Friday 10/10

- Vg16 with A_2 - that failed to grow on individual A_2's both added to resurrect + streaked out CHBloc -

- 811 t (750t1821) ~~transduced~~ 8 papillae picked and streaked for stability check
  IS TRANSDUCTION PRODUCED BY TYLAN INDUCED STRAIN STABLE ?
  ? - - - (+) 129

- 578 t (750t1821) as 811 above.

- 811 gal+ R- 2 lysate prepared
  filtered
  sterility checked (0.9 ml) in broth - no growth

Sunday. 10/12

S10 absorption expt- plated on EMB bac-, all colonies lac- as expected

(1.) cell stock assay = $\times 10^{9}$, — 67, 74 = 7.1×10^{8} cells/ml

(2.) phage stock assay = $\times 10^{7}$ — 531, 453 = 4.9×10^{9} phage part/ml
(a 2+hour broth dil. of phage stock IC-12 25λ)

INPUT RATIO PHAGE/BACTERIUM $\frac{49}{7.1} = 7/1$

(3.) phage stock gal-dnt/0.1ml = 177, 176 = 1.77×10^{3}/ml - spontaneous

(4.) Spontaneous gal+/0.1ml cells plated = - 15

1.62×10^{3} gal-dnt/ml λ assay.

gal-/ml × dil = original titer

$1.62 \times 10^{3} \times 6 = 7.72 \times 10^{3}$/ml original stock

previous assay = $6.91^{+} \times 10^{3}$
higher titer likely probably due to increased accuracy of longer dil. of lysate

Gal- Ratio gal- $\frac{9.72 \times 10^{3}}{4.9 \times 10^{9}} = \frac{2}{10^{6}} = 1/5 \times 10^{5}$ λ

adsorpt = 5 min bench, 10 min centrifuge

2ml cell susp + 2ml dil. λ

(5.) Supernat. 1st adsorption λ titer = $\times 10^{7}$ — 72, 126 = 9.9×10^{8}

added = $\frac{\text{stock titer}}{2} = \frac{4.9 \times 10^{9}}{2} = 2.5 \times 10^{9} = 25 \times 10^{8}$

unabsorbed = $9.9 \times 10^{8} = 39\%$

λ taken up/cell $= \frac{25 \times 10^{8} - 9.9 \times 10^{8}}{3.6 \times 10^{8}} = \boxed{4.1 \text{ λ/cell}}$

1st

(6.) Sediment 1st adsorption - no gal- dilutions

0.1ml plated = 124, 138. - 131

gal-ured = 131 - bkgrd. = 131 - 15 = 116

expected from above stock assay = 81 ← indicates more than 100% adsorpt

(7.) supernat 1st adsorpt.

0.1 ml plated = 33, 33 = 33

gal- present = total pop. - sp = 33 - 15 = 17

(8.) supernat 2nd adsorpt λ titer = $\times 11^{7}$ — 144, 103 = 1.24×10^{9}

put in = 2.5×10^{9}
unabsorbed = 1.2×10^{9} = 50%

absorbed/cell = $\frac{25 - 12}{3.6} = \frac{13}{3.6} = \boxed{3.6 \text{ λ/cell}}$

total = 7.7 λ/cell

1st adsorption - amount of killing by λ

cell assay = $\times 10^{7}$ = 139, 132 = 1.36×10^{9} cells/ml
which appears impossible

continued

Sunday 10/12

(9) 2nd adsorption ~~Sed~~ supernat. no of gold.

0.1 ml plated = 169 149 = 159

gold added = total - sp = 159 - 15 = 145

expected max if 100% adsorpt.
on basis initial assay = $\frac{16^2}{2} + \frac{16^2}{2} = 162$

expected on basis of adsorpt. of 1st & 2nd

81 (.61) + 81 (0.50) = e. 90

(10) 2nd adsorption supernat. no of gold.

0.1 ml = 62, 64 = 63 - 15 = 48

gold. added / ml = 81 81

gold. supernat = 63 48 } total 92. ⇑⇓ comp.

gold ad = ~~145~~ - 116 = 29

(11) 3rd adsorpt. ⅛ titer supernat. = $\times 10^7$ = 226, 198 = 2.1×10^9

input = 2.5×10^9/ml

adsorbed = 2.1×10^9/ml = 84%

adsorbed $\frac{0.4 \times 10^9}{3.6 \times 10^8}$ = 1.1 / cell

λ/cell

1.

This value may be of due to the time elapse between the beginning of this expt and this assay - Time is probably in excess of 1 hr and therefore possibly longer than latent period.

total = 7.7
1.1
8.8 λ / ml

(12) 3rd adsorpt. sed. no of gold.

0.1 ml = 179, 214 = 197

increase over 2nd 197 - 145 = 52.

(13) 3rd adsorpt. sup. no of gold.

0.1 ml = 53, 65

gold = total - sp = 59 - 15 = 44

total gold = 52
44
(96)

expted (81)

81
44
37

Thursday 10/16/52

- S18 Second adsorption exp. -
- Initial phage stock titer - a 1-2 dil. of parent 25'
  10^8 dil → 80, 74 = 7.7×10^9 λ/ml (parent assay 1.6×10^{10})
- Initial cell assay - stock susp. from overnight cult. washed in saline
  10^7 dil → 115, 108 = 1.1×10^9 cells/ml
- Initial phage stock gold titer
  0.1 ml → 457 pay - 41 sp = 416

S18 bkgd not washed - previous assay 41

Expt. performed by adding 2 ml volumes of λ + cell together. Inc. 5 min at rm temp. Centr. 10 min. Decant sup, resusp. cells in 2 ml volume - Remove samples, 1.0, 0.2, 0.1 ml - making vol. either 1.8 or 1.9 ml. For next adsorpt add 1.8 or 1.9 ml of λ susp., etc.

1st adsorpt.

Supernat λ titer -
  10^7 dil → 164, 205 = 186×10^7
  % not adsorbed = $\frac{3.9 \times 10^9}{7.7 \times 10^9}$ = ~~10~~.48% adsorbed = 52%

Cell survival (of 2 ml resuspension)
  10^7 dil 134, 89 = 112×10^7 = 1.1×10^9 cells = no killing

Supernat. gold.
  0.1 ml = 197, 166 = 182 $\frac{182}{-41}$ = 141 % gold. not adsorbed = $\frac{141 \times 2}{416}$ = $\frac{282}{416}$ = 67.5%

Sed. gold.
  0.1 ml = 268, 317 = 293 $\frac{293}{-41}$ 252

~~Vol. at end~~ = ~~4.0 ml - 0.1 - 0.1 - 0.1~~ = 3.7 (sup / sup gold / sed gold)

2nd adsorpt

Supernat. λ titer.
  10^7 dil → 232+, 329 = 2.8×10^9
  % not ads. = $\frac{5.6 \times 10^9}{7.7 \times 10^9}$ = 0.73 = adsorbed = 27%

Supernat gold.
  0.1 ml = 309, 281 = 295 - 41 = 254 $\frac{254}{[illegible]}$

Sed gold.
  $\frac{0.1}{5}$ = 107, 79 = 93 ~~-8 = 85.5~~ 425

Vol. at end = 3.7 - 0.1 - 0.1 = 3.5 ml

3rd adsorpt

Supernat λ titer
  10^7 dil → 215+, 342 = 2.79×10^9
  % not ads. $\frac{5.6 \times 10^9}{7.7 \times 10^9}$ = 73 = adsorbed = 27%

Supernat gold.
  0.1 ml = 368, 325 = 347 - 41 = 306

Sed. gold $\frac{0.1}{5}$ = 129, 85 = 107 - 41 = 66 x 5 = 330

4th adsorpt

Supernat λ titer
  10^7 dil → 253, 293 = 2.7×10^9
  % not adsorbed = $\frac{5.4 \times 10^9}{7.7 \times 10^9}$ = 70 adsorbed = 30%

Supernat gold
  0.1 = 283, 246 = [illegible]

Sed. gold
  $\frac{0.1}{}$ = 43, 49

Thursday 10/16/52

5th adsorpt

Supernat. titer
10^7 dil → 552, 527 = 5.4×10^9 = ~~[illegible]~~
% not adsorbed = $\frac{1.1 \times 10^{10}}{7.7 \times 10^9}$ = impossible - either no adsorpt or lysis obscuring effect.

Supernat yield.
[illegible]

Sed. yield.
[illegible]

End pt. assay
10^7 dil → 44, 51 = 4.8×10^8

- 1924 Examination for presence of λ
  14 cross streaks of overnight Pen culture streaked against 1485
  9 showed presence of phage - weak.

- 811 - gal + - 2 λ prep.
  10^8 dil = 29, 23, = 2.6×10^9 λ/ml

- 1923 [illegible] - [illegible]

[illegible]	[illegible]	No. [illegible]
	[illegible]	128
2	[illegible] λ	[illegible]
[illegible]	"	90

← 1.6×10^{11} λ/ml

- 513 [illegible]

[illegible]	[illegible]	No. [illegible]
10	—	416
[illegible]	811 - gal + #1	27
[illegible]	811 gal + #2	[illegible]
[illegible]	811 λ	17
5	[illegible] λ = λ*	29

(botched)

- 2050
  [illegible]

Friday 1/11/[illegible]

- 513 ([illegible]) x 12 - [illegible]
  [illegible] gal +
  [illegible] colonies - [illegible] / plate - [illegible]

- 598 ([illegible]) [illegible] stability
  1st streaking 5/5 mixed
  2nd " 5/5 mixed

- 811 ([illegible])
  1st streaking 8/8 mixed
  2nd streaking 7/8 mixed

- W1655 x W902 - Lp_2^5 gal - Transducible gal -
  tested on mixed - is mixed +

- Recheck on lysogenicity of 1924
  - 12 cross streaks on 1485 - no evidence of phage
  - on EMB gal, gal -
  - on EMB lac, lac -

- 1924.
- Examination of 1924 for lysogenicity of transduced cells. -

M = mixed
+ = gal +
- = -
⊛ = mosaic

Isolat. #	①	②	③	Streaked against 1485	Isol. #	①	②	③	1485	Isol. #	①	②	③	1485
1	m	m	m ⊛	non-lys.	16	m	+	+	non-lys.	31	m	+	+	non-lys
2	m	+	+	" "	17	m	+	+	"	32	m	m	m ⊛	"
3	+	+	+	" "	18	+	+	+	"	33	+	+	+	"
4	m	+	+	"	19	m	+	+	"	34	m	+	+	"
5	⊛ m	m	m ⊛	one plaque	20	m	⊛ m	+?	"	35	+	+	+	-
6	⊛ m	+	+	non-lys.	21	+	+	+	"	36	+	+	+	"
7	m	+	+	"	22	+	+	+	"					
8	m	+	+	"	23	m	+	+	"					
9	+	+	+	"	24	m	+	+	"					
10	m	+	+	"	25	m	⊛ m	⊛ m	"					
11	+	+	+	"	26	m	+	+?	"					
12	m	M	m	"	27	m	m	m	"					
13	+	+	+	"	28	m	+	m	"					
14	+	+	+	"	29	m	m	m	"					
15	+	+	m	"	30	m	m	m	"					

Sunday Oct. 19

– 1821 – Reexamination of xylose transduction possibilities

EMB xyl	Addition	no pap 2 days
1	—	174+
2	0.1 K Y 7 λ (25')	229+

} 8 picked and streaked – 16 picked and streaked –

Examination for instability of "xyl duced" –
– Plan to galduce 1821 and examine unstable galt for xyl stability –

– 1924 + 1242 see p. 129

= 2050 gal₃⁻ mutants – streaked on EMB lac for replication on minimal + supplements
– out of 12 suspected auxotrophs – 1. prototroph, 1. A_2, 1. $(A_1 A_2 A_3)$ ← really proto? failed on A_5 } not tested A_4 – presumably are A_4

518
– Check on bkground on EMB gal.
cells from overnight culture – unwashed

(positive)

EMB gal	Addition	no pap 2 days
1	undil. susp	53
2	1–10 susp	37
3	1–10 susp	43

811-galt
– Crosses – X 7295 – Results partly unusable due to large no. of mucoid col. – many mucoid apparently (–)

811-galt 2 – (no galduction on 811)

	+	susp –	checked –
EMB gal 1.	33	3	
2.	39	2	
3.	29	0	
4.	46	0	
5.	34	•	
6.	37	0	
7.	48	1	
8.	23	0	
	289	6	6/6 gal slow

811 galt – 1

	+	susp –
1	56	1
2.	71	2
3.	70	0
4.	62	0
5.	67	0
6	64	3
7	66	2
8.	78	1
9.	84	2
10	66	1
	[illegible]	[illegible]

- Wednesday -

1821 - Xyldirection?

EMB xyl	Addition	No. pap 3 days (papillae appear arrested in growth - failed to develop further after 2 days)
1	—	7
2	0.1 KH2A 25'	> 85

16 papillae on 1 plate picked and streaked xyl - ~~see xyl~~ 10/27 check to see if gal + - 10/29 see gal - ?

- 1924tk-12 #35 - this streaking = #4 from galdirection is mixed - no mimics. Attempt to establish a stable + from unstable +. 12 well isolated + col. picked and streaked on EMB gal. Replicate 1

	1	mixed
	2	"
	3	"
	4	"
	5	"
	6	"
	7	"
	8	"
	9	"
	10	"
1 single	11	"
colonies to base →	12	pure + → picked

- 1924tk-12 - One plaque type / 1485 - see 129 picked and streaked out EMB gal -

- 811 gal + reversions checked for their papillation behavior - on EMB base -

		Indication	
1307	5-10 pap/colony	=	
811	no. papillae		
811 gal + -1	<1 pap/colony	mimic	does not galden
2	<1 pap/colony	"	" " "
3	<1 pap/colony	"	
4	c. 5 pap/colony	true reversion	
5	5-10 pap/colony	" "	galdens! 811, 918
6	<1 pap/colony	mimic	
7	c. 1 pap/colony	"	
8	5-10 pap/colony	true reversion	galdens! 811, 918
9	c. 1 pap/colony	mimic	
10	<1 pap/colony	mimic	

Thursday 10/23/52

1924EK-12 #25 - ~~[illegible]~~ from initial.. ≠ 4 streaking from pag. streaking, for purpose of isolating stable +

12 additional colonies streaked on EMB gal -

all mixed - given to EML -
many mosaics

- Friday 10/24/52

1924EK-12 - the one plaque type - #5 of testing

streaked out EMB gal 10/23 -

~~a [illegible] + streaked out again. extending individual colonies [illegible] (+) (-) retested all [illegible]~~

1924EK-12 #25 papillae	- #12 colony of pg (131)	for stability isolation		
		1st streaking from end of purification - pure		
	made 10/23	2nd streaking	c.150 colonies	- all pure
	10/24	3rd streaking	c. 500 colonies	- all pure
	10/25	4th streaking	c. 500 colonies	- 1 (-) colony - (contam.?)

SEE PG 133

← picked and examined - see subsequent pg.

Saturday 10/25/52

1924EK-12 (above) 1 plaque type - transferred to agar slant (+ #1)
10 + and 10 (-) colonies picked from streaking and tested against 1405

+ colony	reaction	- colony	reaction
1	non. lys	1	single plaque? → reexamined pg 134
2	"	2	..
3	"	3	..
4	"	4	..
5	"	5	..
6	..	6	..
7	..	7	..
8	..	8	..
9	..	9	..
10	..	10	..

Sunday 10/26

- 811 galt #5 lysate (tube) - (this is papillating strain on loop) - (0.5 ml of this lysate in Pa = sterile)

10^8 dil. = 44, 59 = 5.2×10^9 /1/ml

in 518 gives about 600 ry/0.1 ml = 6×10^3/ml $\frac{6 \times 10^3}{5.2 \times 10^9} = 1/10^6$

- 518 - Galdextrins

DNAase no effect

	EMB gal	Addition	48 hrs 2 days
	1	none	(30)
	2	0.1 K+2A (25') untreated *	960
	3	0.1 K+2A (25') treated **	998
galy reversion → activity on galy⁻	4	0.1 811 galt #5 1	4 = 883

some o plaques here?

← examine for stability - see p 134

* untreated = 0.1 ml broth added to 0.5 ml lysate - incubated at room temp. 5 min
** treated = 0.1 ml DNAase added to 0.5 ml " - " " " " "
" (1.1γ DNAase)

See also p. [redacted] 135
DNAase treated greatly decreased in viscosity

broth

— 1929 EK+2 #25' papillae col #12 - stable galt

over night culture of diluted plated EMB gal -

EMB Plate	no colonies	no. gal -
1	565	0
2	440	0
3	774	0
4	622	0
5	609	0
6	559	0
7	598	0
8	523	0
9	560	0
10	573	0
	5824	0

To here — Resting

3 streaks mixed galt, gal-
4 streaks galt
1 plating of 5821 colonies no gal-

$\frac{2.1\times10^3}{5.2\times10^9} = 0.5\times10^{-6}$

Tuesday 10/28

- 1821 gal-, xyl-duction

cultures gone type R?

EMB gal	Addition	No. papillae after 2 days
1	none	0
2	0.1 K-12λ (25')	4
3	0.1 K-12λ (25')	7
4.	0.1 K-12λ (25')	8

- EMB xyl none

1		4
2		0
3		7 } faint background of many minute papillae c.10⁴

- 518 + 811 gal+ #5 of pg 135

8 papillae picked and streaked - papillae in this transduction of two types, ① colorless, ② red purple pigmented - papillae of same size - (This is not unusual, reason for diff. not known) 4 red purple } streaked on EMB gal.
4 colorless

(doubted)

1st streaking - all mixed +, - } no distinction as to class mentioned above
2nd " - 1/8 mixed +, -
3rd " - 1/8 mixed +, - ← others giving off something intermediate

probably - not correct

[illegible] tried - this transduced cell appears to become stable more quickly than 518 cells transduced by K-12 λ — this also appears to be the case in this lysate and 811 gal- see below -

- 1929 E K-12 One plaque type -
reexamination of lysogenicity of one plaque gal- type (p.135).
4 gal- colonies from streaking examined - all nonlysogenic

- K-12λ (X) 0.5 ml + 1 ml Pen tested for sterility - (sterile)

- Wednesday 10/29/52

- 811 - Galduction

$\frac{1.57\times10^3}{1.6\times10^{10}} = \frac{1}{1.0\times10^7}$

EMB	Addition	No. pap. after 2 days
1	none	39
2	0.1 K-12λ (25')	196
3	0.1 811 gal+ #5₁ ← 1st lysate (viscous)	204

← stability of 12 of these examined

1st streaking 7/11 mixed +, -
2nd streaking 1/11 mixed +, -
3rd streaking 1/11 mixed +, -

apparently → the situation is as with 518 + 811 gal+ #5 above

This is probably the case with 518 + 811 gal+ #8 on p. 135a

Thursday 10/30

1924tK-12S

Cross ♂ X Y-10

1. purity of 1924tK-12 culture -- well plated on EMB gel.

EMB gel	no. ♂+ col	no. ♂(-) col.
1	275	0
2	249	0
3	268	0
	792	this are also additive ∴ data ♂ p. 135 - make 5821/792/66 13

2. Cross.

EMS gel	no. (+)	no. (-)
1	175 (1 mosaic)	0
2	116	1
3	152	0
4	141	0
5	165	—
	749	1

The 1 (-) and (1) mosaic colonies streaked out on EMB gel - both gave gal + [illegible] gal colonies

λ titrations.

grown ♂ 1485 dil 10^6 = 0, 0, titer < 10^6

K-12 λ(X) in 240 seconds dil 10^6 = 172, 262 = 217 = 2.2×10^9 ← previous assay says titer here originally was 2.8×10^9. Better recheck to observe if this post incubation assay is correct.

811 gal+ #5 λ

untreated dil 10^8 = 37, 85 . 6.1×10^9 (previous 5.2×10^9 p. 133)

DNAse treated dil 10^8 = 52, 68 = 6.0×10^9

} indicates DNA ase has little effect if any on either gal reduction or plaque production

DNA ase effect on plaque λ

efficacy ♂ 811 gal+ #5 λ = (for 5) $\frac{8.8 \times 10^3 \text{ gal/ml}}{6.1 \times 10^9 \lambda/\text{ml}} = 1.3 \times 10^{-6} = 1/7 \times 10^{-5}$

(for 811) $\frac{2.0 \times 10^3}{6.1 \times 10^9} = 0.3 \times 10^{-6} = 1/3.3 \times 10^{-6}$

811 gal reductions

EMB gal	Addition	Papillae after 2 days (gal + 1, etc.)
1.	none	25
2.	0.1 ml 811 gal+ #5 1	untreated 201
3.	0.1 ml 811 gal+ #5 1	DNA ase treated 296
4.	0.1 ml 811 gal+ #5 2	— 289 + ← plate contaminated?
5.	0.1 ml 811 gal+ #8 1	— 291 ←
6.	0.1 ml K-12(λ) in 240	142

811 gal+ #8 gal reduces!

Sterility of theta (o.s) contained

518 gal reductions (control omitted)

EMB	Addition	Papillae after 2 days
1	0.1 ml K-12(λ) in 240 λ	540
2	0.1 (1/10) "	15 (dry plate) ← 10 examined / and 1 λ all gave gal+ most / 485
3	0.1 (1/100) "	9

(portrait)

Thursday 10/30

- 1402 galduction -

EMB gal	Addition	no pap. after 2 days
1	none	5
2	0.1 ml K-12 (25'),1	43

} appears as a dilution in the absolute sense of the effect. Similar to result c 182 p. 134 to this culture partially +p.k.

811 gal+ #1 X Y-10
- Cross for the purpose of determ. 811 gal+ #1 suppressor or no inhibition

	EMB gal	no. gal(+)	no gal (-)
	1	333	0
(cumulative count) →	2	462	4
	3	541	2
	4	671	2
	5	781	1
		781	9 ← retest in EMB gal — [illegible]

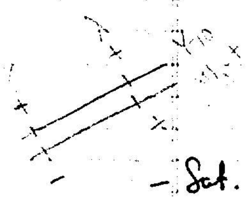
Summary [illegible]		(+)	(−)
X1	p. 130	996	[illegible]
X2	p. 136a	781	9
		1776	[illegible]

- 811 gal+ #2 X Y-10
- Cross for purpose of determ of this 811 culture is suppressor mut. or no.

	EMS gal	no gal(+)	no gal-
	1	157	0
cumulative	2	306	2
count	3	456	1
	4	603	0
	5	866	2
		866	5

} [illegible] slow -

Summary [illegible]		+	−
X1	p. 123	72	0
X2	p. 123	650	[illegible]
X3	p. 120	275	0
X4	p. 136a	871	0
		1877	0



- Sat. 11/1

811 t 81/g+ #8 stability ✓
1st streaking - 8/8 mixed +, -
2nd streaking - 0/8 mixed + - (all +)
3rd streaking - 0/8 mixed +, - (all +)

- 2102 lysate for EML -
mal. 35 sec - incubated 2+ hours - centrifuged
dil 10^7 0.1 → against 2096 = no plaques - galduction on 518 according to EML?

- 1673 mal for gal- on EMB gal
3 good gal minus obtained - test for galduction

1673 gal- #1 #2 #3

- 1692 mal. for gal - - unsuccessful attempt

Sunday 11/2

- 1655 X 1177 to obtain xyl- for xyl duction attempt
  old suspension used - small number of prototrophs
  c. 6 mult from c 100 prototrophs.
  picked and streaked on EMB xyl. — 4/6 xyl minus
  pick and see if λ^s - streak on other med. —

- 1924tK-12 #12 (unstable) X 1436 - to see if λ^+ obtained — but dm. to λ^+ cross skewed above λ^+ if this is so since λ^r recessive to λ^+ - Examine unstable gal+ prototrophs to see λ^+ was since $\frac{gal\ \lambda}{+\ +}$ should go together

1924tK-12 parent culture - Analysis - Streaks of washed susp. made / 1485 - no evidence of λ

Gal+ Plate	#(+)	#(-)
1	$\frac{1}{4}$ = 200 (800)	$\frac{1}{4}$ = 11 (44)
2	$\frac{1}{4}$ = 161 (644)	$\frac{1}{4}$ = 9 (36)
3	$\frac{1}{9}$ = 173 (692)	$\frac{1}{4}$ = 8 (34)
	2136	112

} purity of 1924tK-12 parent

Cross Plate	#(+)	#(-)
1	42	383
2	38	354
3	—	—
4	..	..
5	68	365
	148	1102

about the same as first two but difficult to count due to agar seed background.

28+ picked and streaked against 1485- all non lysogenic

Thursday 11/6

- 1673 gal- galactose

		EMB gal	Addition	No gal+ after 2 days
#1 (20 1 and 2 gal+ plates inferred)	1	0	none	7
	2		0.1 ml 1K-12 λ (25')	$\frac{1}{9}$ = 195 = 1560
#2	1		none	11
	2		0.1 ml 1K-12 λ (25')	$\frac{1}{8}$ = 163 = 1304
#3	1		none	19
	2		0.1 ml 1K-12 λ (25')	$\frac{1}{8}$ = 161 = 1288

10/6 Thursday

– 1436. galduction to obtain unstable + which is $\lambda^+ gal^{+u} S^R$ to cross with 518 to observe if lysogenicity of galduced is due to dominance of λ^+ in transduced fragment → λ g S 1436; S – R; + + S? ? × 518 λ^s gal S^s
Examine to see if unstable is S^R – possibility of transducing S^s which is dominant

1. galduction of 1436

EMBgal	Addition	Papillae after 2 days
1	none	34
2	0.1 ml K + 2λ (25')	1/8 = 156 = 1248

what kind of prototrophs?
gal^{+u} λ? S?
gal – λ? S?
didn't work
relax ammonia
whole problem

① ← 1st Pure. streak 7/8 gal – ! what? SEE 112
try again ② 1st pure. streak 7/8 gal +
try again ③ 1st pure. streak 15/18 gal –
of this lot 9 streaked against 1485 all lysogenic

Pap #	Streak 1	Streak 2
1	mixed	pure +
2	mixed	"
3	mixed	"
4	gal –	—
5	mixed	pure +
6	mixed	"
7	mixed	"
8	mixed	"

2070 = 1673 gal – –1. Stability check –

2070

	1st Streak	2nd Streak	3rd Streak		galduced pap picked	1st Streak	2nd Streak	
Spontan 1	mix	pure +	pure +		1	mix	mix ⊕	mix ⊕
2	pure +	"	"		2	mix ⊕	mix ⊕⊕⊕	" ⊕
3	pure +	"	"		3	mix many	mix ⊕	" ⊕
4	mixed	"	"		4	mix ⊕⊕⊕	mix ⊕	"
5	pure +	"	"		5	mix ⊕⊕⊕	mix ⊕	"
6	pure +	"	"		6	mix	pure +	pure + (?)
7	pure +	"	"		7	mix ⊕⊕⊕	pure +	" +

1673 gal – –2

1.	mix	pure +	pure +	1	mix	mix ⊕	pure +
2.	mix	mix	"	2	pure +	mix ⊕	pure +
3.	pure +	pure +	"	3	mix	mix (?)	pure +
4.	mix	"	"	4.	mix	mix	mix ⊕
5.	mix	"	"	5.	pure +	pure +	pure +
6.	pure +	"	"	6.	pure +	mix ⊕	pure +
7.	mix	"	"	7.	mix	pure +	pure +
8.	mix	"	"	8.	mix	mix ⊕	mix ⊕

3/8

1673 gal – –3

1.	mix	pure +	pure +	1	mix	pure +	mix ⊕
2.	mix	"	pure –	2.	mix ⊕	pure +	mix ⊕
3.	mix	"	pure +	3	mix	pure +	pure +
4.	mix	"	"	4	mix ⊕	mix	mix ⊕
5.	mix	"	"	5	pure +	pure +	pure + (!)
6.	mix	"	"	6	mix	pure +	mix ⊕
7.	mix	"	"	7.	mix	pure +	pure +
8.	mix	"	"	8	mix ⊕	mixed ⊕	" +

2/8

Sunday-Monday 10/9-10/10

- ~~[illegible]~~

- 1177 X 1655 xgl- #1

Attempted xgl duction of 1177 xgl-

EMB xgl	Addition	No pap 2 days
1	none	0
2	0.1 ml K12 λ (25')	0
#2		
1	none	0
2	0.1 ml K12 λ (25')	0
#3		
1	"	0
2	"	0

811 transduction c 750 λ

EMB gal	Addition	No pap. 2 days
1	none	45
2	0.1 ml K12 λ (25')	55

small increase - signif.? pick a few - look for instability

slightly larger effect [illegible]

518 transduction c 750

EMB gal	Addition	No pap 2 d
1	none 750 λ	45
2	0.1 ml K12 λ (25')	40

} what to do?

518 Lp₂R = W1412

EMB gal	Addition	# pap. 2d
1	none	33
2	0.1 ml K12 λ (15')	35

518 Lp₂R not galdonable

Sunday 11/16

1673 gal- #2 X Y-10 - as usual - no control -

EMB gal	lu+	lu-
1	324	12
2	166	7
3	261	10
	751	29

} (-) slightly purple - some (-) mosaic

← 26 picked EMB gal, 22 (-) streaked /1485/λ SEE BELOW. - 7/22 sensitive

← 30 picked EMB gal - streaked against/1485, λ 30/30 lysogenic on 1485

1673 gal-#3 X Y-10 as above

EMB gal		
1	174	16
2	186	13
3	418	20

} (-) slightly purple - some (-) mosaic

518 gal dured c̄ 892 λ gal3- (mutation) on gal4- λs

518t892

EMB gal	Addition	no pap. 2 days
1	none	41
2	0.1 892 λ	247

(hooked)

6 picked, streaked EMB gal

	strk 1	strk 2	strk 3
1.	mix	mix	mix
2.	pure +(?)	pure +	—
3.	pure +	pure +	—
4.	pure +	pure +	—
5.	pure +	pure +	—
6.	mix	mix	mix

STOCK 518t892-1

STOCK 518t892-2

811 gal dured c̄ 892 λ (mutation) gal3- on gal4- λ+

811t892

1	none	39
2	0.1 892 λ	85

$\frac{4.6 \times 10^2}{3.9 \times 10^9} = \frac{1}{8.5 \times 10^6}$

6 picked pure. streaked EMB gal

	strk 1	strk 2	strk 3
1	mix	pure +	
2	"	mix	mix
3	"	mix	mix
4	"	mix	mix
5	"	pure +	—
6	"	pure +	—

STOCKS
811t892-1
811t892-2
811t892-3

Tuesday 11/18

1673 gal-#2 X Y-10 above gal- prototrophs tested -

	#		/1485	/λ
-Lp+	1	O	lys.	resist.
-Lp+	2	O	..	..
-Lps	3	O	non lys	sensitive
-Lp+	4	⊛	lysogenic	sensitive
-Lp+	5	⊛	lysogenic	sensitive
-Lps	6	O	non lys	~~[struck]~~ sens.
-Lp+	7	O	lys	resist
-Lps	8	⊙	non lys	sens
-Lp+	9	O	lys	resist.
-Lp+	10	O	lys	resist
-Lp+	11	⊛	single plaque	sensitive
-Lp+	12	O	lys	resist
-Lp+	13	O	"	"
-Lp+	14	O	"	"
-Lps	15	⊛	S plaque	~~[struck]~~ sens.
-Lp+	16	O	lys	resist
-Lp+	17	⊙	"	"
-Lp+	18	O	lys	resist
-Lp+	19	O	lys	resist
-Lps	20	O	~~[struck]~~ non lys	sensitive
-Lps	21	O	~~[struck]~~ non lys.	sensitive
-Lp+	22	O	lys	resist

replica to D(-) - all Lp⁻ are prototrophs

gal- Lp+ 15
gal- Lps 7

all prototrophs

Stocks made 518t902-1
-2

1.	mixed	mixed	mixed
2.	"	"	"
3.	"	"	"
4.	"	"	"
5.	"	"	"
6.	"	mixed	pure+
7.	"	pure+	pure+
8.	"	mixed	mixed

Wednesday - 11/19

- 518t transduction by 902λ - obtain stocks

$\frac{4^- 2^+ \lambda^s}{4^+ 2^- \lambda^+}$

EMBgal	addition	no pap. 2 days
1	none	29
2	0.1 902λ	1/4 = 288 1152

booked

- 811 transduction by 902λ

$\frac{4^- 2^+ \lambda^+}{4^+ 2^- \lambda^+}$

EMBgal	addition	no. pap 2 days
1	none	44
2	0.1 902λ	147

$\frac{1.03 \times 10^3}{4.9 \times 10^{10}} = \frac{1}{4.9 \times 10^6}$

Pap.	1st streak	2nd streak	3rd streak
1.	mixed	mixed	mixed
2.	"	"	"
3.	"	"	"
4.	"	"	"
5.	"	"	"
6.	"	"	"
7.	"	"	"
8.	"	"	"

- 1436 (purified) Recheck on gal- streaking - Galduction

EMBgal	Addition	no. pap 2 days
1	none	6
2	0.1 K-12 λ(25')	1/4 = 294 1176

← sixteen (16) picked and streaked - all gal-, all non-prototrophic

Thursday 11/20

- 518tK-12 X Y-10 - for the purpose of uncovering (gal λp^s)?

	EMBgal	no +	no -	no. mosaic
518tK12 purity ✓	1	384	72	8
	2	406	60	9

EMSgal			
1	184	(2)	—
2	172	(3)	—

booked

4 examined all λ^R
all lysogenic on 1485

- 811tK-12 X 1673 - for the purpose of uncovering (gal- λp^+)
X 1678

	EMBgal	no(+)	no(-)	no mosaic)
811tK12 purity ✓	1	551	43	8
	2	633	37	4

X1673 EMSgal			
1	↓73	(5 / 4)	—
2	91	(2)	—

7 examined - all λ^R
all lysogenic on 1485

X1678 EMS gal		
1	101 contam.	(2)
✓	56	(4)

5 examined all λ^R
all lysogenic in 1485

Thursday 11/20

Friday 11/21

- 1673-gal- -3 X Y-10 - pg 139 - lys^R segregating

gal- Check on λ-state of prototrophs

	W1485	/λ				/1485	/λ
1	lys	R	14	~~1485 no plaques~~	~~R~~	no plaques	R?
2	lys	R	15	~~lys~~	~~no lys~~	lys	R
3	lys	R	16	~~no lys~~	~~sens~~	no lys	sens
4	lys	R	17	~~lys~~	~~R~~	lys	R
5	lys	R	18	~~[illegible]~~	~~R~~	lys	sens ?
6	lys	R	19	~~no lys~~	~~sens.~~	lys	R
7	lys	R	20	~~lys~~	~~sens~~	[illegible]	sens.?
8	lys	R	21	~~lys~~	~~R~~	lys	R
9	lys	R	22	~~no lys~~	~~sens~~	no lys	sens
10	lys	R	23	~~lys~~	~~R~~	lys	sens (ref plaques)
11	lys (small	R	24	~~lys~~	~~sens (ref plaques)~~	lys	R
12	plaques)	S	25	~~lys~~	~~R~~	lys	R
13	lys	R	26	~~lys~~	~~R~~	lys	R
						10 (-)	

gal+ 22 picked all lys on 1485, all λ resist

Salmonella for J.L.

- lysates attempted in 914, 915, 922

lysates in 914-1 some suggestion of lysis?
913 - discarded

lysate in 914-2
915
922

Results
914-1 / 913 → cross streaks on 913 - ① - activity in undiluted
914-2 / ② " " undiluted
known supplied (J.L.)

915 / 912 → cross streaks on 912 ①(915) - activity undil., some act. in [illegible] of 10^{6} dil.?
922 / 912 ②(922) - activity in undil., none in 10^{6} -

152 / 16 / 912 / 152 / 2432

Tuesday 11/26

– New λ preparation.

518 (examination of ~~[struck]~~ gelogenic galt as donors of gal+)

booked

EMBgal	Addition	No papillae 2 days
1.	none	28
2.	0.1 518t892 λ-1	3
3.	0.1 811t892 λ-1	0
4.	0.1 K-12 λ (11/23)	1/16 = 152 – 2432

} nearly obscured by massive transduction?

– Other gal– mutations – examination for transduction –

	EMBgal	Addition	No papillae 2 days
566 ← tp2	1	none	9
	2	0.1 K-12 λ (Y)	9
583	1	none	6
	2	0.1 K-12 λ (Y)	340

stock made of this

8	1st streaking	2nd	3rd
1.	mixed	mixed	mixed
2.	"	"	"
3.	"	"	"
picked 4.	"	"	"
5.	"	"	"
6.	"	"	"
7.	"	"	"
8.	"	"	"

– 2050 gal3 – Examination of allogenic transduction (lysates) for activity on gal3

EMBgal	Addition	No pap. 2 days
1	none	29
2	0.1 518t892-1 λ	solid smear (? papillae?) ← this lysate not sterile. Retested 0.2
3	0.1 811t892-1 λ	solid smear (? papillae?) this lysate tested sterile
4	0.1 811 λ	450

2050t811 stock →

1.7×10^10 $\frac{4.3\times10^3}{1.7\times10^{10}} = \frac{1}{4.0\times10^6}$

see 194

– 518t K-12 – isolation of several gal– segregants to see if
1. gives no gal+ c X 1436
2. all lysogenic
3. X 1673 to see if all gal– tp+ – (linkage intact)

a. streak out overnight culture 518tK-12

Of the 115 – 110 streaked single colony picked and tested against λ – all replicated against λR – replicated against 1485 – all lysogenic

–518tK12 – Crosses with 1678 galt tp+ tp2^5

gal+ / gal– tp^5? / tp+ –

booked

	EMBgal	Condition	(+) Prototrophs	(–)
	1	0.1ml of each overnight culture	6	8
	2	" " " "	11	6 (–)
518tK12F–	3	Aerated 518tK-12, unaerated 1678	0	0
	4	" " "	0	0
	5	" " "	1	0
	6	" " "	0	0
	7	" " "	heavily contam c (–)	
1678 F–	8	Aerated 1678, unaerated 518tK-12	78	16
	9	" " "	70	30
	10	" " "	72	18
	11	" " "	76	26
	12	" " "	83	25

1–2: } B

3–7: } what happen?

8–12: } Some of + appear to be mosaic

(individual streaks ... A)

Saturday 11/29

– Reexamination of the crossability of aerated 518tK12 cultures –

1\. 518 ([illegible]) X 1678, 1673 – (cultures and recentrifuged rinse 10X solution)

booked

EMB gal	Addition	(+)	Prototrophs (–)	
L 1	aerated 518, unaerated 1678	0	18	
2	" , " 1678	0 / 0	53	
3	aerated 518, unaerated 1673	0	10	F^+ 1678 X F^- 518 = 0+/71
4	" " , " "	1 / 1	18 / 28	F^- 1678 X F^+ 518 3+/571
5	unaerated 518, aerated 1678	3	571	F^+ 1673 X F^- 518 17/28
6	" " , " 1673	16	411	F^- 1673 X F^+ 518. 16/427

2\. 518tK-12 X 1678, 1673

booked

7	aerated 518tK12, unaerated 1678	0	1	
8	" " , " "	2	0	
9	aerated 518tK12, unaerated 1673	0	0	
10	" " , "	0	0	
11	unaerated 518tK12, aerated 1678	135	28	← (of these 28 examined – all 17 λ^R
12	" " , " 1673	146	32	all lys / 1485)

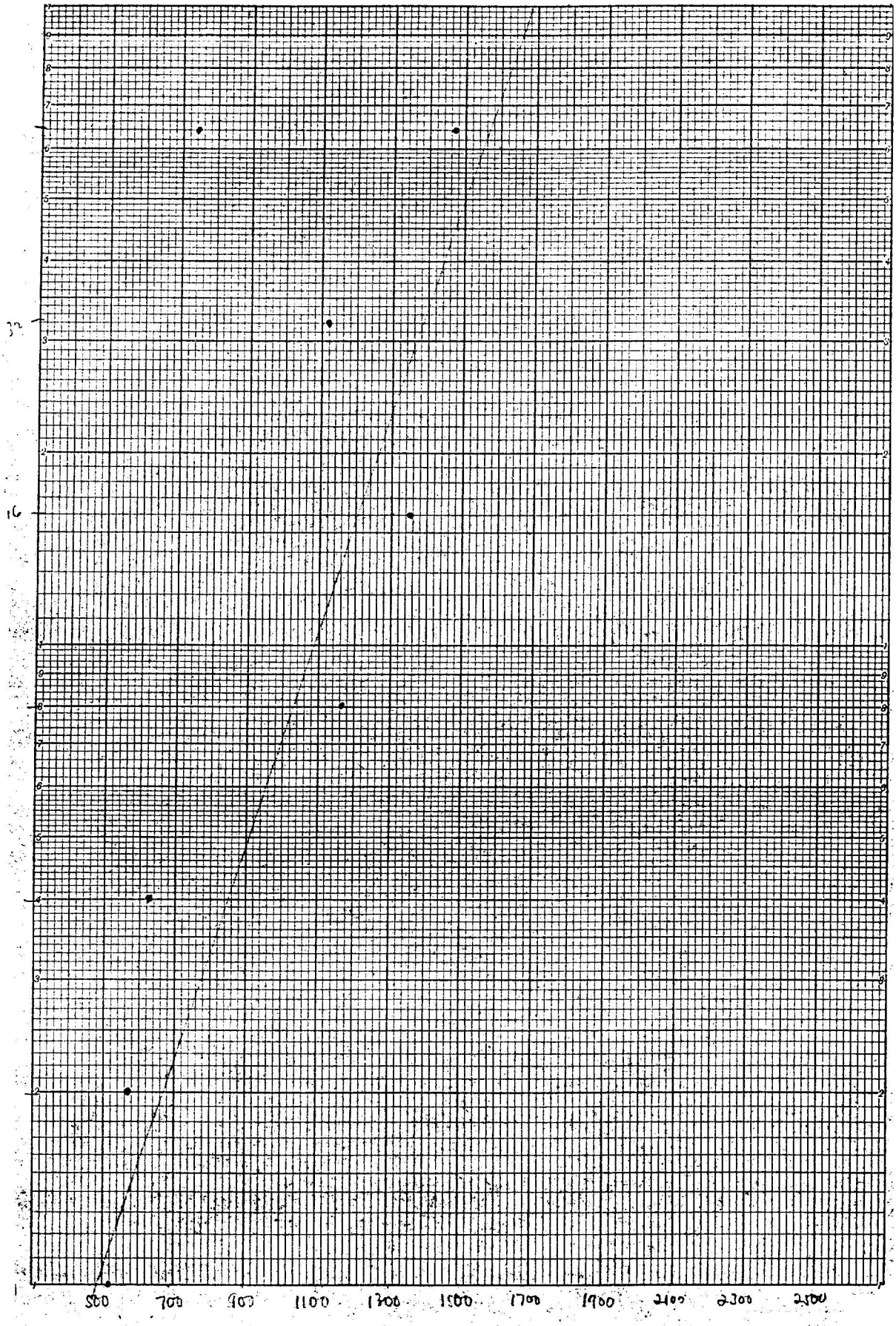
– Sterility checks

518t892-2 1.0 ml
518t892-1 1.0 ml
811t892-1 1.0 ml
811t892-2 1.0 ml
} in Penassay – ok.

– Sunday 11/30

2050 Reexamination of situation c 2050 in pg. 142

EMB gal	Addition	No pap 2 days
1	none	½ = 131 (what happened?) (all small)
2	0.1 518t892-1	solid growth of pap (mostly +?) c. 5000?
3	0.1 518t892-2 (undiluted)	solid growth pap (mostly +?) c. 5000?
4.	0.1 518t892-2 (dil 1-10)	solid growth pap. (mostly +) 1/64 = c.100 = 7000
5.	0.1 811t892-1 (und)	solid growth pap. (mostly +) c.
6.	0.1 811t892-1 (1-10)	solid growth pap. (mostly +)
7.	0.1 811t892-2 (und)	½ = 94 (all small
8.	0.1 K-12 (11/23) λ	½ = c. 400 = 800



No papillae →

A1 wo = wo and 579 gal
A1 K-12 = 0.1 K-12 λ " "
A1 811 = 0.1 892 λ " "

Monday-Tuesday 12/1 12/2

578 - No of cells plated - influence on number of transductions (papillae) observed

Stock suspension dil - 2x10^7 — 648, 547 = 697 X 2X10^7 = 139.4X10^7 = 1.4X10^10 cells/ml
dil. stock plated c̄ constant 0.1 ml K-12 λ (11/23) titer 2.7x10^10 (estimated)

	# cells	Level	c̄ K-12 λ no. pap.	without [-12]
256	1.4x10^9	Level	1/4 = 626 (2504)	—
128	7x10^8	1-2	1/4 = 445 (1780)	35
64	3.5x10^8	1-4	1/4 = 368 (1472)	29
32	1.75x10^8	1-8	1/4 = 280 (1120)	10 *
16	8.75x10^7	1-16	1/2 = 663 (1326)	33
8	4.4x10^7	1-32	1/2 = 581 (1062)	49
4	2.2x10^7	1-64	1/2 = 281 (562)	39
2	1.1x10^7	1-128	535	32
1	55x10^6	1-256	509	23

(posted)

* heavily contaminated c̄ some phage

1436 transduced by 750 - Distinction between gal₁- and gal₄-

EMB gal	Addition	No pap. 2 days
1	none	24
2	0.1 750 λ	145

← many of these papillae have holes about them spontaneous do not.

16 pap. picked from 750 plate streaked on gal

	1st	2nd	3rd		1st	2nd	3rd
1.	all (-)	all (-)		9.	all (-)	all (-)	
2	"	"		10	"	"	
3	"	"		11	"	"	
4	"	"		12	"	"	
5	"	"		13	"	"	
6	"	"		14	"	"	
7	"	"		15	"	"	
8	"	"		16	"	"	

} discarded

2050 t 811 pg (142) stability
8 picked

	1st	2nd	3rd
1.	mixed	mixed	mixed? (+ and ±) ← Stock made of this
2.	"	pure (+)*	pure +
3.	"	"	"
4.	"	"	"
5.	"	"	"
6.	"	"	"
7.	"	"	"
8.	"	"	"

* + reaction not as strong as usual.

Sunday 12/7/52

518+K12 - Examination of gal- segregants for their allelic state - (-) derived from sectored gal+ $^{+}$ plating - streaked out once and single colony inoculated into Pen. Overnight culture as follows:

Gal— segregants first 518+K-12

This series = A

streaked gal(-) /1485		no add	0.1 K-12(λ)	0.1 811-2 λ	0.1 902 λ	Conclusion
	1	(contaminated c̄ (+) colonies) →				—
lys	2.	23	130 (234)	14	262	gal4-
	3	(contaminated c̄ (+) colonies) →				—
lys	4	contaminated c̄ (+) colonies →				
lys	5	23	98 (225)	24	231	gal4-
	6	contaminated c̄ (+) colonies) →				—
lys	7	29	226 (273)	28	302	gal4-
	8	(contaminated c̄ (+) colonies) →				
lys	9	31	146 (216)	30	248	gal4-
lys	10	48	186 (255)	80	299	gal4- (?)
lys	11	37	154	22	284	gal4-
lys	12	40	164	53	245	gal4-
	13	(contaminated c̄ (+) colonies) →				—
lys	14	32	103	22	263	gal4-
lys	15	41	84	23	345	gal4-
lys	16	28	138	20	271	gal4-
lys	17	30	87	27	287	gal4-
lys	18	20	83+	24	231	gal4-
lys	19	28	67	28	239	gal4-
lys	20	28	107	34	206	gal4-
lys	21.	31	97	17	245	gal4-

this 811 on lysate

EMB	Add	Pop 2 days
1. 811 cells	no λ	48
2. "	(811 λ)2	50
3. 902×1655 lys	no λ	13
4. "	(811 λ)-2	105
5. 2050	no λ	42
6. "	(811 λ)-2	289

Exam. 811 plate stabil

	1	2	3
1.	mixed	mixed	Stable
2.	"	"	
3.	"	"	
4.	"	"	
5.	"	"	
6.	"	"	
7.	"	"	
8.	"	"	
9.	"	"	
10.	"	"	
11.	"	"	
12.	mixed	mixed	
13.	"	"	
14.	"	"	
15.	"	"	
16.	"	"	

SH note. A-10 unstable, recheck EMB gal 1 no add = 74, 2 (0.811 λ)2 = 59 — apparently 1st assay in error - contain c̄ spreader

4 failures
17 successful tests

magnitude of 902 ductions similar to that of 902 on 811 which with this prep was (147+202) - c 40
16/17 say (-) segregants are gal4-
1/17 says (-) segregant is gal4-, with possible change in it.
now 17/17 say gal4-

2070 = (1673 gal- 1) examined for its relationships to gal1-4- by means of lysate activity.

EMB gal	Addition	No. pop. 2 days
1	none	10
2	0.1 750 λ	54
3	0.1 902 λ	¼ = 314 1256
4	0.1 892 λ	331
5	0.1 811 λ	175

	2070+750 1st	2nd	3rd	2070+892 1	2	3	2070+902 1	2	3	2070+811 1	2	3
1.	mixed	mixed	mixed	mixed	+	+	mixed	mixed	mixed	+	+	+
2.	+	+	+	+	+	+	+	+	+	+	+	+
3.	+	+	+	+	+	+	mixed	mixed	mixed	+	+	+
4.	+	+	+	+	+	+	mixed	mixed	mixed	mixed	+	+
5.	+	+	+	+	+	+	mixed	mixed	mixed	+	+	+
6.	+	+	+	mixed	mixed	mixed	+	+	+	mixed	+	+
7.	+	+	+	mixed	mixed	mixed	+	+	+	+	+	+
8.	mixed	mixed	mixed	mixed	mixed	mixed	mixed	mixed	mixed	+	+	+
	2/8			7/8 ?			5/8			0/8		

transferred to a plate for

518 t 902 gal- seg = B transduce c 811 / 902 }

12/9/52
Tuesday

518 t 902 Gal- segregants - Examination - isolated from single segregating colonies streaked on EMB gal. - and a single colony chosen

	1485	no. pop.			pro. class
1.	lysogenic	235	18	50	gal4-
2.	"	223+	29	16	4-
3.	"	102+	22	15	4-
4.	"	contam.	29	24	4- ?
5.	-	137+	18	14	4-
6.	"	143+	25	23	4-
7.	"	10	507	9	2- ← }
8.	-	10	424	7	2-
9.	"	325+	191	214	4-
10.	-	151+	16	31	4-
11.	-	160	20	44	4-
12.	"	232+	44	52	4-
13.	"	143+	16	32	4-
14.	"	136+	18	36	4-
15.	-	(large) 46	32	~~34~~ 38	? }
16.	"	116+	29	21	4-
17.	-	214	31	31	4-
18.	"	99+	30	33	4-
19.	"	139+	41	41	4-
20.	"	contaminated c gal+			
21.	"	222	21	23	4-
	streaked /1485	0.1 ml 902 λ	0.1 ml (811 λ)-2	no add	

17 4-

17 gal4-
2 gal2-
1 double?

These occur = B

(banked)

Saturday 12/13

C. -578 & 892 Examination of gal- segregants

gal- isolate	1485 lysogenic	0.1 (892 II)-1	0.2 (811 A)-2	[redacted]	probable locus
1.		92	22	24	gal 4 -
2.	"	78	38	36	gal 4 -
3.	"	99	27	25	gal 4 -
4.	"	353	304	20	*
5.	"	84	26	18	gal 4 -
6.	"	68	29	19	gal 4 -
7.	"	contaminated ε + cells →			
8.	"	376	392	29	*
9.	"	442	324	45	*
10.	"	453	410	21	*
11.	"	337	364	30	*
12.	"	99	25	31	gal 4 -
13.	"	427	294	46	*
14.	"	387	416	23	*
15	"	78	36	32	gal 4 -
16.	"	contaminated ε + cells →			
17.	"	78	30	11 (red plate)	gal 4 -
18.	"	309	271	22	*
19.	"	296	257	3	*
20.	"	88	25	35	gal 4 -
21.	"	73	29	38	gal 4 -
22.	"	67	33	25	gal 4 -
23.	"	278	190	21	*
24.	"	309	207 (thin plate)	18	[redacted] *

booking

NB

gal 2 a

mut

11 gal 4 -

* 11 Unknown locus -

booked

Stability examination of * mutants loci.

	C-4-811			C-4-892			C-9-811			C-9-892		
	①	②	③	①	②	③	①	②	③	①	②	③
1.	mixed	mixed	mixed	mixed	mixed	mixed	mixed	+	mixed	mixed	mixed	mixed
2.	mixed	mixed	"	"	"	"	"	mixed	"	"	"	"
3.	mixed	mixed	"	"	"	"	"	"	"	"	"	"
4.	+	+	"	"	"	"	"	"	"	"	"	+
5.	+	"	"	"	"	"	"	"	"	"	"	mixed
6	mixed	"	"	"	"	"	"	"	"	"	"	"
7.	mixed	"	"	"	"	"	"	"	+	"	"	"
8	mixed	"	"	"	"	"	"	"	mixed	"	"	"
	—	—	—	—	—	—	—	—	—	—	—	—

All gal^R cultures transferred to a plate for stock purposes

Saturday 12/13

S18TK-12 - V on stability of gal-segregant after second transduction - See pg 145 repeat soon

gal-isolate		1st check	2nd check	3rd check
A-2	1.	+	+	mixed
	2.	mixed?	mixed	mixed
	3.	+	+	+
	4.	+ slow growth?	+ mixed	+
	5.	+	+	mixed
	6.	+	+	mixed
	7.	+ slow growth?	+	+
	8.	+ 1/8	+ 7/8	+ 8/8
A-5	1.	mixed	mixed	+
	2.	+	mixed	mixed
	3.	+	+	+
	4.	mixed	+	mixed
	5.	mixed	mixed	+
	6.	+	mixed	+
	7.	+	mixed?	+
	8.	mixed 4/8	+ 6/8	+ 7/8
A-7	1.	mixed	mixed	mixed
	2.	"	mixed	mixed
	3.	"	mixed	mixed
	4.	"	+	+
	5.	"	+	+
	6.	+	mixed	mixed
	7.	+	+	mixed
	8.	+ 1/8	mixed 5/8	mixed 6/8
A-9	1.	mixed	mixed	mixed
	2.	+	mixed	mixed
	3.	mixed	+	+
	4.	+	mixed	mixed
	5.	+	+	mixed
	6.	mixed	+	+
	7.	+	mixed	mixed
	8.	mixed 4/8	mixed 5/8	mixed 4/8
A-11	1.	+	+	mixed
	2.	mixed	mixed	mixed
	3.	mixed	mixed	mixed
	4.	mixed	+	+
	5.	+	+	+
	6.	+	mixed	mixed
	7.	mixed	mixed	+
	8.	+ 4/8	mixed 1/8	mixed 5/8

Bottleneck

previously (p.96) → 4 transfers = 60% mixed

here 23/40 → 3 transfers = 58% mixed

0.57 = 58

40 | 23.0

200

300

280

200

Monday 12/14

CROSSES.

811 XY-10 to obtain gal₄ prototroph to examine the ability of 811g⁺-1 and 811-g⁺-2 to transduce in minimal - do the weak gal⁺ of these revertants another allele not having sufficient power to allow for selection in EMB gal. ?

		prototrophs (+)	(−)	
EMB gal 1	both Y-10 × 811	237	8	
2.	" "	226	9	
		463	17	17/480

811g⁺-6 XY-10 to observe if this is true reversion

		(+)	(−)	
EMB gal 1.	both.	277	0	
2	"	357	0	
3.		341	1	← on check in EMB gal this colony +
		975	1	

811g⁺-7 X Y-10

1.	both	145	0	
2.	"	215	1?	
3	"	254	0	
		614	1?	w ← this col also + on ✓

811g⁺-9 X Y-10

1.	both	235	0	
2.	"	245	1?	
3.	"	280	1?	
		760	2?	w ← both + on ✓

811g⁺-10 X Y-10

1.	both	205	0
2.	"	153	0
3	"	205	0
		563	0

2062
Natural λ.

EMB gal	No. plaques 3 days
1 nothing added	4
2 0.1 1485 λ-1	12
3 0.1 K12 λ (11/23)	219
O(0) 1. no add	0
2. 0.1 1485 λ	0

Lysate sterility

0.1 of 902, 892, 750 λ into Pen - all sterile -

Thursday 12/18/52

518 transinduced gal- sinegant: and crosses -

B = 518 t 902

B7 = on prelim. testing gal2 - after 2 day

EMB gal

			12/23 least dark
1	no add	56	63
2.	0.1(750λ)-1	611	.463
3	0.1(902λ)+1	58	65
4.	0.1(892λ)-1	342	.387
5.	0.1(811λ)-3	147 ← (this prep contam)	205 ← (811λ)-9

Crosses.

	(+)	(-)
B7X902	4	390
"	9	277
	13	667 + 225 = 892

↑ not reliable 902 contam. E +

B-8 = gal2 - on prelim exam.

EMB gal

1.	no add	59
2.	0.1 750 λ-1	705
3.	0.1 902λ -1.	77
4.	0.1 892λ -1.	513
5.	0.1(811λ) -3.	173 ← this prep contam.

despite this it apparently has some activity - other wise contaminants would show up in B-15 as - checking

Crosses.

B8X902	1	137
	3	176
	1	145
	5	358

this cross repeated giving about 1/2 <1% +. Discarded by accident - involved about 10 plates with c. 200 phototrophs/plate

booked

B-15 = a double? gal2 - gal4 - (?)

EMB gal

1	no add	30	(many small.)
2.	0.1(750λ)-1	35	(" ")
3	0.1(902λ)-1	36	" "
4	0.1 892λ -1	27	" "
5.	0.1(811λ)-3	28	" " ← This prep contam.

figures

culture lp1 ?

Crosses

B15 X 902 1.	3	118
2.	3	176
	6	294
B15X892	1?	5
	0	4
	1?	9
B-15X1476	0	322

yes a cross check of this /λ-2 all neg.

C = 518 t 892

C4 = transduced by 811 and 892 - a new allele?

EMB gal

1.	no add	46	
2.	0.1(750λ)-1	286	(wet plate)
3.	0.1(902λ)-1	27	
4.	0.1(892λ)-1	190	(wet plate)
5.	0.1 (811λ)-3	83	this lysate contam.

booked

Crosses

~~C-4~~X902	2?	174
	3?	160
	5?	334
C4X 892	1	10
	1	6
	2	16
C4X1476	0	155
	0	129
	0	284

probably (+) caused by contam. in 902 culture

C9 = as C4

EMB gal

1.	no add	72
2.	0.1(750λ)-1	506
3	0.1(902λ)-1	91
4.	0.1(892λ)-1	397
5	0.1(811λ)-3	190 ← this lys. contam.

Crosses.

C-9 X 902	1	165
	0	132
	1	297
C-9 X 892	0	0
	1	5
	1	5
C9 X 1476	0	108
	0	117