4/1 Received cultures of (8:30 AM)

W3/16 pr⁻ – for pen. mm

K-12 – λ prop.

1655 – for transduction studies

Culture of K12 for NZ phage effect (Boyd)

K-12 LL?	Tube.	1	2	3	4
↖ λ dil		1-10	1-100	1-1000	1-10000
ml K-12 overnite culture		1.0	1.0	1.0	1.0
	Pen.	10	10	10	10

1655 + Pβ2

16 colonies picked from streaking of 2/20 – tested against 1655 – all appear to be phage free 4/2

In bath at 9:45

at	10:15	11:30	2:10	3:00	
	granular appear	granular appear	turbid	turbid	over-all turbidity like control
	"	"	"	"	"
	"	"	"	"	"
	"	"	"	"	"

discarded

1655 – Transduction

tube	1	2
(11:30 AM) 1655 cult.	5.0 ml	5.0 ml
λ Lb	0.5 ml	–

Centrifuged – resuspend in Saline (5.0 ml each) ~~+ 10 ml~~

~~Buffer~~ + ~~Citrate~~ Buffer soln. (PF stock dil. 0.1 + 10 ml)

due to exposure to broth

Plate 0.1 ml on D(0)

4/2 – plate with phage has heavier background than without.

4/3 – " " " " "

discarded

K-12 L7

Incub. Culture 1:15

centrifuged resusp in Sol – used 35 sec

Incubation at 1:45

cleared at 4:00

Eliminate requirement for MgSO4 buffer in resusp. use Saline.

Wg16 Pr- Pen mm

Plated 1-10 EMB(0) - Colonies

and -

Wg14 pr- trypt- X 58-161

grown overnight in Pen in mixed culture.

plated out - D-0 (two plates)

4 colonies on 1 plate

5 colonies on other -

K-12 on agar -

K-12 cells scraped off EMB(0) to Pen
Aerated 8:15 out at ______
Centrifuge resuspend in Saline - irradiate after dil. to 10³ cells/ml

Dose	Count/ml	Phage/ml (1655 0.5ml + 1.0ml 1:5)		Survival	K-12 as plaques
0	256x10 = 2560	5x3x10 = 150	0	1.0	0.06
5	195x10 = 1950	11x3x10 = 330	160	0.76	0.13
10	123x10 = 1230	39x3x10 = 1170	1020	0.48	0.46
15	76x10 = 760	52(?)x3x10 1560	1410	0.30	0.61

1681 - Overnight culture - retested for rad. resistance and lum(?).
Culture aerated (1.0 + 10ml Pen) 8:15 - Centrifuged
Dilute to

1681 cross streaked on 1655 - no plaques observed

Dose	Count/ml	Phage/ml	Survival
0	35	0	1.0
10	21	0	0.60
20	19	0	0.54
30	7	0	0.20
40	8	0	0.23 est

Is this culture lysogenic for ϕ82?

0.54
35 | 19.0
17 5
1 50
1 40
100

W9 14 pr⁻ Pen survivors -
replicated to D(0) +Pr and EMB(0)

4/7 of 40± colonies picked and replicated 1 failed to grow on D(0) + pr - W914pr⁻ transferred to broth and D(0) + pr + trypt.

48 additional survivors picked

[0.1 ml (1%) + 10 ml D(0)]

4/8 Aerated culture of W 267 in D(0) + lac (8:30 AM)

1.0 ml overnight aerated D(0) + lac culture + fresh D(0) + lac

Centrifuge - resuspend saline · dilute to ca. 10^3 cells/ml

~~Dose~~	Counts EMB lac
0	1.
	2.
	3.
10	1.
20	1.
30	1.
40	1.

discarded apparently overgrown with lac+ prototroph

W518 λ^s

Aerated culture from overnight culture in Pen (8:30 AM) (1.0 ml + 10 ml) Phage/cell ≠ ca 1.0

Aerated culture from overnight culture in Pen (ca 1.5 x 10^9 cells/ml)

Add 0.1 ml λ (ca 10^9 particles) to aer. cult (ca 1.5 x 10^9 cells/ml)

Incubate ~~20~~ 15 minutes.

		Plate on EMB lac
und.	–	~~solid growth~~
Dilute 1-10	–	many colonies - all lac-, some pinkish showing lysis of cells
1-100	–	" " " " " " " " " "
1-1000	–	few " " " " " " " "

W1931 $88z^+ \lambda^s$ - Ireod

Aerated culture from overnight under. 1.0 + 10 ml Pen (8:30 AM)

Centrifuge resuspend in sal. dil to ca 10^3 cells/ml

Dose	Count EMB lac	Survival
0	252	1.0
10	176	0.70
20	86	0.34
30	68	0.27
40	64	0.25

(more resistant than K-12)

4/9 Wed.

Induction of lysis in K-12 by cold shock?
Aerated culture 0.5 + 10 ml – 10:30 AM to 1:30
Culture ca 5×10^8 cells/ml

Pre-shock
Cell titer $10^2 - 10^4 - 10^6$ → plate 0.1 ct 300 = 3×10^9
phage titer → 1.0 ml + 1.0 ml 518 $\xrightarrow{0.1}$ plate 2 = 2×10^7

Post shock
cell titer $10^2 - 10^4$ ~~-10^6~~ → plate 0.1 ml ct 3000? 3×10^8 (?)
phage titer $10^2 - 10^4 - 10^5$ → 1.0 ml + 1.0 ml 518 $\xrightarrow{0.1}$ plate 4 = 4×10^6

Results not conclusive either way.

10:30 AM → 1:30

1831 Centrifuged aerated cult. resusp in saline
Dilute to ca 10^3

Dose		Survival
0	242	1.0
10	138	0.57
20	33	0.136
30	15	0.062

U.V. resistance similar to that of K-12

1831 + F+2 cross streaked on 1831 — no reaction

1831 + 8F2 on 1831

Dose		Survival
0	1105	1.00
10	589	0.51
20	353	0.317
30	149	0.13

U.V. resistance appears higher than K-12

H267 – Original culture.
Streaked on EMB / EMS to recover diploid

Discarded
Start again

W916 pr survivors replicated to D(0) 48
none of course – ... on D(0) + pr

4/10

Wq16 pr survivors (see previous attempt) 48 in no
replicated to D(0) + pr -
1 failed to grow - transferred to slant
for later identification - Wq16 pr x (2)

K-12 Repeat on induction of lysis in K-12 with cold.
Vigorously growing culture (two transfer in aerated Pen)
Sampled immediately and placed in ice bath c̄ aeration 10 min
Sampled 10 min - returned to 37°C

Immed. Cell count - 86
" Plaque " - 3

Post treat cell count - 116
" " plaque count - 1

no evidence of cold shock
sensitivity to cold shock
no evidence of induced
lysis.
no growth lysis [illegible]

Wq14 (Pr⁻) Aerated culture - washed twice in saline
ca 10^5 cell added to:
D(0) + pr + trypt + pen (0.2 ml) - plated out
D(0) + pr + trypt - growth

undil. = 14
1-10 = 0

4/12
Wq14 (Pr⁻) Survivors of Pen run of above
replicated to D(0) + Pr
2 of 14 colonies possibly diauxotrophs
picked and streaked for further replication

4/14

Aerated cultures W67 and 1177 started 8:15

H267 Irradiation - culture in D(0) + Lactose 36 hours -

dilute to 10^3 cells/ml

Dose	Count EMB		Phage T7A 165⁻ (0.5ml + 0.5ml H67)	Survival
0	341 316 365	av 10 bac/plate	0	1.0
10	307	10 bac	12 · 2 = 24 (7%)	0.90
20	187		—	0.55
30	98		—	0.29
40	60		84 · 2 = 168	0.18

Wg 14 pl⁻ Pen survivors - 2 possible diauxic - 10 colonies picked from streakings of each - streaked on EMB-D

replicad 4/15 to D(0)+Pr, EMB blue.

4/16 - streaks same as before - apparent reversion in replica ⁘ ● - Discarded

D(0) EMB

Lawn of W67 + 1177

Cells centrifuged - resuspended in H_2O (10 ml)

Shook 30 sec

10 ml + 10ml Pen

Incubation with air 1:30

clearing at 4:05

partially clear following morning

4/15

Aerated cultures of Wq14 pr⁻ for plan run — 10:00 AM
W1628 for serum "
W1689 "

W1628 titer and survival

aerated culture above - dil to 10^3 cells/ml

Dose	Count/plate	Phage/plate (0.5ml + atcc 1661)	Survival
0	338	0	1.0
10	259	—	0.77
20	107 (235)	143·2 = 286	0.32
30	40		0.12
40	17	—	0.05

Wq14 Pr⁻ Plan run -

aerated culture - centrifuged - resuspend in saline - centrifuged, resuspend in saline.

add 0.1 ml to:

D(0) + Pr + trypt + 0.1 phen -

" " " " -

H267 - culture in broth (from H267-I) 2.0 ml + 5.0 ml Pr (11)

Incubate 60 minutes.

Centrifuge, resusp'd in H_2O - mod. Tris - add 5 ml Pr

Incubate - 2:45 PM

partially clearing 4:00

" cleared next morning.

Wq14 pr⁻ Plan run -

4/16 Aerated cultures started

1661 }
1662 } 8:15 AM
1736 }

Wg 14 Pen survivors
plated to EMB lac. – undiluted
plate 1 – >1000 – 40 colonies picked, tested – all gal
2 – " 4/19, 4/20
3 – "

H267 Culture #2
Dilute to ca 10^7/ml

Pen +	Count/plate	Pure lac⁻	Seg.	Survival
	306	12		1.0
0	317			1.04
5	271			0.89
10	259			0.85
15	221			0.72
20	144			0.47
25	86			0.28
30				

~~λ-titers~~ ~~EMB-01~~ titer
~~λ-K-12λ~~ ...

H267	— 10^1 → 0.5+0.5 1661 → 0.1	2	4×10^7
W1177	same	>134	$>1.3\times10^9$
W67	"	0	$<2\times10^7$

Incub. of cultures – centrif. resusp in sal. – irrad. 35 sec. add 3.0 ml + 100 Pen – incubated
plated on 1661/2 – no plaques by itself
after 2 hours turbid → W1661 – ~~[illegible]~~ ← no plaques on 1661 ~~[illegible]~~ incub. of 1661
clearing – W1662 – 40–50 × 10^7
clearing – W1736 – 50–100 × 10^7

			4/20	4/21	4/22
4/17	1736 –	2 plates	no(+) colonies	=	ca 50 papillae(–)
	1736 + λ (0.1 ml) 26 K-12	each	no⁺ colonies	=	ca 50? papillae (–)(+)?

incubated

4/20
H267 – Prep #2 Plated on EMB-maltose
dilute to ca 10^3 cells/ml – irradiate, counts cells, plaques

Mal Seg'n (–)	%	Dose	Count/plate	cells killed	Phage/plate (0.5ml + 0.5ml 1485) → 0.1ml		Survival
23	(5)	0	461	0	3 · 2 : 6	(1.2%)	1.00
Δ 39 62	(14)	5	445	15	4 · 2 : 8	(1.8%)	0.97
49 72	(21)	10	342	119	7 · 2 : 14	(3.0%)	0.74
65	(24)	15	274	187	38 · 2 : 76	(16.5%)	0.60
66	(25)	20	260	201	60 · 2 : 120	(23%)	0.56
85	(43)	25	196	265	140 · 2 : 270	(59%)	0.43

4/21
Wg14 pr – Pen survivors – (see previous)
(no auxotrophs among 40 colonies picked)
on 1 EMB lac plate a pink colony – picked and restreaked on EMB lac
(a lac+ Wg14?)

50 additional colonies picked
on each of the 3 survivor plates – 3-4 more opaque, raised colonies – picked and examined.

4/22
H267 above –
5 mal– colonies picked from each irrad. unit.
and streaked on EMB lac to find charact.

0 5/5 lac–, 1/5 appears mixed upon basis of opacity.

5 5/5 lac– · 0/5 mixed

10 5/5 lac–, 1/5 mixed on opacity of colonies

15 5/5 lac–, 1/5 mixed on opacity of colonies

20 5/5 lac– · 1/5 mixed on opacity of colonies

25 5/5 lac–, 1/5 mixed on opacity of colonies

4/22

K-12 L8 Two 10ml Penculture (10ml + 10ml Pen)
aerated ~~3 hours~~.
Washed & suspd. in saline - treated 35 sec.
Add 10ml Pen - incubate with air -
Inc. 2:30 PM. out ca 5:00 clearing.
Centrifuged on following morning - one appears viscous — K-12 L8 (viscous) 1
K-12 L8 (non visc) 2

Continuation of Transduction of W1736 by L6 of K-12

4/23

	1.	2.	4/25 1.	4/25 2.	Ave
Plates with 0.1ml Pen	83 colonies* (14 lac+)	91 colonies (4 lac+)	110 lac+	132 lac+	123 lac+
Plates with 0.1ml L6 / K12	90 colonies 17 (lac+)	70 colonies (28 lac+)	152 lac+	151 lac+	152 lac+

*really papillae on heavy background growth
incubation continued.

W914 pr- second step -
1. All 40 colonies picked after Penicillin selection
grew — discarded.

2. of the lac+ W914 pr- two colonies picked and streaked EMB lac.
on 4/22 - 1st day doubtfully lac+
on 4/23 - 2nd day strongly lac+
#1 smooth glistening raised
#2 rough dry, flood sectoring appearance ● - segregation of lac-?
delayed fermentation?

lac+ #1
lac+ #2
lac+ #3
lac+ #4

Both transferred to agar slants. from single
typical colony.

3. papillating and lac+ colonies tested in D(0) + pr + trypt } ten colonies in all
D(0)
- all grew in supplemented and not in D(0)
- on the original streak plate - 3 colonies lac+ - appeared less + on second day
after refrigeration - 2 appear to be the same (solid light purple) one mixed.
one of each type transferred to agar slants
→ lac+ #3 solid
→ lac+ #4 mixed

opaque mutant(?) forgotten -

Cultures started
1736 - transduction repeat
1485 - cultivation
1736 - [illegible]

4/23 Wednesday-

Titration of K-12 L8-1 and K-12 L8-2

dilute $10^7 \xrightarrow{0.5ml}$ + 0.5ml 1485 $\xrightarrow{0.1ml}$

	plaques/plate	dil.	titer
K-12 L8-1	105	$2 \cdot 10^8$	2.1×10^{10}
K-12 L8-2	152	$2 \cdot 10^8$	3.0×10^{10}

- Aerated culture of 1932 started 9:50 - 1.0ml + 10ml Pen. Out at 1:05 for Lwoff and survival. - dil to 10^3 cells/ml: irrad.

Dose	EMBlac Count/plate	Phage/plate	(0.5ml + 0.5ml 1485) TSA	Survival
0	107	0 0	0/107	1.0
5	92	0 0	0/107	0.86
10	60	11x2=22	22/107	0.56
15	(65) poor plate	24x2=48	48/107	-(0.61)
20	33	53x2=106	106/107	0.31
25	8	64x2=128	128/107	0.075

mix up here - probably sampled time at 10-25 therefore 15, 20, 25 doses are really 10, 15, 20

U.V. Resistance similar to K-12

- 1736 transduction - on EMB lac

1736 cells from unaerated culture -

λ from K-12 L8

Plate (EMBlac)	λ'	1736 cells	4/24	4/25	4/28 many (-) papillae	
1	0	0.1	no papillae	papillae appearing	32+ papillae	0
2	0	0.1	"	"	26+ "	0
3	0.05	0.1	"	"	189+ "	186
4	0.1	0.1	"	"	274+ "	271
5	0.2	0.1	"	"	372+ "	361

gal4-

$\frac{25 \times 10^3 \text{ galt/ml}}{220 \times 10^{10} \lambda/\text{ml}} = \frac{1}{10^7 \lambda}$

- ~~Irradiation Lwoff of 1932 - aerated culture 3 hours. dilute to 10^3 cells/ml with saline.~~

~~Dose~~	~~Count/ml EMBlac~~	~~Phage/ml (0.5ml + 0.5ml 1485)~~	~~Surv~~
0			
5			
10			
15			
20			
25			

W1821 } aerated cult in at 7:15 1ml + 10ml Pen
W1682 }

Thursday
4/29

(1.0 ml + 10 ml Pea)

Aerated cultures of 1682 and 1831 started 9:15 AM

- Irradiation survival, and burst of 1682 ($\lambda^+ 882^+$)
  Aerated cultures.
  Dilute to 10^3 cells/ml (Plaques = 0.5 ml + 0.5 ml sens. cells) → 0.1 ml

Dose	Col/Plate (LB)	Plaques on 1485 (= $\lambda^+ 882^+$)	on 1831 (= 882)	Survival	
0	134	0	0	1.0	Slightly more resistant than K-12 1/3
5	125	—	—	0.93	No lysis effect observed in the gross (see below) or by plate for either λ or 882 - is λ really present?
10	83	—	—	0.62	
15	50	0	0	0.37	
20	33	0	0	0.25	
25	16	0	0	0.12	

- 1682 for gross burst obs. - cells remaining from above centrifuged, resusp in Sol. - mod. 25 seconds. add 10 ml Pea aerate.
  in - 1:10 PM
  no clearing 4:00
  no clearing following morning.

- 168^2 $\lambda^+ 882^+$ cross streaked on 1831 λ^+ for the purpose of determ presence of 882 - Plaques and lysis of 1831 obs. indicating 882 present.

4/25 Friday

- Aerated cultures of 1485 and 1831 started 8:30

1 - Survival of 1485 λ^s — culture diluted to ca. 10^3 cells/ml c̄ saline (out at 10:45)

Dose	Count/plate EMBlac
0	20
5	46
10	50
15	2
20	15
25	12
30	7

This exp of no value - presumably due to the frequency or variability of EMBlac plates used - they have preceded 4/24 - avoid in future.

- Survival and kickoff of 1831 λ^+ - aerated cult. diluted to 10^3 cells/ml

Dose	Count/plate EMBlac	Plaques on 1485 (0.5 ml + 0.5 ml 1385)
0	63	1×2 = 2
5	41	–
10	27	–
15	5	40×2 = 80
20	3	24×2 = 48
25	5	28×2 = 56

not a good exp. can be said that 1831 undergoes kickoff -

- Streak - 1682 colonies across 1681 in order to determine if [illegible] is present -
  5 colonies picked from 0 plate of 4/24 irrad.
  none showed evidence of ability to lyse 1681

+ 4267 - Culture #3 dilute to 10^3 cells/ml - irrad. for Survival - also to attempt isolation of reconstituted lys.

Dose.	Counts/EMBlac plate	S.F.
0	192	1.0
5	134	0.70
10	27	0.14
15	19	0.10
20	4	0.02
25	2	0.01

unusual survival curve - sensitivity

more sensitive than K-12

Monday 4/28

λ transduction of 1736 of previous page
papillae recorded in original page.

		4/29	4/30	Replicated to galP 5/1
10	papillae (+) from control, picked, streaked EMB-lac	7/7 lac⁻	7/7 lac⁻	6/7 gal+
17	" " " rest of plate " " " "	17/17 lac⁻	17/17 lac⁻	16/17 gal+

↑ exceptions may be due to heavy contam with bakgrd cell of original plate.

4267
5 (+) centers from previous used. picked and streaked on EMB-lac, EMS-lac

streakings are lac⁺ on EMS lac
either mixed or segregating on EMB lac

Cultures
1415
1736
W919 pr. hyp

Tuesday 4/29

Wg 14 pr-trypt-
diluted and plated out for lac+ revisions -

	plates EMB lac	4/30	5/1
10^6 →	#1	ca 150 (-)	→ 4/30
	#2	"	"
	#3	"	"

- W1736 - irrad - Lwoff, and examination of plaques for presence of phage other than λ
- aerated culture, dil to ca 10^7 cells/ml

Dose	Colonies/EMB plate	Phage (0.5ml + 0.5ml 1485)
0	18	2
5	20	—
10	6	2
15	5	3
20	7	8
25	3	7
30	5	—

insufficient col count - appears odd in addition

- H267 Repeat on survival of prep #3

Dose	Colonies/EMB lac plate	SF.
0	296	1.0
5	168	0.57
10	106	0.36
15	92	0.31
20	22	0.07
25	4	0.01
30	6	0.02
35	2	0.007

odd? appears to check previous run with this prep re sensitivity over grown c lac+ prototroph?

lac- col.	ag. col.
8	48 (?)
46	74
32	46

- Penicillin runs

Wg 14 pr-trypt- → Pen aerated culture → washed → D(0) + pr + trypt aerated cult → add 10^6 cells/tube

tube 1 - Pr + trypt + D(0) + Pen (0.2ml) - 4/3. no growth apparent
2 " " " - showed no growth - why?

Vg 16 → Pen aerated culture → washed → D(0) aerated cult → add 10^6 cells / tube

tube 1 D(0) + Pen (0.2ml) — 4/30 no growth apparent
2 D(0) — growth

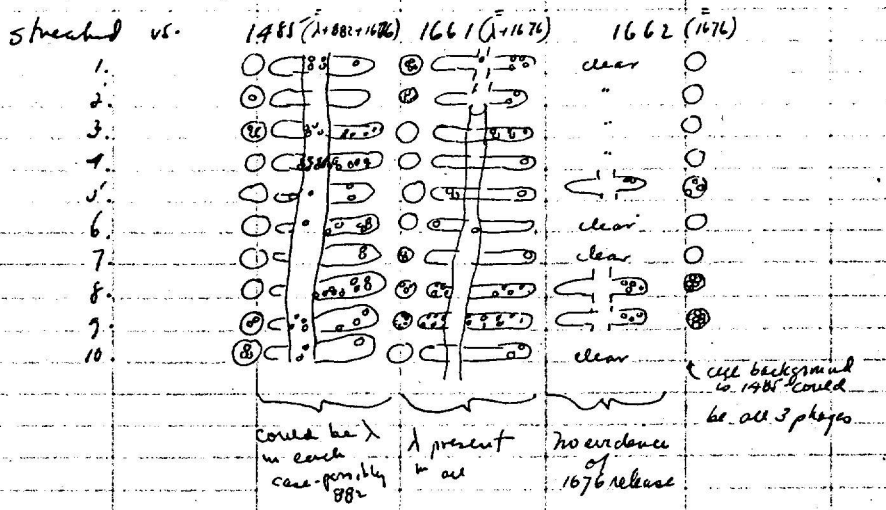
W1661
W1662
1485

Wednesday 1/30

- Loc + papillations from the last attempted transduction of 1736 replated to gal EMB.
- Plate out

		NSA
Wg 14 pi - trypt -	undiluted	>
	1-10	>
	1-100	150-200 col (was something looking in bar tube? - control pulled to prev
Wg 16	undil.	16
	1-10	2
	1-100	—

- Plaques following 1736 mod.
10 pulled to pen broth (0.2ml) - numbered



Thursday 5/1

- titer of K-12 λ LT

  dilute 10^7 plate 0.1 ml $10^{8.2}$ 1485 → 78 = 1.6×10^{10}

- replica Wg 16 pen survivors to O(0) on 12/14 failed to grow } indicating
  on 1/10 2/2 failed to grow } auxotrophy

- store Wg 14 pr-trypt - until O(0) + supplements can be made -

- λ from K-12 LT + LP pooled and filtered - giving aimed 50-60 ml
  after volume
  dilution 3, 4, 6, (7) a/ml → 427
  titer = 4.3×10^{10}
  or if dilution error 4.3×10^9

- K-12 - day old aerated culture in O(M) + Lac (0.1% ml) - diluted to 10^3 cells/ml - used.

Dose (sec)	Col/EMB Nat plate	Plaques 1485 (0.5 ml + 0.5 ml 1485)		Survival	K-12 as plaques = %
0	373	–		1.0	–
5	282	–		0.76	–
10	234	–	total	0.63	–
15	197	89·2 = 178	375	0.53	0.48
20	149	–		0.40	–
25	108	138·2 = 276	384	0.29	0.74
30	86	–		0.23	–

- H-267 as K-12 above.

Dose	Col/EMB nat. plate	Plaques 1485 (0.5 + 0.5 ml 1485)		Survival	K-12 as plaques %
0	285	–		1.0	
5	277	–		0.97	
15	168	–	total	0.59	
25	116	86·2 = 172	288	0.41	0.60
35	59	116·2 = 232	291	0.21	0.82

Cultures.
776 - 582 (~~582~~ 585)
1485
H 267 from H 267 #1 O(M) + Lac
K-12 in O(M) + Lac

~~Saturday~~ Tuesday 5/6

- Aerated cultures 8:00 1503 λ^+
  1808 Wg 31
  1959 Wg 31 λ^+
  K-12

- K-12 Phage plating on 518 - For possible recovery of potn phage and irradiated cell

Dose	Count/EMB lac Plate	Phage/518 plate (0.5+0.5 ml 20)	total phage+cells	Survival	%K-12 as plaques
0	206	—		1.0	—
5	79	—		0.38	—
10	53	58·2 = 116	169	0.26	0.56
15	27	55·2 = 110	137	0.13	0.53
20	18	68·2 = 136	154	0.09	0.66

- 1954 = Wg 31(λ^+) - Observation to see if λ is knock-able in different strain

Dose	Counts/EMB lac Plate	Phage/518 plate (0.5+0.5 ml 518)	total phage+cells	S.F.	1954 as plaques
0	216	—		1.0	—
5	163	—		0.76	—
10	102	52·2 = 104	(206)	0.47	0.48
15	8	120·2 = 240	(248)	} 0.046	1.0
20	10	107·2 = 214	(224)		1.0

- 1972 = $\lambda^+ \Omega^+$ Examination for knockoff and Recombination of λ and Ω

Dose	~~[illegible]~~ on EMB-lac	Plaques on 518 (0.5+0.5 ml 518)	Plaques on 183
0	8	—	—
5	8	—	—
10	2	10·2 = 20	—
15	0	18·2 = 36	—
20	0	11·2 = 22	0

No apparent reason for low cell no. - apparently large amt of free phage (= λ) in cult. turbidity was approx to [illegible]

- Transduction of 1736 - Gal
  Unaerated overnight cult of 1736 in Pen
  + λ on gal and Lac plate = 0.05 ml 1736 added/plate.

Not done?

#	EMB lac Plate	λ added	EMB gal Plate	λ added	5/8 Papillae
1	1	0	1	0	
	2	0	2	0	
	3	0.05	3	0.05	
	4	0.1	4	0.1	
	5	0.2	5	0.2	
	6	λ alone 0.1	6	λ alone 0.1	

- 2 Plaques 882/1485 picked to lightly inoc. aerated cult of 1503 - incubated overnight - turbid following day

- Cultures 1898 } rad. sens. (518)
  1653 }
  K-12 5 yr
  11367 (from #1) 5 yr

Tuesday 5/6

– Survival of 1503 - λ^s - derived cell from overnight lot. dil to 10^3/ml

Dose	Cfu/EMBlow plate	Survival
0	311	1.0
5	231	0.74
15	114	0.37
30	28	0.09
45	3	0.0097

Wednesday 5/7

- W5110 UV Examination of u.v. resistance - Aerated culture - del. to 10^7 cells/ml

Dose	Col/Eosin Blue Plate	Survival
0	327	1.0
5	186	0.57
15	91	1.28
30	40	0.12
45	8	0.024

- W1898 UV Examination u.v. resistance - same as above -

Dose	Col/Eosin Blue Plate	Survival
0	100	1.0
5	88	0.88
15	62	0.62
30	11	0.11
45	4	0.04

- W1655 UV Examination u.v. resistance - as above

Dose	Col/Eosin Blue Plate	Survival
0	74	1.0
5	48	0.65
15	47	0.64
30	21	0.28
45	24	0.32

don't understand

- K-12 survivors?) from Tuesday continued — D(0) plates

1485 u.v. sec
1736 hours
1177 hours

Thursday 5/8

- Transduction of W112 Lac⁻ λ from K-12

EMB Lac⁻ plate	λ from K-12	λ from K-12 boiled 10 min	W112 cells + unaerated culture overnight culture	# papillae 5/11
1.	—	0.1 ml	0.1 ml	ca. 200
2.	—	0.1 ml	0.1 ml	ca. 250
3	0.1 ml	—	0.1 ml	ca. 300+ *
4	0.15 ml	—	0.1 ml	ca. 250+ *
5	0.2 ml	—	0.1 ml	ca 300+ *
6	λ from W1177 LL 0.1	—	0.1 ml	ca 300+

* ~~white~~ plaques (50+) also

Original cult. may be cont. - papillae → on these plates - not really (+) Some pink with zone as of contaminated & plaques and lysis 5/11 (+) No papillae

- Transduction of W1736 gal⁻ EMB gal⁻ plate (unaerated cult.)

	λ from K-12	λ from K-12 boiled 10 min		Gal+
1.	—	~~0.1 ml~~	17	
2	—	0.1 ml	22	
3	0.1 ml	—	324	3.0×10^3 +/ml
4	0.1 ml	—	345 (1.1/10^{-7})	$>2.0 \times 10^{10}$ /ml
5.	λ from W1177 0.2 ml	—	Thin plated dried up	

λ from LL probably

- λ in 1736, 1177 } aerated cult. centrifuged - resusp in 10 mM cal. mal. 40 sec. ~~Boiled~~ 10 min. Ice - incubate with aer 2:20 PM

- K-12 survivors in D(0) from previous - titers of plaque + cell survivors
  - mal. of K-12?
  - centers of 101 plaques picked and streaked on D(0) agar
    - on 4/8 1 streaking shows good growth - incubator contaminated
    - 4/9 1 " " " " "
    - 2 " show single colonies

5/9 Friday -

- Transduction of W1736 on gal with λ from K-12 page 69

Plate	λ added	no gal+ papillae	
1	0	38	25
2	0	12	
3	0.05 ml	153	
4	0.1 ml	302	
5	0.2 ml	620	

Gal 4 -

$\frac{2.75 \times 10^3 \text{ t/ml}}{220 \times 10^9 \text{ λ/ml}} = \frac{1}{1.3 \times 10^{-7}}$

why the diff.?

Transduction W1736 on Gal+ with λ from K-12 page 69

Plate	λ added		
1	0	201	185
2	0	171	
3	0.05 ml	262	
4	0.1 ml	344	
5	0.2 ml	600	

Should be noted that papillae counts are lower than real value since counting is difficult and many small papillae are plugged -

- Plate 1 of 1736 Transd on Lac - 25 papillae picked to gal 26 grew - 24/26 were gal -

- Plate 5 of 1736 transd. on gal - 98 papillae picked to Lac - 22 grew 22/22 were Lac -

→ this finding suggest that papillae on EMB lac contrd are different from papillae on EMB gal - that the gal transduction effect did not show appear as a release of integrative inhibition - against gal plus colony

Lac plates were discarded unfortunately -

Monday 5/12

- K-12 Synthetic culture #2 - dil to 10^3 cells/ml

Dose	Count/EMB Complates	Survival	
0	330	1.0	
5	220	0.67	
15	211	0.64	same resistant than parent
30	155	0.47	
45	83	0.25	

- H267 Synthetic culture #4 dil. to 10^3 cells/ml

Dose	Count/EMB Plate	Survival	
0	215	1.0	different from parent
5	222	1.0	
15	148	0.69	
30	50	0.23	
45	14	0.065	

- Titration of K-12 λ L7 + L8

dil	0.05 + 0.5 ml 1415	
10^8	67	$67 \times 2 \times 10^8 = 1.3 \times 10^{10}$
10^8	68	

-

Tuesday 5/13

- Titer of 882/1485 on 1485

dil. $10^2 \rightarrow 0.5 + 0.5$ 1485 → no plaques
$10^4 \rightarrow 0.5 + 0.5$ 1485 → "
$10^6 \rightarrow 0.5 + 0.5$ 1485 → "

- Transduction of Sonnei a Glycine in 1678

	D(0) plate	1678	heated λ	λ	5/14	5/15
air	1	0.1	–	–	colonies around spot of deposit of pr	contam.?
+ pr	2	0.1	0.1	–		3 col
	3	0.1	–	0.1		3 col

* unaerated culture

- Titration of L2 of 1736 - from usual exp. - contr. rapid sed, usual 35 etc. incubated 6 air overnight. Nearly clear but

dil $10^8 \rightarrow 0.5 + 0.5$ 1485 → no plaques

- Transduction of 1736 in Lac and Gal (done on Monday 5/12)

Gal EMB plate	1736 Aerated cult ca 5×10^8 cells/plate est. λ from K-12 C7416	heat λ from L6	1736 Unaerated cult ca 10^8 cells/plate est. λ from K-12 C7416	heated λ from L6
1	0	0.1	0	0.1
2	0.1	0	0.1	0

Papillae in Gal 1 unaerated 5/15 : 25
Gal 2 unaerated 5/15 : 36
What happen?

Gal/aerated 5/15 : 27
Gal/aerated 5/15 : 425 <

9.3×10^{-2} = 2
$2. \times 10^{-1}$ λ
$\frac{1}{5 \times 10^6}$

Lac EMB plate	Unaerated 1736 heated λ (K-12 L6)	unheated λ (K-12 C7416)	Papillae (-) 24 hrs (+) 5/15
1	0.1		121
2	0.1		150
3	0	0.1	182
4	0	0.2	218

Little or no effect of λ in unaerated cultures of 1736 - fairly large effect in aerated cultures. Meaning not clear. Incubation of Lac plates continued to increase size of papillae to make picking more successful.

Thursday 5/6

- transduction of W1736 Leu - aerated culture (1.0+10.0 ml Pen) from 2 day unaerated culture - Cells centrifuged respd in saline

O/O Plate + TB1	1736 cells	heated λ (L71cf)	λ	colonies 5/17
1	0.1 ml	—	—	0
2	0.1 ml	0.1	—	50 (contam?)
3	0.1 ml	0.1	—	12
4	0.1 ml	—	0.1	0
5	0.1 ml	—	0.2	1 col
NSA plate 6	—	—	0.1	0

-

H267 #4 Dilute to 10^4 saline - used 5 seconds - Add 1.0 ml + 10 ml (Pen) fac. Incubate with air at time 0

	Time	Plate on EMB Mal	Pure Mal⁻ col	No total colonies per plate	Dark Mal+ colonies
Thick plate reaction to air	Pre-mod 0' (Ce 10⁻¹⁰)	1	10	168	5
	Post-mod 0'	2	8	162	17
11:00	60'	3	29	256	14
11:30	90'	4	22	268	10
12:00	120'	5	23	302	16
12:30	180'	6	27	513	36

- Ice box cleaned up.

- Culture in vial min. of 1832 Pen^r received from J.L. to ~~[illegible]~~ reisolated - Pen broth inoculated - } 1 to PG, 1 to J.L. 5/17

- Wg 16 auxotrophs from page 68 picked to EMB plate, preliminary to determ requirements

✓ - Gal papillae of 1736 Transduction of Page 74 - from aerated cult + λ 35 Picked to EMB lac for reidentification

5/17 all grew slowly - all appear lac⁻, most spots are sectored light and dark (opacity) - some appear to be giving pink papillae.

instability of W1736

- Wg 14 pr⁻ trypt⁻ lac⁺(?) col - streaked out

5/16 slight pinkish

5/17 dark red - probably slow lac⁺

Slant made from single col -

Wg 14 pr⁻ trypt⁻ lac^sl.