	0	+	0	1-6-				
16	+	0	+	2-				
17	~~not~~							
18								
19	stable(+)							
20								
21								
~~24~~								

12 2- idio
4 1-6- allo
7 stable(+) ?

DATE: 2/21/55 REF:

1	2	3	4	5	6	7	8	9	10

Multiplicity Effects.

Reagents.

1. 750-2 λ (old preps) 10^7 = 34 41 = 3.8×10^8
2. cell Assay = 10^7 = 172, 188 = 1.8×10^9
3. Transd. lysate = 10' dil of 0 over 241-14 p 316, = 15500 plaques/ml

Procedure

	Tube 1	2	3	4
Rx 3 [illegible]	0.5	0.5	–	–
Penassay	–	–	0.5	0.5
Rx 2 cells	0.5	0.5	0.5	0.5

Incubate 10' at run temp.

dilute as follows, 0.1 ml of above to

0.4 ml 750-2λ	–	0.1	–	0.1
0.4 ml Pen	0.1	–	0.1	–

Incubate 5' and then plate 0.1 ml + 0.1 ml of Rx 2 cells

Plates 24 hr	all (-), slight evidence of λ ⊙	col. all (-) partially lysed		
Count	187 plaques	–	–	–
sp	6 papillae X10X5X2	12 papillae X10X5X2	6 papillae	no papillae
	18700 plaque	1000	0	

DATE: 2/21/55 REF:

1	2	3	4	5	6	7	8	9	10

Multiplicity Effects and also Reciprocal case of positive effect between 1-6, 1-7

2279 deletion = 16 cell

	tube	1	2	3	4	5
alls		+	+	+	+	+
HFT 6⁻	0.5 ml	+	+	0	0	0
HFT 7⁻	0.5 ml	0	0	+	+	0
absorb. 10 min						
del 10 min						
add 0.1 ml + 0.9 ml 7B-2 λ (Lib. p. 323)		0	+	0	+	0
add 0.1 ml + 0.9 ml penong		+	0	+	0	+
absorb 5 min						
plate 0.1 ml						

Plates:

24 hr	col(-), slight cudmix λ ⊙	(-) col. del partially lyd	6a 1 (1+ 1-) 323-1	a 2 (1- 1-)	(-) col
26 hr	256(-) col	287(-) col	1 col pop. slightly 246(-) col, stm partially lyd.	1 col pop. 306(-) col	236 (-) col.
48 hr	1 col. c̄ 2 cudmix pop ⊙	1 col. c̄ 5 cudmix pop ⊙	no further change	no further change	

323-2 ← stock gel+ discarded Sept 1, 1964 (contract Mr.) ⊙ retested

323-3 323-4 ← stock gel+ discarded Sept 1, 1964

Should not parental (-) picked in each case to strain (+)

24									
No (+) obtained			22			23			

323-4 = 1⁻ ← 6⁻ for positive effect analysis
1 segregant 6/22 +ᵘ

323-2 = 1⁻ ← 7⁻ as above
1. segregant 4/23 +ᵘ

4 seg.

6 segregants	/1	/6	tp ϕ	Conjugs
1.	0	+	sens	1⁻
2.	+	0	sens	6⁻ 323
3.	+	0	resist	6⁻ 323
4.	0	+	resist.	1⁻ 323
5.	+	0	sens	6⁻
6.	+	0	sens	6⁻

	/1	/2	quality	seg
1.	+	0	7⁻	
2.	+	0	7⁻	
3.	+	0	7⁻	
4.	0	+	1⁻	

all λ^R

For further see 383B

W2791

W2894

W2895

Q 6⁻ resistance both stable gel+

Q 6 gel+ resistance, 1 unstable

DATE: 2/27/55 REF: (324)

Is 1210 really gal$_2$- or a closely linked (-). In the past, particularly with W2350 and W2760, Gal$_2$- Gal$_1$- derived from W1210 it has been noted that tests against HFT2- (all HFT2- lysates are derived from the (-) of W902) gave (delayed) positive papillae few in number. Purification of the culture did not always lessen this effect. It may be (despite the crossing data (11,000 prototrophs) between 1210 X 902 that 1210 gal- is not a recurrence of gal$_2$. To add further information 3 separate gal$_2$- HFT lysates derived from (W902 gal-), known to have originated from separate single gal$_2$- HFT colonies were put onto 1210

	Lysate	1210
2342	3/17/54 lys	c 50 pap after 3 days
2342	3/20/54 lys	.. ..
	241-14 lysate	.. ..

Mal-Lp$_2^{\lambda}$ breakthrough — also selection for λ mutant — Serial selection for these.

296-1 gal(-) seq. (not purified) 296-1 = 1412 + 2342 exposed to 0.1 one 2342 (3/17/54)

no add = 23

0.1 one HFT2- = 78 X 8 = 624 slightly higher than previously but this is probably a different lysate

DATE: REF: 325

Observations on Erotic Induction

1895 HFT Lpt X 2234F- Lps

1. Freshly grown cultures, by dilution of overnight culture
2. 5.0 + 5.0 ml

Pre mix — Post - Mix (0.5 ml samples)

	Pre mix Plaques	Pre mix Cul.	Plaques 0	Cul	Plaques 15	Cul	Plaques 30	Cul	Plaques 45	Cul
1895	2	72	1	23		17		17		23
	0.1 ml		0		0		1		5	
2234	0	99		19		23		23		17
	dil = 1/4									

Suggestive —

2nd run. Dilutions the same throughout

(1)

	Pre mix 1895	Pre mix 2234	Post mix 0	15	30	45	60	75	90
plaques	3	0	0	1	2	1	2	3	4
2234	~~(+)~~	—	111	—	—	—	—	97	—
1895	~~(+)~~	—	18	19	24	20	31	16	c. 24

(2). After 90' culture diluted and plated on S gal to see if and proto are Lp^R. 3 plates

	(+)	(−)
1, 2, 3 about same	2	1/4 = 142

Not suggestive

replication of this plate shows c. 10 prototrophs.

An streaking out some of these prototrophs, 28(−), 2(+), most of the (−) were greatly contaminated with (+) — the origin of these (+) is puzzling since the culture was diluted before plating and there should have been few (+) auxotrophs — the cross plates and the pickings were discarded — Re do —

1210 E 84 to make HFT of 1210 (−)

1. no add 2
   84λ (old) 22

2373 — to ✓ on stability of transd.

1. no add : 8
   0.1 ml K12 280
   (7/29/54)

2. as control the same / 2279

2279
   no add 0
   0.1 ml K12 281
   (7/29/54)

} many small papillae

DATE: 3/5/55 REF:

307-1 hp^s (made c̄ UV) = Gal_1 - Gal_7 -. To determine order and to see if selection is operating against certain 2-strand class

1. Transduced with both 4-, 6- (HFT) = 247B-1 for 4, 311-2 for 6-)

			(-)	(+)	population (-)
overnight cent	A. Control not exposed to λ.				
↓	exposed to both	plate 1	79	0	0
1-100		2	77	0	0
↓		3	87	0	0
[0.2 ml + 0.2 ml HFT]					
1 min. 20' rm temp	B. Exposed to HFT 4-	1	47	4	0
↓		2	48	5	1
dil 1-100, 1-50		3	69	0	0
↓			164		
plate 7. gal	C. Exposed to HFT 6-	1.	32	0	0
follow col. appear.		2.	23	0	0
		3.	37	1	0

~~B27C~~

326C -
Analysis on p 332

DATE: 2/5/55 REF:

As on 326 only using 308-5 lp's (also by UV) = 1'6"

		(−)	(+)	populations	
(A) Control - cells exposed to booth	1	101	0	0	
	2	101	0	0	
	3	92			
(B) Exposed to HFT 4"	1.	77	0	0	5 surp. col. after 5 days 327-B
	2.	82	0	0	
	3.	75	0	0	
(C) Exposed to HFT 7"	1.	95	0	2	
	2.	90	0	1	
	3.	84	0	1	327C-1, 23 for analysis of 336

327C-1 see [redacted]

DATE: 3/8/55 REF:

2344 M1 - at J.L. Request to test multiplicity effect and to get information for run.

1. Aerated 2344 → dil. from overnight

2346λ (1/17/54) →

	1	2	3	4	5	6	7	8	9	10
	1-10	1-100	1-1000	1-10000	→ 1-100					
	↓	↓	↓	↓	↓					
	0.2 ml	0.2 ml	0.2 ml	0.2 ml	0.05 ml					
	0.2 ml	0.2 ml	0.2 ml	0.2 ml	(2x10^7)					
	← Incubate 15' at 37C →									
	↓	↓	↓	↓						
	dil 10^5	10^4	10^3	10^2						
Id. 1X10^7	← plate 0.1 ml →									
	not done, no plates available									
		2		3		4			134	
		①	②	①	②					
Result no. colonies	—	46	47	37	38	35	30		120	
no. gal(+)	—	3	7	2	2	2	2		127 X 2X10^7	
no cells/tube/2 HFTλ/tube	—	~~2.54~~ 1.3 X10^7		~~2.54~~ 1.3 X10^6		~~2.54~~ 1.3 X10^5			2.54 X10^9	
No. survivors	—	4.7X10^6		3.8X10^5		3.3 X10^4			These	
Fract. surviving		0.36		0.29		0.25			transd.	
Fract(+) survivors		0.11		0.053		0.061			saved	
Fract. transd.		0.04		0.015		0.015			328-1,18	

DATE: 3/9/55 REF:

Reexamination of 282-2 (The ±∓ was recolated from stock and a new purified stock made.)

1. Early tests do not say separate segregational events were examined.
2. 24 ±∓ colonies streaked out and single (+) from each restreaked. After 2 (+) pickings a (−) obtained to classify for locus.

2nd (+) clone	Stability	Stability Rev	Seg /1	/4	Allele	
1	s	u	~~Papillating parental (−)~~			parental
2	u	—	0	0	1⁻ 4⁻	
3	u	—	+	0	4⁻	
4	u	—	+	0	4⁻	
in wrk + 5	u (s?) −	u				
in Rev 6	s	~~m~~ s	~~[illegible]~~	~~[illegible]~~		
7	u	—	+	0	4⁻	
8	u	—	0	+	1⁻	
9	u	—	+	0	4⁻	
10	u	—	papillating −	±∓ ?	—	parental
11	u	—	+	0	4⁻	
12	s	s				
13	u	—	+	0	4⁻	
14	u	—	+	0	4⁻	
15	s	s				
16	s	s				
17	u	—	+	0	4⁻	
18	s	s				
19	s	u				
20	s	s				
21	u	—	0	0	1⁻ 4⁻	
22	u	—	+	0	4⁻	
23	u	—	+	0	4⁻	
24	s	s				
	9 s	~~7~~ s			10 4⁻	✓
	15 u	18 u			2 1⁻ 4⁻	✓
					1 1⁻	✓
					2 parental	
					2 not done	
					17	

DATE: 3/12/55 REF:

1?

2344 M1 X — 2346 λ 3/17/54 Repeat to see frequency of transd.

Quoted 2344 M

		Control		Expt
1-100	→	0.3		0.3
Broth		0.3		—
2346 λ		—		0.3
	Adsorb	15 min	37 C	
	Dil	10^4		10^3
		↓		
		0.05 ml ← plated →		0.05 ml

Colonies:

Plates	1	2	1	2
(+)	0	0	9	9
(−)	43	26	220	190
total	43	26	229	199
	35		18(+)/428	= 4.2% (+)

DATE: 3/14/55 REF:

Repeat analysis of 285-2 - 24 pg. (-) picked and streaked to obtain a single gate (+) from each one.

Gal +	Stabdelis ①		stabdely ②		/1	/+	Lp^{RX}	
1	u		✓		parental (-)		—	
2	u		✓		0	+	sens	1-
3	s	1		s				
4	u		✓		0	+	sens	1-
5	s	2		s				
6	s	3		s				
7	u	—	~~stable~~	✓	0	+	sens	1-
8	s	4		s				
9	s	5		s				
10	u		✓		0	+	sens	1-
11	s	6		s				
12	s	7		s				
13	s	8		s				
14	u		✓		0	+	sens	1-
15	u		✓		0	+	sens	1-
16	s	9		s				
17	s	10		s				
18	s	11		s				
19	s	12		s				
20	s	13		s				
21	s	14		u	+	0	sens	4-
22	u		✓		- parental (-)			
	14 s		13 s				6	1-
	8 u		9 u				1	4-

This is wrong cell - is Lp^R instead of Lp^+ should have used 285-1

DATE: 3/16/55 REF:

1-7-x-6-

1	2	3	4	5	6	7	8	9	10
	[redacted]	326c			[redacted]				

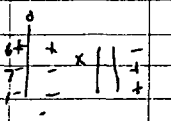
see [redacted]. Analysis of segregants from [redacted] from p 326c

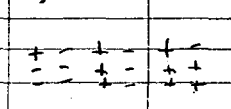
1. 24 (-) pop. is picked and streaked
2. from these streakings 24 (+) obtained
3. 24 (+) streaked out.

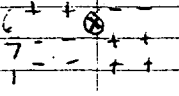
+col		stability	Rev stability	1-	6-	7-	
streak	1.	s	s	o	+	o	
out	2.	s	u	mixed c̄ (+)			
	3	u		o	+	o	✓
	4.	u		o	+	o	✓
	5	s	s				
	6	s	s				
	7	s	s				
	8	s	s				
	9	u		o	+	o	✓
	10	u		o	+	o	✓
	11	u		o	+	o	✓
	12	s	s				
	13	u		o	+	o	✓
	14	u		o	+	o	✓
	15	u		o	+	o	✓
	16	u		o	+	o	✓
	17	u		o	+	o	✓
	18	u		o	+	o	✓
	19	u		o	+	o	✓
	20	u		o	+	o	✓
	21	u		+	o	+	
	22	u		o	+	o	✓
	23	s	s				
	24	u		not done			
		8 s	7 s			14	1-7-
		16 u	13 u			1	6-

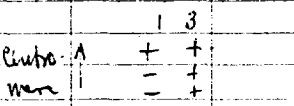
	1	3
Centro	+	+
were	−	+
	−	+

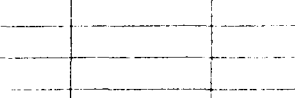
Centro	−	−	+
were	−	−	−
	+	+	−











DATE: 3/18/55 REF:

1321 X 902 FT – to obtain reciprocal cross data. Previously 518 X 902

1. Control streaks ok on B gal
2. Cross plates bad – many small (–), ca. 20 large col., probably (+)

Don't know what to make of this? Erotic indact.?

518 X 2035 to look for "unlikely" "recombinant class" – namely gal+ Lp^s
S gal.

1. Cross plate ok. ca. 90% gal+ – no record of control plate
2. 50 (+) col. picked, streaked out B gal, same suspension also streaked against λ!

sensitive Streak/λ	no. (–) in B gal streak	Tests of the (+) on the streak (1)	(2)
# 3	1/ca. 50	sens.	sens
# 5	0/100	sens.	sens
# 20	0/ca 200	sens.	sens
# 41	5/ca 100	sens	resist.

replica'd to S gal, all prototrophic

4/50+ are recombinants between Lp and Val

Gal+ Lp^s × Gal+ Lp+
↓
Gal+ Lp^s

296-1 = 1412t HFT 2

1. Hoping to find λ host range mutant. Repeated transd. of gal – seg from this heterogenate

1. transd. with gal(+) HFT 1 #1 → gal-seg obtained $\xrightarrow[\#2]{\text{transd.}}$ Gal(+) HFT → rpt. #3

from #3 8 transd. picked and single gal-seg obtained, Plated with 0.1 ml NFT gal(+) λ to see if plaques observed in NSA.

1. On one (#3) single faint plaque (?) noted.
2. on one (#6) several " plaques (?) observed near edge

abandoned after the 4th passage.

DATE: 3/18/55 REF: W2790

1	2	3	4	5	6	7	8	9	10
W2580 = gal_2 - 9/8 tp_2's - modelled and tp's obtained									W2580 tp's

DATE: 3/20/55 REF:

1	2	3	4	5	6	7	8	9	10
Lysates						5/27/55			
811 t 902	Plaques (2x10^5)	Plaque Titer	Transduction's (tt = 2x10^5) /811	/2580		tt = 2x10^4 tt /811	/2580	Lysate shaded /2580	/750
335-1	1. 110, 116	2.3x10^7	34	30	19 = 3.8x10^6	22	20	+++	+
2	2. 8, 7	1.5x10^6	26	20	9 = 1.8x10^6	24	17	0	0
3	3. 129, 134	2.6x10^7	20	23	12 = 2.4x10^6	27	25	±	++
4	4. 148, 158	3.1x10^7	19	26	15 = 3.0x10^6	41 = 3.8x10^6	23	+++	+
2580 t 811	Plaques (2x10^5)		2x10^5			tt = 2x10^5			
5	1.	?	115	16	[illegible]	13	18	0	0
not stable 6	2. 229 = 2.3x10^7			33		33	48	+++ 2.2x10^6	+++ 4.4x10^6
7	3. 211 = 2.1x10^7	?	69	78		28	96	1.2x10^6	1.4x10^7
8	4.		35	32		12	16	0	0
Spontaneous			29	11		22	26		

Better start from Scratch

2236 for HPT 3

1. no add = 2 when these were tested, initially fair percentage unstable (12/12? or 12/24)
2. 902 λ* = 342 plate stored in fridge c. month, then 24/24, 12/12 found stable

why? see next page also/811

2062 1. no add 40
2. 902 λ* = 85 81

2580 against 811 λ 6/1/54 Rpt 4/28/55

1. no add 11 9
2. 0.1 ml λ 140 170

2580 Lys against 811 λ 6/1/54

1. no add 19
2. 0.1 ml λ 4x906 = 3944

DATE: REF:

327C-1 = 1-6- x 7- - ~~From~~ 24 sep. presumed parental (-) streaked out - 20 actually were. From each parental (-) a single + obtained.

C.O. Gal(+)	stability (1)	(2)	/1	/6	/7
1	s	s			
2	s	s			
3	s	s			
4	s	s			
5	s	s			
6	s	s			
7	s	s			
8	u	u	0	0	2 pap
9	u	u	0	0	1 pap
10	u	u	0	0	0
11	u	u	0	0	0
12	u	u	0	0	0
13	u	u	0	0	1 pap
14	u	u	0	0	3 pap
15	u	u	0	0	0
16	u	u	0	0	2 pap
17	u	u	parental (+)		
18	u	u	0	+	6 pap
19	u	u	0	0	1 pap
20	u	u	0	0	1 pap

13 u
7 s.

This culture presumably Lp^R/Lp^S

all Lp^S except parental (-)

6- - + +
7+ + - -
1- - + +

Sll by 902 λ *

1. no add 29
2. 0.1 ml λ 88 60

Sll by 902 λ

518?

1. no add 49
2. 0.1 ml λ 234 185

1	2	3	4	5	6	7	8	9	10

Linearity of HFT at high dilution

750 ml 1-10 dil of 241-14 (0 dose see 316 rad. expt.) 6/22/55 1-10² dil Plaques against W2792

mc lysate	pfu	Δ				
0	2	0	10.1	0	0	0
0.02	16	14	70		0.02	90
0.04	38	36	88		0.04	183
0.06	68	66	110		0.06	257
0.08	74	72	90		0.08	354
0.10	95	93	93		0.10	457

2279 undil of 241-14 (0 dose see 316 rad. expt) Rpt. 4/8/55 Rpt. III Rpt II

one plaq, bulk @37
total plate addition made up to 0.2 with broth

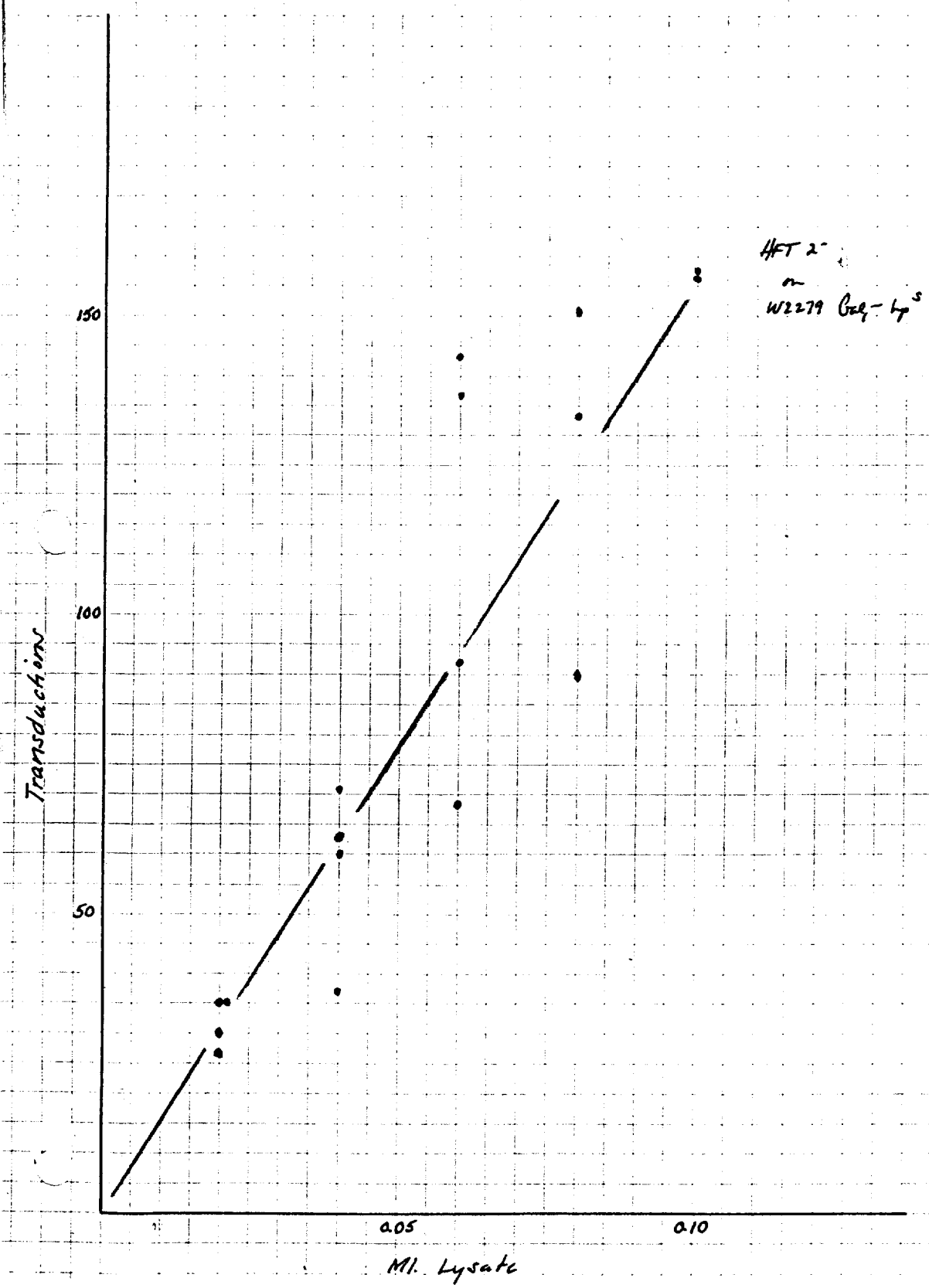
mc lysate	pfu	Δ						
0	1	0	4.	3	0		0	2 0
0.02	28	27	titer: pseudo 38	35	16333/0.1ml		30	37 35
0.04	61	60		66	63		37 ?	73 71
0.06	93	92		140	137		68 ?	145 143
0.08	201	200		154	151		90	135 138
0.1	316	315		159	156		238	158 157
			0.12	175	172		312	
			0.15	287	284		(0.14) > 350	

1402 X 902F+

7 unlike on B gal ok.

	(−)	(+)
Parthenogen. ①	521	1
②	512	1
③	603	1
④	466	2
⑤	538	0
⑥	575	0
⑦	556	2
	3771	7

3771) 7.000 = 0.0018 = 0.18%
3771
32290


HFT 2⁻
on
W2279 Gal-Lp^s
150
100
50
Transductions
0.05
0.10
Ml. Lysate

DATE: 3/23/55 REF:

Linearity with NFT.

1. 811 overnight cuet. wt conc. tysate = K12 11/12/54

tysate	Papillae	Δ	
0	23	0	-
0.02	63	40	20
0.04	112	89	22
0.06	151	128	21
0.08	plate contaminated		
0.10	234	211	21

2. 2580

0	22	0	K12	11/12/54
0.02	163	141	70	
0.04	270	248	62	
0.06	345	323	55	
0.08	460	438	55	
0.10	527	525	53	

3. 2580 lp^3

0	10	0	K12	11/12/54
0.02	1467			
0.04				
0.06				
0.08				
0.10				

518

0	49	0		
0.02	499	450		
0.04	714	665	186	plate contaminated
0.06	888	839	139	
0.08				
0.10				

DATE: 4/8/55 REF:

1439 to see if Malt Lp_2^R (λ-2 Resist) are also transd. by HFT since the mal- Lp_2^R may all be temperature dependent (EMC).

1. streaked out on B mal- mixed.
1. 4 (+) } streaked / λ-2, malt = λ-2 resist.
2. 4 (-) } mal- = λ-2 resist.

1439 spread with λ-2 to obtain Malt λ-2 resist.

Tests of some HFT cultures (2-) obtained on 293. Stabs streaked out B gal - all pure (-). Colonies picked and Testrad / fd for HFT using u.v.

⊕ = HFT, O = NFT

293-1A.
O O ⊕ ⊕
⊕ ⊕ ⊕ O
O O ⊕ ⊕

O may be the result of too few cells
HFT 4/4 gal+R segregating at ②

293-2A
⊕ O ⊕ ⊕
⊕ ⊙ ⊕ ⊕
⊕ O ⊙ ⊕

O = too small inoculum (no growth in spot plate)
HFT 2/3 gal+R segregating at ②

293-2B
⊕ ⊕ ⊕ ⊕
⊕ ⊕ ⊕ ⊕
⊕ ⊕ O ⊕

O = good inoculum
HFT 2/3 gal+R segregating at ②

	HFT	/2	/4	/+	
		0	+	+	2-

293-11A
⊕ ⊕ ⊕ ⊕
⊕ ⊙ ⊕ ⊕
⊕ ⊕ ⊕ ⊕

O = good inoculum
HFT 3/4 gal+R segregating at ②

		/2	/4	/+	
		0	+	+	2-

1A
⊙ ⊕ ⊕ ⊙
⊕ ⊕ ⊕ ⊕
⊕ ⊕ ⊙ ⊕

⊙ good inoculum

	/2	/4	/+	
1	0	+	+	2-
2	0	+	+	2-
3	0	+	+	2-

2A
⊕ O ⊕ ⊕
⊕ ⊕ O ⊕
⊕ ⊕ ⊕ ⊕

O good inoculum

1	0	+	+	2-
2	0	+	+	2-

DATE: 4/13/55 REF:

1436 - originally (see pg 137, 113) 1436 E/K12 gave (-) or weak (+) Lamd.
- suspicion that something unusual here. Reexamine

① no add c. 40
K12 λ c. 1000

② Streaks. 12/12 strong gal +, segregating

2799 = mal + λ-2^R 2279 no break through: Designate Lp4^R

1. no add = 3
2. 0.1ml
2342 3/17/54 = 4

241-14 mal - Spontaneously produced λ - HFT?

/750
1. no add (?) 6
2. 10^2 (0.1ml) 41 35
3. 10^3 (0.1ml) 3

/2279 10^3 (0.1ml) 0 plaque
5 pap.

rpt.

$35 \times 10 \times 10^2 = 35 \times 10^4$

DATE: 4/28/55 REF:

2580 for checking on diploidy of other markers after crossing over to give auxotrophic HFT gal(−)

1. origin of duchess on 335
2. a second plate made see p 335
3. to aid in understanding phenotype of this culture on arabinose comparison made between K12 +, W945 (24h shake) mut. −, W945 shake cultured mut −, W2580 mutant −

341C - control
341/4
341/2

4. 17 neg clones obtained. Spotted on F11 and 2580 - incub. burning dark after 2 days

Previously diploids for ara believed by 2580 peculiar phenotype over other cult. — [illegible]

Summary

Ⓐ F11 ○○ ⊕ ○ / ○○○○ / 341-9 → ⊕○○○ 1 HFT2⁻ / ⊕○⊕⊕ / ○

Ⓑ 2580

Ⓑ F11 ○○⊕○ / ○○○○ / ○○○⊕ / ○○○○ / B2580 ○ / ○⊕⊕○

Ⓒ ○○○○ / ○○○ / ○○○ / ○○○○ / ○

some ? ○ have second pop. 1 HFT2⁻ 341-12 (shown not before tested)

most of these have c. 20 populace WHY?

TESTS OF REVERSIONS

341-9	reverted on	
B gal	4/6 revertants +/−	
B lac	6/6 revertants std	
B gal	6/6 " "	
B ara	6/6 " "	

Ⓐ = HFT
Ⓒ = Contaminated
○ = NFT

21/4/56
LFT neg of 341-9
P/S [illegible]

S/S gal+ of LFT [illegible]

2062 - see 335 for duchess.

1. check of HFT derivatives for diploidy for proline
2. 5 separate hand. picked - segregants tested

Segregants →	1		2		3		4		5	
from hand #	F11	2580	F11	2580	F11	2580	F11	2580	F11	2580
	○	○	○	○	○	○	○	○	○	○
	○	○	○	○	○	○	○	○	○	○
	○	○	○	○	○	○	○	○	○	○
	○	○	○	○	○	○	○	○	○	○
	○	○			○	○	○	○	○	○
Expt. 1 ↕					○	○	○	○		
	○	○	○	○	○	○	○	○	○	○
	○	○	○	○	○	○	○	○	○	○
	○	○			○	○	○	○	○	○
	○	○			○	○	○	○	○	○
					○	○				
Expt. 2. ↕					○	○				

All NFT, although on 2580 show 10-20 gap. Is this an indication they are 4⁻?

as above

DATE: 4/30/55 REF: (342)

1. Are there positions effects between 4, 6, 7?
2. The directions.

A. Overnight broth culture diluted 1-100 c̄ per. 0.1 ml cells + 0.1 ml lysate → adsorb 10' at rinsing
Dilute 1-100, 0.5 + 10 ml, and plate 0.1 ml on 2 B gal plate.

(B) lysates of 2478-1 = 4
311-2 = 6
309-1 = 7

(3). → x Gal$_7$ - 2308?

		36 hrs (-) col	(+) or pap col.		Phenotype	
	A. broth	302, 260	0			
HFT 4⁻	B. 2478-1 λ	192, 198	6, 5	some of these (+) were + in 24 hrs.	The phenotype here may be weak (+)	342-A1 → X
HFT 6⁻	C. 311-2 λ	254, 169	5, 4		papillat. (-) ?	* 342 B1 → * 4

(4) → x Gal$_6$ - 2070

	A. Broth	483, 431	0		
	B. HFT 4⁻	256, 251	4, 2	pap (-) ?	* 342C1 → * C4
	C. HFT 7⁻	283, 332	3, 3	pap (-) ?	* 342D1 → * D3

(5) → x Gal$_4$ - 518

	A. Broth	108, 124	0		
	B. HFT 6⁻	199, 99	2, 1	pap (-) ?	* 342E1 - * E2
	C. HFT 7⁻	85, 105	0, 1	interval (+) ?	342F1 -

* on 2nd streak gave papillating colonies.

DATE: 5/11/55 REF:

Hpt 6⁻ × 7⁻ (342B #1) of 24 presumed P.E. (−) colonies picked to obtain separate crossover events. 3 were true (−), 21 were P.E. (−)

P.E. (−) #	+ obt. seq?	(−)	Segment 6⁻	Segment 7⁻	Segment 1⁺				
1	0 = no								
2	0	−							
3	0	−							
4	0	−							
5	0	−							
6	+ = yes	3	0	+	+	Hp⁵	Gal 6⁻	← 343-6	
7	0	−							
8	+	2	0	+	+	Hp⁸	Gal 6⁻	← 343-8	
9	+	2	+	0	+	Hp⁹	Gal 7⁻		
10	0								
11	0								
12	+	1	+	0	+	Hp⁹	Gal 7⁻		
13	0	−							
14	0	−							
15	+	1	0	0	+	Hp⁹	Gal 6⁻ Gal 7⁻	← 343-15	
16	0	−							
17	0								
18	0								
19	0								
20	0								
21	+	3	0	+	+	Hp⁹	Gal 6⁻		
	6 seq (slight)							3 Gal 6⁻	
	15 non seq.							2 Gal 7⁻	
								1 Gal 6⁻ Gal 7⁻	

This clone Hp⁸/s

Use Hp⁵

1/5/56

W3058

Hpt 342B4

	+ obt seq	#	Str II	Str III			
1	0	−					
2	0	−					
3	0	−					
4	0	−					
5	+	1	0	+	+	+	nd Gal 6⁻
6	0	−				+	nd − − + Gal 6⁻7⁻
7	+	5	0	0	+	+	nd Gal 6⁻ Gal 7⁻
8	0	−				−	−
9	0	−				−	−
10	+	1	0	+	+	+	nd Gal 6⁻
11	+	>50	0	+	+	+	nd Gal 6⁻
12	0	−				−	−
13	0	−				−	−
14	0	−				−	−
15	0	−				−	−
16	0	−				−	−
17	0	−				−	−
18	0	−				+	nd + + + Gal 6⁻
19	0	−				−	−
20	0	−				−	−
21	0	−				−	−
	4 seq					6 seq	6 4 6⁻
	17 non seq					15 non seq	15 2 6⁻7⁻

5/27/55 to mt Pu growing streaks

5/29/55

After Str III, spotted from broth on 2175 on SGal and incub. 14/16 approx AFS on 2175 (cure gapuden)