A. 58-161 x W1777 in EM5 lac.

<table>
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<tr>
<th>#</th>
<th>lac-</th>
<th>lac+</th>
<th>Xgal</th>
<th>M&amp;L-</th>
<th>M&amp;L+</th>
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Close lac+ to W1777.
lac- to W177 lac+ (W-1372) = W139 f x VI10 f.

12x: 47+ : 37-
14x: 8+ : 39-
1x: 110+ : 31-

B. Also W1778 x W177.
1-3: M&L- lac- 1/20 lac-115/20 M&L EMS

C. 58-161 x W1022
#9 M&L+ all others M&L-
#6,10 lac- all others lac-

D. 478 x 677
B: 26 M&L+ fecal per S.
25 S. 1 S. (linkage datum)

Check above: 6 M&L- M&L? lac? lac- M&L+ has lac+ (Eu?) Reproduce! H268
11/30/50.

Repeat W 478 x 0177 mEM5 M4. Isolate possible M4 + and check. (Plates have ca 30% + to 26/80.)

a. 11/2 30°C + taste: Reisolate Exs M4 + from gross streaks in EM5 M4. *Note: * + = streak on Kan A + gross streak. m EM5

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<th>Xyl</th>
<th>Mal</th>
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</table>

20 diploids M4 +, all are Xyl +. Gene lac + lac -

2.3
24
25
26
27
28

See 799
lac+ - organisms: 11, 12, 18: in EMS lac, these populte
show lac-. In EMS lac:
11: + trans. obtained
12: - and vy in EMS lac.
18: EMS lac +.

8 lac -, (+)
13 lac -, (+)

EMS lac: purt+? (Error in labeling?)

re-reading.
11/29/41/50.

8) Resolated from single MTL + colony. Streak on EMS + lac, Malt +.

11/50. #2 shows several papillae on both lac, Malt. Furry.

#6.1 cool. pap. on Malt. 11/2. All MTL+, lac+, Malt+...

In EMS lac, H268 slowly turns very dark (v. slow lac+ ??)

3 (1) MTL - Malt + 7P outbreak

4 (2) 11 Malt +

6 (1) MTL + Malt +

7 (2) MTL + Malt +
October 26, 1950

10/26  A W176 x W1177  B_{2} x {lac- mel-xyl-}  on EMS Xyl

10/28  B: EMS lac

25  14
40  19
55  33

No yield on EMS Xyl.

10/29

1 colony A.  Tested on EMB, EMS Xyl.

B: 20 picked: 4 Xyl+ 16 Xyl- (no!) Nov.

Reagent in EMS MH.

A) 50 MH+ streaked in EMB MH; Xyl.  No Xyl, ...

Replicate further colonies

1/7  52 picked, streaked in MH: 3 very likely MH+ 1-3

H\(^{+}\)  Xyl  Mal
1  +  +  +
2  +  +  -
3  +  +  +
4  +  +  +
5  +  +  +
6  +  +  +

1  3  4  6

778-2: MH+ verified from EMS to EMB MH-

Reversion tests: H258 261 on EMS lac, Mal

258  8 distinct survivor lac+

1:  each lacv MH+

H261 5:  each lacv MH-

H261 2:  Malt+ (no Xyl).

lax-1:  Mal-1a
October 26, 1950.

A W1325 x W876  Hist: supply  EMSlac, Mal
B " x w828  Hist: plump
C " x W836  Helps, hist

Mal - +
A 81 26
C 80 38

Lac - +
A 143 8
B 69 27
C 174 25

Pick +, - to EMS lac for linkage test.

lac - lac +
A Mal - 25 3
Mal + 19 4

A Mal - 20 2
C Mal + 18 4

No linkage Mal to lac

Ca 70 feet to each. Detect likely lac +. (I.e., from this stock: red-wight lac 575)

A
1. lac +
1' lac -

B
1. lac + Mal -
1' lac + Mal -
2. lac +
2' lac -

C
11. + + +
12. + + +
23. + + +
34. + + +

There are heterozygotes.

H might be linked to A.
November 1, 1953.

W67 x W1177. Mix suspensions (20ml x 1.5)

Plate 1 ml E4S tar.
a = no treatment
b = 10 sec 4V 50 cm.

c E4S
   lac- lac+

24 17
31 146
23 61 mostly tiny
58 57
69 66
38 57 many tiny

ca 40/ 0

Repeat 11/6

Discard mixture (in saline together ca. 2 hour) at 3:15 PM.
Graduate 10 sec at intervals:
11/1-10. Control: normal. 10 plates

\[ \begin{align*}
3_{15} & \quad \text{10 plates 3 "} \\
5_{10} & \quad \text{3 "} \\
8_{10} & \quad \text{3 "}
\end{align*} \]

No marked effect of irradiation at any time. see points

In ca. 6000 colonies 3 distinctly lac+.

\[ \begin{align*}
\text{lac} & \quad \text{Mal- 5" (EMS)} \\
\#1 & \quad + \quad + \quad + \\
\#2 & \quad - \quad + \quad - \\
\#3 & \quad B V \quad ? \quad (5) \quad S^R/S^S
\end{align*} \]

Re-test 1, 3 from EMS lac to EMS Mal

EM/EMS

Brush EMS lac Test sr.

Also streak 2 on EMS Mal for Mal+ component.

1a-4 Lacy (rel. stable) Mal- 5 s

3 a-8. Lacy. Mal- very sensitive to son (entire streak sensitive or destroyed except progeny.

Include progeny for S^R/S^S. For 1, use no. growth of S test.

Plate H267 m EMS lac, Mal ± sm.

\[ \begin{align*}
\text{lac} & \quad 46 & \quad + & \quad 3 \\
\text{lac sm} & \quad 37 & \quad + & \quad 0 & \quad 4 \\
\text{Mal} & \quad 0 & \quad 0 & \quad 0 \\
\text{Hal sm} & \quad 0 & \quad 1 & \quad 0
\end{align*} \]

Re-test H267 in human
E. coli outcomes

Verification

1. W1362 a
2. W1362 b
3. W1373
4. W1374
5. W1377

1. W1362 a

1. W1362 a

No yield

2. W1362 b

ca. 70-80 colonies/plate all lac+ on EMB lac SM.

3. W1373

ca. 5-7 EMB lac SM plate: Mostly lac- (- maybe brom to grow: Knic.

4. W1374

VW1377

5. W1377

Check colonies on EMS Mel. 9. original strains on EMB Mel: uniform. Hal+ 100 lac+ tested on Mel: 99+ 1-... Extract 3 & check:

Streak out mixture as plate on DSM; EMB lac SM. 99% lac+ 1% lac-.

Pick bar- for test on 5. lac- from 776-23 original conv plate, streaked.

lac- from mixture 2:

3bar from plate 776-23 5-9: S (also bar, ygl, or Mel-)

lac- bar lac+

Streak out and compare with bar- and W1377.

2. Pick from strains on EMS Mel (unp.) and spot on mannio sugar, phage

<table>
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<tr>
<th>Mel</th>
<th>lac</th>
<th>Ygl</th>
<th>Met</th>
<th>TV</th>
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Remaining 14. + tac + ygl, 10 + 781-2. 13 L-M- TS R7 S- 24 M+ TS 17 K+ other +

Extract 3 on EMS lac.

Check on Ygl; T7; postigrophy in Mal. Partial Ygl

3. Pick strains on EMS lac and spot on mannio sugar, phage

<table>
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<tr>
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<th>lac</th>
<th>Ygl</th>
<th>Met</th>
<th>TV</th>
<th>TS</th>
<th>TK</th>
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Pick strains on EMS lac.

Check on Ygl; T7; postigrophy in Mal.

4. 16 " " 15 L-7 Mal-
-23 column from 116-23 plate
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</table>

Conclusions: best for lac, V1 (#4 only exception).

C 4/4/19/50. 59-161 x W177 mEMVlac; B1. 15 plates ca 30/plate. No lac. 

lac, M108B, uvr hybrid.

lacr vs uvrta requires ocurrence!
11/11/50. Replicate 58-16\(\times\)W1177. EMS H\(\alpha\)2

30 plates. Ca1001. Malt+ scoring optional.

Total H\(\alpha\)+ (ml.1) = 277.


\[
\begin{array}{c|c|c}
+ & 19 & 101 \\
- & 47 & 72 \\
\hline
60 & 332
\end{array}
\]

Also pick non-selected Malt+ and - to EMS lac.

\[
\text{If } 60 > \frac{277}{50}.
\]

Among ca 5\(x\)50 colonies on EMS lac, 1 lac+ noted. Purified as

782L.

Non selected colonies. (to EMS lac; Malt for+) Hold for later analysis

Malt+: 33 34
Malt-: 25+ 44+.
|     | -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12+ | 13+ | 14+ | 15+ | 16+ | 17+ | 18- |
|-----|----|----|----|----|----|---|---|---|---|---|---|---|---|---|---|---|----|-----|-----|-----|-----|-----|-----|-----|-----|
| Mal | S  | S  | R  |  + |  + |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | R   |
| lac | Xyl| Mfr | Bel |    |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | V1  |

Of 17 tests, Mal+/- and S r/s accorded in 12:

- lac concorded 10
- Xyl concorded 14
- Mfr concorded 15
- Bel concorded 13
- V1 concorded 14

lacr; V1 concorded 13

#18 was lac+a. Review of concordance of Mal-Sr probably not an artifact.

Dear P.B. with D (lac), Grow 36 hours at 30°C.
Plate out at 10^2 m EMB lac + 51 12/7
EMB lac: 174 70 245
129 62 791

EMB lac SM
0 51
0 57 57
0 54 54
0 60 60

EMB Mal
193 52
206 64 273

In summary, all diploid cells are killed by sm, with 3 exceptions.

Test these for lac, Mal, S heterozygosity.
H257 segregants tested for S + E M13 X y +.

8 Mal- : Xy- + S
4 Mal+ : Xy+ + S

* Exceptions:

1 2 3
Mal v v v
lac v

Check out 2 for Mal+.

EMS lac

EMS lac SM
0 1 1 0 66 47 14 Total: 2 +/212 - 0 (H mist)
H257

Supernatant

SR vac exceptions:

- 1
- 3
- 5
- 6
- 7

D. Grow H257 /100 per plate. Grow overnight and plate out: 11/16 EMB lac

\[ \begin{array}{cc}
\text{v} & \frac{26}{75} \\
\text{15} & \text{sprinkling -}
\end{array} \]

average: \[ \frac{92}{4} = 23 \]

= H257

EMB lac Str

- 8
- 3

8M 5u/ml

- 36
- 36

EMB lac DM +

- 5
- 1
- 10
- 0

0.5u/ml

- 29
- 33

Phenotypic lag?

Test bac segregants for SR. - Bacterial uncertain

Note: Colonies on EMB+5u may represent late segregation products of bac cells and may not reflect phenotypic lag. Consider comparison of EMB lac with lac+5u (10u), may reflect phenotypic delay. Repeat plating. Also test bac for EMB lac SR.

See over
Almost all colonies of H557 plating show some regio.

Plate out 8 M1V colonies from EMS Mal to same.

Pick Malt, - prototrophs separately to EMB lac:

<table>
<thead>
<tr>
<th>Malt + lac+</th>
<th>Malt + lac-</th>
<th>Malt - lac+</th>
<th>Malt - lac-</th>
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<td>1:</td>
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Rectangular on EMB, EMS lac a 183B + Lacv.

**BB.**

H257 (*<ref Y2 1:100 246 2.7° 484 KmK>*)

<table>
<thead>
<tr>
<th>EMB lac</th>
<th>V</th>
<th>EMB lac</th>
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<td>620</td>
<td>505</td>
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</table>

m 132 101

6 349

*These counts are likely overcompensated for screening, i.e., overestimation. Repeat plating also with H167.

Test loc - from H257 / 8K Mal. (Also, see F)

Malt - S

<table>
<thead>
<tr>
<th>Malt - S^k</th>
<th>22</th>
<th>20</th>
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<tbody>
<tr>
<td>Malt - S^2</td>
<td>1</td>
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<tr>
<td>Malt + S^k</td>
<td>0</td>
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<tr>
<td>Malt + S^2</td>
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42:12 8K/8^2

7
(EMS) \textit{Mal} -

Test \textit{\text{Mal} -} colonies on EMS \textit{Mal}:

a. Brush on EMS \textit{Lac} \textit{+ / Sm}

b. " EMS \textit{Mal} \textit{+ / Sm}

c. Streak (few) on EMS \textit{Lac}

\textit{\text{Mal} +} colonies

---

EMS \textit{\text{Lac} -}

Pick \textit{3} "small colonies" and streak on EMS \textit{Lac, Mal}.

Identify \textit{1} standard \textit{+} \textit{Lac - Mal -}

Control: \textit{Lac + Mal +}

---

H/6/50: From 783D

CC: Segregant colonies from H257 on EMB \textit{Mal} \textit{+ / Sm}. (i.e. Sm \textit{only}).

\text{From \textit{EMB Mal}.}

\begin{align*}
\text{Mal +} & \textit{all} S^R ; \quad 1 \textit{Mal} - \textit{Xyl} - \\
\text{Mal -} & 17 \textit{all} S^R \quad 15 \textit{Mal} - \textit{Xyl} - \\
\end{align*}

Consistent with order:

\begin{align*}
\text{R} & \text{ - -} \\
\text{S Mal Xyl Mal} & \text{ - + - +} \\
\text{- A} & \text{S + + + +} \\
\end{align*}
Plate H257 on EMB ± SM (5μ/l; 100μ/ml).

<table>
<thead>
<tr>
<th></th>
<th>EMB100</th>
<th>EMB0.5</th>
<th>EMB0.5 SM100</th>
</tr>
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<tbody>
<tr>
<td>(% of +)</td>
<td>149/8</td>
<td>127/19</td>
<td>63/27</td>
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<td>150/16</td>
<td>4/16</td>
<td>30/27</td>
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<tr>
<td></td>
<td></td>
<td>1/1</td>
<td>58/18</td>
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</table>

SM100.0 0 1

At this concentration of streptomycin, diploid S^S/5^ are not regularly killed but are strongly selected against in favor of S^I segregants. This case cannot therefore be used for phenotypic rag as it will produce artificial SK from S^I/5^.
Plate H257 11/10 m indicated under: Read at 48 hours.

<table>
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<th>EMBMal</th>
<th>EMSMal</th>
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<td>+</td>
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<tr>
<td></td>
<td>v</td>
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<td>183</td>
<td>195</td>
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Test Mal+S² and Mal-S² on Emblac Xyl:
- Mal+ 5² 5² 0² 0² 0² 0²
- Mal- 3² 3² 25² 25²

Consistent with:
- R²

EMB Mal Sm (100x)
- 0 13 0 0
- 0 0 0 0
- 1 3 1

EMS Mal Sm (100x)
- 2 5 0 0
- 1 4 0 0
- 1 4 0 0

EMB Lac Sm (100x)
- 100 0 0 0
- 0 0 0 0
- 0 0 0 0

EMB Lac Sm (100x)
- 100 0 0 0
- 0 0 0 0
- 0 0 0 0

100 50 10 2
1 5 2 1

100 17 9 9
18 24 45
13 177

* Sm agar may vary, determined as efflue of plate is virtually sterile. Many x columns have very faint test component, 2 may have very little. Anticipate as possible variations.
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</table>

8 Mal+: 1, 5, 8 are Mal+, lac+, lac+.
2, 3, 6, 7 are Mal-, lac+, lac+ (Mal-?).

E7 # 49: Recultured from single colonies
Mal+ (predominant) lac-.
November 20, 1950.

Plate H257: H267. on E13 lac; ± SM 100. % with 0.5 M lac + SM.

<table>
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<tr>
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m = 80 127

F. cuter, S, from sexual recombination:

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</tr>
<tr>
<td>102</td>
<td>10 109</td>
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H267

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m = 31 80

<table>
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<tr>
<td>28</td>
<td>54</td>
<td>18</td>
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</tbody>
</table>

m = 20 20 2
Plate each of following strains grown on 102 (lac) (except 11177-742) at ca. 10^{-7} on indicated EM16/85% PH. Read at 4.5% PH 1/2 hr. 20 hrs.

K12

lac

strains

1000 ml. from
28 ml. 100

No colonies

11177

No differences.

H266

(5% -)

lac

typical mosaic colonies or 500

reduced count; smaller lac-

19 colonies

100

No colonies.

40 hours.

H257

lac

typ. (somewhat small) lac-

15 reduced lac - Mel- (chin. of+)

100 cells; some normal.
17267

1. lac - typ. bars in 302
2. Hfr.5 5 assay 1-3 vs. small cols
3. lac 5 10 night 1-2
4. lac 1 2 large cols. lac -
5. lac 100 5 large cols. lac -

H267 may be more resistant
than 17267 on agar 5%
agarose, more viability.
<table>
<thead>
<tr>
<th>Date</th>
<th>Compound 1</th>
<th>Compound 2</th>
<th>Result</th>
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<tbody>
<tr>
<td>11/13/80</td>
<td>W1368</td>
<td>W677 standard A</td>
<td>+ 12 75</td>
</tr>
<tr>
<td></td>
<td>W78</td>
<td>W1022</td>
<td>- 18 40</td>
</tr>
<tr>
<td>11/14</td>
<td>344 T213</td>
<td>44-72</td>
<td>4 72</td>
</tr>
<tr>
<td>11/15</td>
<td>5 12 15</td>
<td></td>
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</tbody>
</table>

**Note:** Doubtful values recorded as 0.
10/7/52.

See 776.

A. Stehle.
B. (I): ca 10 cultures. Same ker - ?

Pick to water; spot on EMB, B(o).
B: II forms : random m. d(o). in WB.

<table>
<thead>
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<th></th>
<th>A1</th>
<th>A2</th>
<th>A3</th>
<th>A4</th>
<th>A5</th>
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775B

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776B

All - unless indicated otherwise

(38-40 x 1931-32)
UV - 30sec - incubate 1h, then add 5 ml of moltenlactalbumin, incubate overnight.

A. 1:20 300u/ml 29 tests: all +
B. 1:1000 100u/ml 40 tests: 2 + (24h.) 38 -

See 785:

None on YNA

A1: 24
A2: 22, 25, 30, 1431, 1432
A3: 21
A4: 23, 26, 31, 32, 37.

Throw out YW -

Double mutants:

1421 1
1423 5
1429 3
1430 2
11/25/50.

A - D grew vi. E, D (red)...

A - D gave erratic tests on minimal agar as they themselves grew...
Outcrosses: Nutritional

K12 - W1373 - W1374 - 726.4Y

1. 785 B1
2. B2-
3. B3
4. 786 B1
5. B2
6. B3
7. 726-4Y - W1416
8. W - 1177
9. 1 + 8
10. 2 + 8
11. 3 + 8
12. 4 + 8
13. 5 + 8
14. 6 + 8
15. 7 + 8
16. 1 + 2
17. 1 + 3
18. 2 + 3
19. 1 + 4
20. 1 + 5
21. 1 + 6
22. 4 + 5
23. 4 + 6
24. 5 + 6

\[ \begin{array}{c|c|c}
244 & 484 \\
\hline
\text{Many} & + & x
\end{array} \]

\[ \text{Repeat} 10, 13, 14, 15, \text{ using growth together and separate.} \]

31. 785-2
32. 786-2
33. 786-3
34. W1416
35. W1177
36. 31+35 5+8+5 1+ - +
37. 32+35 1+
38. 33+35 2+2 1+2+5 - 3 -
39. 31+32 1+
40. 31+33 0
41. 32+33 1+
42. 34+35 0

36. etc.
mixed with mother.

\[ \begin{array}{c|c|c|c}
36' & 37' & 38' & 39' \\
\hline
0.0 & 0.0 & 0.0 & 0.0
\end{array} \]

W14/16 uncorrectable
W1374-75 mutants
remarkably identical of 5 X X strains.
11/14/50

To 5 ml washed W578 suspension, inoculate 1 ml broth lysate of λ (1/7) 2:38 PM.  \[\lambda\] + at R.T. 
Centrifuge 15 min. at 2,500. Resuspend in saline
Resediment, complete 3:43.
Plate 2 x 10^-7 dilution of each on EMB bac., and on W578

A. washed cells
B. supernatant 1
C. supernatant 2
D. original λ, titre.
E. original W578

A. ca. 700 colonies. No plaques colonies or subCulturing. Test sample for lysogenicity. 100 tested; all λ-! (narcotic?)

B: 18, 6 plaques on W578

C: 20, 18

D: 10^-5
   -5 45
   -7 47
   -8 28
Nov. 20, 1950.

A. W836 x W1177
B. W1178
C. x W1406

A. Plate mens. lac; M+.

lac: 60+: 104-

M+ 57- 47+ 23 (28-13)

Test linkage of lac, M+ lac+

B. lac: 137+: 29-

C. lac: 33+: 60-

M+ 70+: 32-

B. 24 tested: possible v = no v, but may be segregating modifier.

50 added. B + C. -> a few lac-; all others lac+ now.

C1 - Malt.

B1-4 & apparently pure lac+ M+ 3

B1-4 self-pleurad (X). Perhaps B3 which give some v.

Check parents: WVP16 seems to be X5. W1106 is a (Kev).

790 B3 is verified lac-, but unstable. Test also for X.

Apparantly X-.
Dianzini, Stanio: coli "transformation" (also miscellaneous phage tests).

<table>
<thead>
<tr>
<th>Strain</th>
<th>T1</th>
<th>T2</th>
<th>T7</th>
<th>T7a</th>
<th>S18</th>
<th>lac</th>
<th>tol</th>
<th>Met</th>
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<td>+</td>
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All are P + K12 -


He claims that 1443-5 are phage-positive, but deals inadequately with problems of adaptation. Character of growth again not clear to his pagan.
<table>
<thead>
<tr>
<th>Line</th>
<th>Lactose (Lac)</th>
<th>Lactose + Malate (EMB lac)</th>
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<tr>
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<td>++</td>
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<td>++</td>
<td>Malv lac  v</td>
</tr>
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<td>++</td>
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<td>27</td>
<td>++</td>
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</tr>
<tr>
<td>28</td>
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<td>30</td>
<td>++</td>
<td>Malv lac  v</td>
</tr>
<tr>
<td>31</td>
<td>++</td>
<td>Malv lac  v</td>
</tr>
</tbody>
</table>

Reduces 7, 13, 16, 21 in EMB lac; Malv.
A. \( W1446 \times W1435 \) (\( W64 \times W61 \) \( Het \)) → \( H269 \)

B. \( W1446 \times W1177 \) \( W63 \) → \( H270 \)

C. \( W1449 \times W1435 \) (\( W63 \times W61 \))

D. \( W1447 \times W1177 \) \( W64 \)

E. \( W1448 \times W1177 \) \( W63 \)

F. \( 1451 \times 1435 \) \( W63 \), \( L+: 2^{4+} \) \( L- : 1 M^- \)

G. \( lac^+ \)

H. \( lac^- \quad 25 \)

I. \( 10 \quad 6 \)

J. \( 0 \quad 16 \)

K. \( 0 \quad 7 \)

L. \( lac^- \quad predominates \quad Sheehan \) lac+. Burch lac- to HalEMS.

B. Lethal dose yield \((3-5/\mu l.)\) all lac-

C. Mostly lac+

\[
\begin{array}{c|c|c}
4 & 5 & 1 \\
7 & 3 & 12 \\
6 & 2 & 33 \\
\hline
33 & 12
\end{array}
\]

D. No prototrophs \((4 \) plates\) \( [\) Allali Laccimeras \( ] \)

E. " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " 
1. lac- (clearly). Refill agar of single lac- colonies and replate
   in EMSele; EMBlac, Hal, H2O.

2. lac+. Replate as above.

lac- : mEMS Hal

10 - 20

Replate some Hal+.

17264', syngenta
lac- : 25 cells tetracycline R.
lac+ : 15 2?5 1?? 12 R.

Replate representatives for recheck.
32 lac+ streak 1 per EMB lac.

#6 lac−. All others lac++. Reisolate.

Of those, allow Hal+ except #7. Pick single colonies to EMBO

Restrict #6. → Pure lac+! lac−?

lac−: 4 Hal+ 4 Hal−

1270
Choose one or two for possible tests.
1452 x W1262 in EMS Mal.

Pile Mal+ and Vi against 1.47 in lac EMS.

Only 16+ among 8 plates (ca. 50/plate).

4 Mal+ motile. Mutants EMS Mal, EMS Mal; Lac.

Of 16 tested in first solution, 3 are Mal+ S in EMS. Replicate.

Streak on EMS Mal for V test. 10 read Mal- on EMS.

After reincubation, additional Mal+ appear. Test procedure as above.

8/19 tested 4-11

1. pure Mal+
2. ?
3. Mal+

Hold in abeyance.
### Yield

<table>
<thead>
<tr>
<th></th>
<th>Yield in E175 soc. / plate</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>5-10 +, -</td>
</tr>
<tr>
<td>B</td>
<td>4-1</td>
</tr>
<tr>
<td>C</td>
<td>1-4</td>
</tr>
<tr>
<td>D</td>
<td>1-4</td>
</tr>
<tr>
<td>E</td>
<td>0.1 lac -</td>
</tr>
<tr>
<td>F</td>
<td>3-4 +, -</td>
</tr>
<tr>
<td>G</td>
<td>20</td>
</tr>
<tr>
<td>H</td>
<td>10-15</td>
</tr>
</tbody>
</table>

### Colonies

- **C:** 70 colonies streaked out: 16 - 4+ lac. Nov.
- **E:** 4 lac+
- **G:** 6 lac+ 1 lac- 1 lac
  - Reisolated

### Observations

- **C:** 16: lac-Mal- #3 lac+ Mal- 1 lac+ Mal+.
- **E:** 4 lac+ Mal+ (no sign.) #1 and 4 are R #2, 3 S. Aurous v
- **G:** 1 lac- Mal- 5 lac+ Mal+ 1 lac+ Mal+ 81 lac+ r
  - Mal- 6 lac+ 3 req. tested 9 lac- 4 mal r

### Remarks

- **C:** all acriflavine R. (esp. parents).
  - 2 morphological types noted under acriflavine staining with kieselguhr filter paper complex components on N.A.

### Notes

- **C:** highly infective!
Compare various phototypes of 796 S.

T7   Aer.   R   +   Morph.
1 S   R   ?   R   R
3 S   R   ✓   R   R
2a R   R   ✓   R   R
2b R   S   ✓   R   S
6a S   R   ✓   R   R
6b R   S   ✓   R   S
7a S   R   ✓   R   R
7b R   S   ✓   R   S

green differentiation

It gives undoubtedly a stiff R reaction, best redescribed very readily to resemble S or RS.

Morphological differentiation probably within an EMB.
W1435 x W112 in EMS MT.

Pole MT, resuspend in EMS MT. Test for discoloration V6
reaction in EMS, EMS (70).

Out of ca. 30 such tests, 3 likely cultures regenerating V6 R.

H271 - 273.

H271 is verified as regenerating V6 R. V6 probammate.
V6 S = lac - stable, V6 R = lac - mutable in EMB lac.

of EMS 60 12/18/50. Nucleic of lac - 1.

H271 — 273.
12/23/50.

See 777B.

Ca 1/2 NfEy isolates are lac - 1/1 lac +.
Some lac - EMS may have come from duplex, whereas lac +
might be isolated. All original 1-22 are in D(740) or D(190) range.
last isolated: 11, 12, 18. All appear to be stable lac +.

7/23

In course of isolating 8, 13.
To be isolated 14, 17.

#8+ is apparently lac +, apparently pure, but not duplex.
2 EMS lac - both lac + and - Rescued + to verify, and
to provide lac - for further testing.

#13 = both + and - classic. Rescued lac +.
#14 = pure + EMS lac - (rescued?), Edel to slant. 101.

Note: since lac + components of #8, 13, and 17 have already been
#14 = both + and - classic. Rescued lac +.

12/27.

"14" is pure lac + MHE - 14-: pure lac - MHE + (? Reo).

#8+ lac - OK.

17-: 3 MHE + 1 MHE - Nov.
8-: 4 MHE - Nov.
13-: 4 MHE - Nov.

Tentative conclusion: These cultures which gave lac - prototrophs
from lac + isolates are throwing prototroph segregants, not
partial segregants. Recheck from original slants. This
does not explain 11, 12, 18 which are apparently duplex.
12/24.../50.

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<tr>
<th>No.</th>
<th>Strain</th>
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<tr>
<td>1</td>
<td>H271</td>
<td>lac (E19B) 36h</td>
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<tr>
<td>2</td>
<td>H258</td>
<td>Bright red center (confluent papillae?)</td>
</tr>
<tr>
<td>3</td>
<td>H268</td>
<td>Type - no papillae in mouth</td>
</tr>
<tr>
<td>4</td>
<td>H273</td>
<td>ee 1</td>
</tr>
<tr>
<td>5</td>
<td>H261</td>
<td>ee 2</td>
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<tr>
<td>6</td>
<td>799-11</td>
<td>ee 3</td>
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<td>10</td>
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H271 and 273 may show very slight + reaction, more likely frequent crossovers lead to lac + segregants.

W 1177 appears to have become lac - stable. Thus far lac - types such as H268 are unsuitable for homozygosity analysis. Review stocks for lac - mutability. Resuscitate W660 for new set of diploids carrying mutable lac -.