5/22/53

A SW666 x SW1049 c / Plates
B
C 1/2 Plates
D 1/6 tubes
E SW967 x
F
G SW1053 a: c x 15C [alumina] / abcd = enx \frac{3}{2} x
H HO
I
J
K SW1053 a x 666
L a x 967 plates 1mm, gm 1gm
M c x 666
N c x 967 plates 1mm, gm 1gm

Note: In above experiment, SW967 yielded (and transcluency) one very few. SW1666 yields none a few seconds / plate (lmin)

G - H

<table>
<thead>
<tr>
<th>a</th>
<th>c</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>enx : a</td>
</tr>
<tr>
<td>3</td>
<td>enx : a</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>a/a</th>
<th>c/c</th>
</tr>
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<tbody>
<tr>
<td>enx</td>
<td>enx</td>
</tr>
<tr>
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<td>enx</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>a/enx</th>
<th>c/enx</th>
</tr>
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<tbody>
<tr>
<td>enx</td>
<td>enx</td>
</tr>
<tr>
<td>enx</td>
<td>enx</td>
</tr>
</tbody>
</table>

save some measurable derivative
No evidence of a : c (enx) variation
Inches 053 insufficient, proceed to 071 H, H available
Rev old after not | 5/1
Q sw1054 (haemafte) emv → TH2 2. phb emx:
R "1055 " → 1. phb emx:
2. phb c: 12
sw105

After re-inoculation (second passage)
Q 2 still evx++, immublin emx severe.
However, reacts slightly lighter evx, not 50, 51
Compare sw986. (edwards calls this evx) 1041-7

1041-7 (along × T7 evx) moved overnight through mur
O-2 - inmuble !!!

<table>
<thead>
<tr>
<th>Time</th>
<th>1051C</th>
<th>1051M</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>21</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>23</td>
<td>12</td>
</tr>
<tr>
<td>3</td>
<td>25</td>
<td>13</td>
</tr>
<tr>
<td>4</td>
<td>26</td>
<td>15</td>
</tr>
<tr>
<td>5</td>
<td>27</td>
<td>16</td>
</tr>
<tr>
<td>6</td>
<td>28</td>
<td>17</td>
</tr>
<tr>
<td>7</td>
<td>29</td>
<td>18</td>
</tr>
<tr>
<td>8</td>
<td>30</td>
<td>19</td>
</tr>
<tr>
<td>9</td>
<td>1051K</td>
<td>20</td>
</tr>
<tr>
<td>10</td>
<td>31</td>
<td>21</td>
</tr>
<tr>
<td>11</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>12</td>
<td>23</td>
<td>23</td>
</tr>
</tbody>
</table>

...
6/18/53.

$Q_1 \text{ SW1054 envy } \rightarrow \text{ SW1046 } / i: 1, 2$ - 3 tubes.

$Q_2 \text{ 1055}$

$B_3 (9, 5 \text{ no cause}) \rightarrow \text{ swell } i: 1, 2.$

$R_3 (\text{ 000 }) \rightarrow \text{ envy or cough. S.O. pile pneumonitis}$

T.O. culture (no cause) 6/26.

$Q_2 \text{ repeated had not undergone iv. } > 1 \text{ week. T.O.}$

$eux+++ i++ a-c-.$

Remoldy and pass through.

$eux, i...$

$\text{ Single colonies i;} \text{ envy resp. Chil on pathos from them.}$

Thus SW1054 is (at least) \( H_1^+ H_2^{envx} \) and SW1046 is confirmed Eptatobic.

\( e= (H_1^+) H_2^{envx} \)

Reactions: $Q_3 \text{ s.c. (kynide argo.)}$

$R_3 \quad i+++ \text{ envy } b- \quad \text{ again he blebs. (6/26)}$

$++$

$Q_2 \text{ not }+++\quad \text{ starch }+++\quad \text{+++}$

R30 very rapidly thought, largely worked in envy. T.O. in

view of evidence of mixture. Envy seems may contain secondary

ophtalmines. Limited shipment of Minnesota churn.

of SW1061!
Received from Edwards + Morey:

- 24-hour swarming: +1cm and density

A WH2
B Yee. 147
C 818
D 830

\( 125 \quad 715 \quad 70 \quad 276 \quad 0 \quad 0 \quad 0 \quad 0 \)

Choose among A, E, K, M. Melt off and resuspend; orientate.

By second name:

- Smooth
- Not smooth

\( 726 A \quad 7 \quad 5 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \)

- Complete and microscopically almost immobile
- Slight motion

Use M particularly. S. C. often mat = SW 1058

2.2 - 0 dense phase swarm, out of: Immobile
\( \text{still slow after } 24-36 \text{ hours} \)

N and O are essentially static

O - Jones (but why not)
O - motile cells seen, ?
PA22 x 0  20 swarms: all end

No swarms controls (2 plates, 48 hours)
Rinse 4 for dephasing test.  <absolutely immobile> to 6/9/53.

N gave oo. late. very rough, slow swarms report
  + PA 22 → 20.

4 feb were sed 1058 for later study.

However, in euc serum → b!  Repeat with
  single colony resolation!  (and rinse somatic equivalent)
  & PRE

Inoculate of Edwards' cultures, B = Penn 818
second best. After motilization, use as SW 1058

SW 1058 b in b serum 1. → - , late rough
  2 → 233.

  euc vs b: -
1. 1046: various single colony isolates for consistency in extent of variation: of B1-038.

But o.c.i. from B1, B2 (which had one b:1,2: - and
b:1,2:6: - reciprocity) to 1,2 all: - (1? b: 33).

46 F6: some magenta-ribbon phases. B2-1 is only example
of b:1,2:6 in this series.

If 1046/31 = sw1049 and sw1047: former is b:1,2: (-)
latter is 6: -

Suggests possibility of interaction of variability.

46 C: FA 22 x sw1043 — 2: i:1,2: -

DE sw1031 b x Th 1046 — 2 cases b:1,2: b

a — "

a:1,2: a

a:1,2: a

sw1031 is interpreted as H2 a, H2 b.

J.K. Entrophy or homology test

J: aH2 y2 x sw1049 (H, H2, H,)

K: " x 1043/32.2 (H, H,)

not tested
Misc. notes on S. ren.; dev. serum; salivates premorbid.

\[ A - B \rightarrow FA3(alt) \rightarrow SW1052 \rightarrow SW1031 \rightarrow SW1053 \rightarrow SW465 \]

49 \[ \text{G abc} \rightarrow \text{SW1049 / i:b/h2} \]

5 \( \text{iodate} \) \( \text{enx:} 1:2 : \text{enx} \)

Either phase in 1,2+enx \( \rightarrow \) either enx, or imoglut.
Some are still being rechecked for i. \( \text{enx: c: enx1054} \)

1 \( \text{51 G-H. abc} \rightarrow \text{SW.} \)

1054 - 3 \[ \text{H1-3} \rightarrow \text{enx: c: enx1055} \]

Efforts to demonstrate \( c: a: \text{enx}; a$: c:enx resp.
\( m+c:enx \) have given inagglutinable forms. \( \text{c: 495} \)

\[ \text{Q SW1054 } \rightarrow \text{TM2 pH2 } \rightarrow \text{enx: m:agglutinic!} \]

1055 \[ \rightarrow \text{c: 1,2} \]

\( \cdots \) While \( H,H \), structure of \( \text{enx} \) seems to be justified by
\( \text{sw1052-3 (c:b c:a)} \) final proof of \( \text{m:agglutinic} \) is
not settled. Homologies of \( \text{enx } \rightarrow \text{H,H} \) \( \rightarrow \) still to be settled.
\( \text{(c-R Large scale).} \)

(over)
A more readily variable example of $H, H_i'$ would be desirable. (SW1031 is perhaps the most distinct).

Tests 1053 perhaps should be repeated. Try an $a_1emx$.

Lineage $H_i, H_i' \times P/a$.

Tests very limited. Totally actually only 5.

$SW1049 (i; 1, 2, H, H_i', H_i') \rightarrow SW666$. 2 i: -

$PH1, 2 \rightarrow b: 26 \ 1, 2: 7$

$SW1031 \times SW967$  
$1053 \times SW967$  
Note: very few, if any, plus
apparent hypo. Why?

$1053_a \times SW666$.  a: -  q: -

$1053c \rightarrow$  c: -

1052. Screening of Morchella nauseosa reveals doubts on several of these concerning identity, especially E (1967; relation to 1966) not yet tested.

From 1052B (Iberiace) as authentic strain.

1045. Several attempts - × a! - Unsuccessful.

However, SW1048 remains more transducible (for F1a) by PA (PB), though not by TM.

Note: F.K. records SW1048 as I- 948 as I+.

(104531) SW1047 as I+ SW1047 as I- SW1069 as I-.

Transduction?

Indep. should check other transductions - × 1048 for restoration of I.
63/53 (yE4L)  
W2281 X H245

40 colonies transferred out, replicate to plate 1 ampoulet Cal V to E45 Cal. Replicate to E113 Cal, Lac, Mel, MH.

Pick 2 or more likely still Malv. / Lacv.

Original 40, all were Lac+ (V) exc. 2, 8, 32, 40.

<table>
<thead>
<tr>
<th></th>
<th>Lac</th>
<th>Mal</th>
<th>MH</th>
<th>Cal</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>V</td>
<td>+V</td>
<td>+V</td>
<td>+V</td>
</tr>
<tr>
<td>7</td>
<td>V</td>
<td>+V</td>
<td>+V</td>
<td>+V</td>
</tr>
<tr>
<td>14</td>
<td>V</td>
<td>+V</td>
<td>+V</td>
<td>+V</td>
</tr>
<tr>
<td>23</td>
<td>-V</td>
<td>+V</td>
<td>+V</td>
<td>-V</td>
</tr>
<tr>
<td>27</td>
<td>V</td>
<td>(±-)</td>
<td>V</td>
<td>+V</td>
</tr>
<tr>
<td>28</td>
<td>V</td>
<td>+V</td>
<td>+V</td>
<td>+V</td>
</tr>
<tr>
<td>39</td>
<td>-V</td>
<td>+V</td>
<td>+V</td>
<td>+V</td>
</tr>
</tbody>
</table>

14, 23, 27 must be scored now to verify whether Calv or Cal+ (latter is assumed Cal+1 or 4, modified by other symptoms?

Eating data indicated H324 from this cross. T.O.

This material
**Compatibility Testing W2284**

6/6/53.

by 105 - W2284 from W1805 / mobility passage.
Klebsiella 902 and not re-isolated by W1877 or by W1895.
(However, controls not certain).

1. W2284, W1802 grown with W1805 / Eumes. Mutant (F)
then streak out (→ F1) and plated directly with W677, W1896:

<table>
<thead>
<tr>
<th>Cross</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>W1802 x W677</td>
<td>-</td>
</tr>
<tr>
<td>2 W1802</td>
<td>1896</td>
</tr>
<tr>
<td>3 1802F</td>
<td>677</td>
</tr>
<tr>
<td>4 &quot;</td>
<td>1876</td>
</tr>
<tr>
<td>5 W2284 x 677</td>
<td>-</td>
</tr>
<tr>
<td>6 &quot;</td>
<td>1876</td>
</tr>
<tr>
<td>7 W2284F</td>
<td>677</td>
</tr>
<tr>
<td>8 &quot;</td>
<td>1896</td>
</tr>
<tr>
<td>9 W-6</td>
<td>677</td>
</tr>
<tr>
<td>10 &quot;</td>
<td>1896</td>
</tr>
</tbody>
</table>

Three mixture of W2284 (or W1802) with W1305 is clearly F+

**F1.** Isolate bacteria from initial mixture with W1305. (ca 10-20 colonies from EMB plate in broth + spread on EMB plate overnight).

<table>
<thead>
<tr>
<th>Cross</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>W1802' x 677</td>
<td>+</td>
</tr>
<tr>
<td>W2284' x 677</td>
<td>±</td>
</tr>
</tbody>
</table>

**F2.** Lact from mixture overnight. Pool incubated 4-6 hours.

1802' x 677   +
W2284' x 677   +

(own)
55A  W2284 + W141 in both cultures.
S.O. Enterobacter ca. 21. dense, red, rough lact.

B. Also W1802. Came out ca. 150:1 + +, red, lact and
ketoacet.

Repeat 2284... F x 1932. Reproduced (pool still)

1802 x 1952
1802 F1
1802 F2
2284 F1
2284 F2

May be better strain or
inert.

Try passing back to W677.

2284 x

10552:

2057

prol. test as Hfr. F...

1/4 Malt
3/4 Malt-

Test by SAP

On 6/11/53

2284 F2 pool
W677
W1816

pool has
become F -

Test for transfecto
W677!
6/19/53...

\[ W^{284} F^2 \] + \[ W1958 \] overnight, \text{ no. m EMS lac -SR, recovered.}

H. " såreduced" 1982 \( \rightarrow \) lac -Sr. \text{ nor pool to lacervery.}

I. \( (W^{284} F^2 + W1305) \times W1958 \) \text{ 10 prototrophs}

\[ W^{284} F^2 \]

\text{... \( W^{284} F^2 \) does not become grossly}

\text{infectant after being F+ quality.}

JK \( 5 (W2061 \text{ MTI-HF} + W1958) \times W1802 \) \text{ 40 prototrophs}

K. \( \text{ (W1305 MTI-HF} + W1958) \times \) \text{ 80 "}

5. Transfer from \( W^+ ? \) 

Temporary or mutant? \text{ or recombination?}

\text{lac+U, K H2+5r lac- U, K H2-r lac-...}

\text{no strain matraces at hand.}

\text{Reinstate K.}

\text{Repeat: (W2061 + W1607)}

\text{hec-5r (her-5r)}

\text{lac-Sr}

\text{or (W2061 + W1607) \times 1607.}

M. \( \text{(W284F2 polo + W1958)} \) \text{ W1958 recovered, v W1607 no prot.}

\text{inferred W1958 in W284F2}

\text{\text{Zynteks W2061 x 1958}}

\text{1958 x 1607} \text{ no prototrophs
6/9/53

A. H245 from S. Lem. data in Appendix
   (1/13) x 32. give ca 50 prototrophs, mostly lac +
   yield: 3245 ca 1% lac +

B. acerated in D (lac, H2)  
   1. x W1321 H^{-} F^{-} S^{+} lac - only A
   2. x W1488 p+ " "
   yield:
B1 no prot.
B2 + + + + +
   ⇒ higher yield no -

C1. ca 10 prot.
   lac - Strain EMX-1 col.
   All lac +
   lac + < lac + to exp 10 lac -
   lac -

This stock strain seems to behave as F -

lac + should be uniformly lac +

C2. 3 Cal? 9 Cal - A + acetate 3
   Phenyldinitrate
   lac +
   33 - V
   34 V + V
   35 V + V
   36 + V
   37 V + V
   38 V + V
   (over)

159: lac Hal Gal

Rev single cells

lac Hal+ Mavr Hal+ Mavr (10)

Assume 5 as segregant. Save # 3 as lac - Hal + Mavr 1p
# 5 may have been infected from cal - 1p 2 1p may be crossover.
Next arguments are

1. Homeotypic remanagement
2. \( Lp^+ Lp^+ \) remanagement. (perhaps better from a \( Salt^+ \) remanagement ? ?)
3. \( Salt^+ \) remanagement (cis and trans)
4. \( Salt^+ \) transduction ...

Most lacv from C2 are \( Salt^+ \) mothly. H327
Retain \#5 as \( Salt^+ \) lacv and check other moths
also check \( Salt^+ \) from 1, 2, 17, 34.

H327: \( Lacv \) \( Salt^+ \) \( Mal^+ \) \( S^+ \)

\( Lp^+ Lp^+ \)

No. univalently joint Paterm: does this aggregate \( Lp^+ \)?

\( S^+ S^+ \) finds \( Lp^+ / Lp^+ = 1 - P_2 \).

? \( Lp^+ \) this must be rechecked.
C. 1-5: #1, 4 are evidently lack, may be useful later as Hfr IF 
#2, 3, 5 show peculiar motting is definite evidence of recombination.

<table>
<thead>
<tr>
<th>A</th>
<th>1</th>
<th>Lac</th>
<th>1a</th>
<th>Mal</th>
<th>E1</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>+</td>
<td>+</td>
<td></td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>+v</td>
<td>+v</td>
<td></td>
<td>+v</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B</th>
<th>1</th>
<th>V. light</th>
<th>+v</th>
<th>+v</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>+v</td>
<td>v or v?</td>
<td>+v</td>
<td>E2</td>
</tr>
<tr>
<td>3</td>
<td>+v</td>
<td>v or v?</td>
<td>+v</td>
<td>E3</td>
</tr>
<tr>
<td>4</td>
<td>+v</td>
<td>v or v?</td>
<td>+v</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>+v</td>
<td>v or v?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

E4, presumably lack.

<table>
<thead>
<tr>
<th>C</th>
<th>1</th>
<th>+v and -</th>
<th>+v</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>+v</td>
<td>+v</td>
<td>+v</td>
</tr>
<tr>
<td>3</td>
<td>+v</td>
<td>+v</td>
<td>+v</td>
</tr>
<tr>
<td>4</td>
<td>+v</td>
<td>+v</td>
<td>+v</td>
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<tr>
<td>5</td>
<td>+v</td>
<td>+v</td>
<td>+v</td>
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<tr>
<td>6</td>
<td>+v</td>
<td>+v</td>
<td>+v</td>
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<td>7</td>
<td>+v</td>
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<td>+v</td>
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<td>+v</td>
<td>+v</td>
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<td>9</td>
<td>+v</td>
<td>+v</td>
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<td>10</td>
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<td>11</td>
<td>+v</td>
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<td>+v</td>
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<tr>
<td>16</td>
<td>+v</td>
<td>+v</td>
<td>+v</td>
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<tr>
<td>17</td>
<td>+v</td>
<td>+v</td>
<td>+v</td>
</tr>
<tr>
<td>E5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E6</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

Remarkable motting appearance of all of these. Some
EMS original mutant; please for further study:
A1, 05, 13, B3, C1, c16, C15, c8, B5.

Repel single colonies and spot EMS lac, brush EMS lac/sun;
straw out EMS lac again. Handle as E1-9.
6/9/53

A. H310 (from 22c. EMBLac to Penassay)

\[ \times W1801 \text{ EMBLac} \]

Predicted -

pool plate for EMBLac, Mal. ca. 5% Hal, 70% lac+ . Has a possible lac, Hal+ for later pick. Plates may have been set growth very long + spreading.

B. \[ \times W1802 \text{ EMBLac} \]

Pred. lac+

pool: almost pure lac+

yield very high, \( \gg 1000 \) plate

good growth and rectified for sampling.

H310 x W2209 (\( \Phi C^-F^- \))

Dilute plating. \( \gg 100 \) plate. Small sect.

washed lac+ in EMBLac. 24 tested: 16 Hal+ 1-, 7 Hal+

Replicate Hal+ which might be Hal+ (2 from sect. among \(-, \Phi \) Hal+).

Replicate to check lac pro.

\[
\begin{array}{ccc}
\text{Hal} & \text{lac} \\
1 & + & +v? \\
2 & +v & +v? \\
3 & +v & +v? \\
\end{array}
\]

Replicate plate (24 coils - C):

\[
\begin{array}{cc}
\text{lac} & \text{Mal} \\
1 & S \\
2 & - \\
3 & +v & (+) \\
\end{array}
\]

\[
\begin{array}{cc}
\text{Mal} & \text{lac} \\
7 & + & + \\
8 & + & - \\
9 & + & - \\
10 & + & - \\
11 & + & - \\
12 & + & - \\
\end{array}
\]

No Mal+ indicated.

\[
\begin{array}{cccc}
\text{lac} & \text{Mal} & \text{S} \\
13 & + & - \\
14 & + & - \\
15 & + & - \\
16 & + & - \\
17 & + & - \\
18 & + & - \\
\end{array}
\]

Reduced \#1, 2, 5, 15, 24 m

EMBLac, Mal, NHl spot in lac.

Remember 11-5.

\[
\begin{array}{cccc}
\text{lac} & \text{Mal} & \text{NHl} \\
1 & v & + & + \\
2 & v & + & + \\
3 & v & + & + \\
4 & v & + & + \\
\end{array}
\]

C: Repeat: 20 tested students in 30 lac; face 12.

D H310 x W1801, y. h. very sick. No. special induc. Test.
Replete H328:
1/8/53. all colonies prototrophy. including
100% lact, for 1st sngyants
on two good plates.
SRP versus 1057E (J.L.)

Pansy (3.5 ml) cultures of the following were made and grown up overnight: 1817, 57E 1, 2, 3, 4, 7

Half and each of the 1817, 2, 3 and 57E 4, 7 were mixed in Pansy (20 ml), inoculated 3 hrs, centrifuged, washed twice, rehydrated, reincubated in 0.025, placed in 8% lac Sm 7/183

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<th>× 1177</th>
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<td>lac+ light+dark</td>
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E7 unrelated; E1-4undeneth, Hf. Test lac-sugars.
6/16/53

Retard St. EMU Ac

x1801 1 + (rough) only
x1802 2 +, seeded or matted +, and occasional - (similar to H310)
x1803 3

H328 £ 5

6. app. pure +
7. +, S, M, acc -
8. pure matted +
   all prototrophs on EMU Ac.

#7, 3 2n from H310; Mal, S from F-

4, 7 2n from H310; Mal, S from F+
5 2n from H310, Mal S from H310 (TL + from F-)

H328.

Replicate each to D10) for multistep segregation.

No contrast with mutant traits (very few segregants; meiotic?)

Are these diploid or unstable lacs?? (H310 itself?)

5 Mal+ from H328. Strain in EMU bars, Mal. of H328.

All appear to be lac - Mal+ + . Suggests H310 stable in H310 -

Attempts at H310+: plate in EMS Mal+ + 100 lyophil. casing 20 papillae
after 3-4 days, but these are not Mal+ ! 
Repeat - now smaller papillae: all Mal+ - ! lyophil papillae (200)
Proof that H310 is defective: lac is only regenerating marker!

\[ \text{pure LB, } \neg \]

1. Hfr Ix vs. F - Ix
2. On a single occasion x1095 gave Lac + Mal V

(by 1057.) H313

for test into our population:

1057E1-2 \[ \text{papillar of H310 in EMS/Mal HC.} \]

\[ \downarrow \]

\( \text{Mal}^+ \text{ Lac}^- \quad \text{same } 1057E2^+ \text{ = Mal}^+ \text{ Lac}^- \]

\( \text{Mal hemizygous} \)

Prelude 57E21 as Hfr

and regenerants.

57E21 x W1607 \[ \text{ensure good segregants, parent controls } = \]
6/10/53

A. (acetate H210) x \{ 1. W1394 \}  \text{ mEMB lac} \\
B. (larder) \times \{ 2. W1918 \}  \text{ mEMB lac}

\[ \text{yield} \]
\[ \text{A1:} \quad \text{1 lac}^+; \text{1 lac}^+ \]
\[ \text{10} \]  
\[ \text{B1:} \quad \text{2 rec}^+; \text{20 rec}^+ \]
\[ \text{2 rec}^{-}; \text{+} \]; \text{0.} \]

1058 A. Streak out A1 (1-5) B01 (6-9) \text{ mEMB lac.}

In repetition, some were lac, null. T.O. for now.
6/9/55

H290: from GP, hist. direct staining

(7/20/51) to E. coli ac. Grow in D/lac. HE...

H 002: \( \Delta^1 \) A 1

\( \leadsto \) growth study: pure lac

\( \leadsto \) tube 2 inf and

\( \leadsto \) heavy immediate growth, ca. 50% lac.

\( \leadsto \) 90% lac ✓

H313: scmp. minable

lyophil (2/53 \( \rightarrow \) formal (all agglutinated))

E. coli mil: \( \rightarrow \) mostly 1 (lac, 17a) + Smac.

H726 occ. lac+ formal 9/52 \( \rightarrow \) ✓ (smo 1 (lac+))

H767: almost all bar - " "

Rest plus in E. coli lac; from E. coli lac to D/lac)

318: Incurable

319: viable; nec. lac (v. light, may be)


H304-5: mostly +, - T.O.
A: 30 lac + from EMS lac to EMS lac. Are possible lac + attics are 1/2? #10: all are Ha, #14 lac? attics lac + rough!

B: Poplar eventually noted

Not scored for lac. Should be noted on each

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D W1952 x W1940 EMB Lac
E " " " S Lac
F " W1942 B Lac
G " " S Lac

after growth, overnight

lac⁺ seen as papilla in streak of D, E.

29% A- + colonies in E, G.

Wild suspicious colonies for later readout

7/4/53:

abandon in view of Cavalli's finding of thi- Bal linkage
6/11/53


A = H 324 decr.  \[ \text{loc} \]
\[ \begin{array}{c|c|c}
\text{A} & \text{B} & \text{C} \\
1 & \text{Gal-} & \text{H}332 \\
2 & \text{Aux} & \\
3 & \text{Mal-} & \text{H}331 \\
4 & \text{Gal-} & \\
5 & \text{Mal-} & \\
6 & \text{Gal-} & \\
7 & \text{Aux} & \\
8 & \text{Aux} & \\
9 & \text{Mal-} & \\
10 & \text{Gal+} & \\
11 & \text{Mal-} & \\
12 & \text{Gal+} & \\
13 & \text{Aux} & \\
14 & \text{Aux} & \\
15 & \text{Mal-} & \\
\end{array} \]

Add to EM8 cal, inoculate, and plate on EM8 cal to EVL. Wait 24 hours. Check upper left corner of plate for possible discords. Add 2 to EVL. Plates A5; B5.

A5, B5 = \text{loc}^{+}, \text{papillate loc}^{+}, \text{or } \text{loc}^{-} \text{ papillate loc}^{-}

Also, pick papillate loc plating cal, which may not have registered in splits. Add 2 to EVL. Repeat upper left corner. Add 2 to EM8 cal. Repeat.

C. H 326 cal+ reverencepeled from loc cal, plated on EM8 cal, inc.  \& EM8 cal. Develop cal, notice; others are slow. Be further study. Plate H 326 on EM8, \& obtain cal+ from separate v. colonies by replating EM8 cal.
H324. An EML heterozygote #1-7 appeared to be segregating Mfr+/−, but #8-55 were all Mfr+. (mating many Xg6−). Frenske confirmed 6/17!

Made with T6: #1-10 were T6− H324 T6− Gal−
H 325 T6− 1/R

H324 as now-available is Mfr+/−.
The bulk of EML's data must pertain to the "primary".

except for autotrophy, H332 is most suitable for injection of H gastr. Now used to obtain fat sequence.
H331 also OK; not segregating Mal
G1  H325. v. show lac? — recipient 4 x 4

H  H324  1/3
   Halv lacv Galv dogenic euphotrophi

G1 might be Gal-lacv, but is apparently Ky and presumably unsuitable for present purpose. H1-3 might be used by crossing to Gal-lps.

H325 appears to be as given. (G1 1062) Brown in D(Blu)
A  H302 grown in D(N, lac) x Y10
13 - autoclaved, into D(lac) Thymine not added x Y10
C  Neat x w1918
D  Neat x w1918

Plate on EMS lac.

A  2 plates No prototrophs

B  20-30 lac+/plate 1022 ? lac-/plate (H-302 parentype)
C  3-400 lac+ plate 1-2 ? lac- / plate (H-302 mutant)
D  Very heavy background 5-6 ? prototrophs / plate.

B. Strain 72 lac+ on EMS lac / lac Y.  Hold!

Plate EMS lac. Not all grown out.

lac  lac
1 V +
2 V +
3 V -
5 V -
6 +
7 ?
10 +
9 ?
13 +
16 +
17 +
18 +
19 +
16 +
38 +
45 +
57 +

27-56 plate-average. lac Y

lac+: 27, 28, 29, 30, 31, 32-33, 34-36
Malt- + - + + + + +

lac+: 37, 38, 40, 41, 44, 46-48
Malt- + - + + + + +

lac+: 49, 52, 53, 55, 56
Malt- + - + + +

Re-collect possible + and
check with xyn, etc.

Halv unusually scored on basis
of + - being present.

Elimination evidently does not occur

December 30, 45, 54 and 6-8-11
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- 7, 13, 19, 21, 22 are evidently Mal^u Mal^u Mal^u Sv
- 25, 26, 32, 33, 34 may be (Mal^+ + Mal^u) Mal^u Mal^u Sv
- 37 is Mal^u Mal^u Mal^u Sv?
- 1, 15, 28, 29, 35, 36 may be lac. heptoid.

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Replete to EMS lac
EMS lac

7, 13, 15, 17, 21
Intraspecific variation

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</table>

Summary: 56 prototrophs. 19 ultimately diploid (lacr or lacV)
Most probably lac+1- rather than +1-.

lac V MH V Mal V S V: 8 2 3 5 6 10 11 16 22
+ v s: 4 1 8 12 20
+ + s: heptoid only (9, 13, 17, 23)
+ + s: 1 7
+ v s: 2 4 21
+ v v: 2 14 19
+ v v: 1 15
- v v: 1 18

Some probably less.
18 seemingly Mal-; Mal+ no Mal+ segments. Absurdly apparent
Mal+ for more material. Yeranos gave same pattern.
Most Mal- are S+ Mal+ probably include pure +.
1/7/53

Recap. of types (provisional class. of 13,15,17,27 as sv).

A. 16 lacV (+/-) MH- Mel- SA : 2 3 4 5 6 9 11 12 16 20 25 27 29 30 31 38
B. 1 lacV (+/-) V V V V : 13
C. 10 lacV (+/-) V V V V : 7 19 21 22 25 26 32 33 34 39
D. 1 " MH- Mel V V : 37
E. 1 lacV (+/-) Mal- MH- SV : 15
F. 2 lacV (+/-) MH- MH- SV : 17, 21

haploid: 9

36 prototrophs tested. 31 haploid lacV: 29 (app.) lac +/-
2 lac +/+-

Malv : 12
MHlv : 11
SV : 15.

#2 maybe +/+- #3 +/+-
Compare:
(Major type only, Mal - S).

<table>
<thead>
<tr>
<th></th>
<th>Malv</th>
<th>Sv</th>
<th>B</th>
<th>1/12</th>
<th>C'</th>
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<tr>
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<td>Sv</td>
<td>11</td>
<td>58</td>
<td>12</td>
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<td>Mal-</td>
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<td>16</td>
<td>52</td>
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<tr>
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<td>Mal+</td>
<td>Ss</td>
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</tr>
<tr>
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<td>Ss</td>
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<td>0</td>
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<td>Ss</td>
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<td>3</td>
<td>9+</td>
</tr>
<tr>
<td>6</td>
<td>Mal+</td>
<td>Ss</td>
<td>1</td>
<td>5</td>
<td>0</td>
</tr>
</tbody>
</table>

\[ \frac{19}{4} : 1 + \frac{31}{5} \]

\[ B = 2 u F^x v 10 \]

\[ c = 2 u F^- x W 1918. \]

\[ H 302 = H - Lerv - Mal - SR. \]

References:
1. An isoinertiosome assises whether F+ or F-.
   Of 2uF^x vF^- depended on viability normal, thus would at least be some Mal^- SR. Split (B : C)(1:2) is actually significant.

2. "No" Mal+ S^x in B, suggests that none of these diploids are hemi-pizzlies in this region. If elimination occurs from the F+ side, it must involve only 1 of the 2 parents, and the eliminated one may be eliminate against in some fashion. It is possible that elimination does not occur at all from the F+ side. In B. Note high incidence of B4 (Mal/S) crossovers!

3. High incidence of C2 suggests usual elimination from F+ side. Many are hemi- or hemi-pizzlies. Need tests on these and on C5. Nearly half are S^v. Note: in B, only 5^x and S^v; in C only 5^x, S^v.
B1C \textit{Keruv} variety seed: (EM7M4al)

17: Numerous Malt (pinty ??)

2: 2 papilla

3: 5 papilla

\[ \rightarrow \text{Halv.} \]

15: 2 plates no Malt 7/10

2 plates: 3 malt 7/18 \[ \rightarrow \text{Halv.} \]

17 initially a few Halv. Reseeds late Hal - and mutants ?
None of this is meaningful with pre-elimination, if it occurs. Would need a 1H/5 resonance (Hα-H2)
or a 1H-1H coupling in 13 to substantiate. Precipitation of elimination is based on polarity difference.

Somewhat reminiscent: 

Luminescent tests in C1, C5 classes.

Note: Look for 1H-dephosphate in 13. (should occur by resonance.)
6/19/53

A. N1 - x $H_{326}$ mem 5 EMBal 

B. N1 - x $H_{331}$ " " 

'round thousand. E+ from 1 log. Plot and score under EMBal background ca 4-5 papillae

check for bacv + t: pick bacv to EMBal. (definitely vacuolated)

2 Bacv + alc. second from A, B resp. Some of lys in 5-7 from each. Further screening needed.

c. N1 - x $H_{325}$A (bac $>10^{6}$) $\rightarrow$ N0 E+ (L, X, 1)
6/16/53

A. Streptococci (mot.) in cow's serum.
Culture tube had not moved in 4 days.

B. FA 18 → X
6/17

C. FA 22 → X

7/19. All immobile! T.O.

6/26. No survivors in any of above! (Try 10 serum!)

6/26 St 1000* mot (trenchant) = 0 and TM 2 = E.
1. mot
2. IV
3. IV V x II (Typhio)
4. IV XXII x II

24 hr.

1. ++ (definite inhibition)
2. +++
3. +++ stimulation? or fresh medium

 demise 02 after 48 hours. Sufficient and best for control. I have not done a comparison 7/1/53. /c/n. 5 FA 18, FA 22

6/26 /c/n. FA 22 no mot. 7/4/53 T.O.
1/2/53

Cross studies in EMP 1a, e, 5th B. as received from WBE.

- VB: PA10 PB-1 PB-3a PB1 Tamara AB scale, TH 96F

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<tr>
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<th>++ lytic</th>
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<tbody>
<tr>
<td>TM2 105DA (PB1)</td>
<td>++</td>
<td>-</td>
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<tr>
<td>SW2750</td>
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<tr>
<td>SW28741</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>+ belenyki (Napoli stock)</td>
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<tr>
<td>SW2957</td>
<td>±</td>
<td>-</td>
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<td>-</td>
<td>-</td>
<td>+ mh? (0901)</td>
</tr>
</tbody>
</table>

Ordering: 105DA1  -  -  -  -  -
3  -  -  -  -  -
4  -  -  -  -  -
5  -  -  -  -  -
6  -  -  -  -  -

Titers?
Shoulder PB1

4 perhaps should first be grown to higher titer. Try TH 96F 11/92
SW28741
SW2957
P131/PB1.

Try other 4 on Napoli, Balkany, etc.

Grow Tamara T, EMP2/3.

Test VP1 props x SW266
FA12 control +

TH 2/TH12 1/887 1/957 =

PB2 -
P101 -
P137 -

Use PB2, P101, P137, etc.

*Maybe 4/5 From results, 0lg have not been made to adequate titer.

7/3/53
Test loopfuls for CP activity.

PB4:

1 4.5 3 10
2 5 8 12
3 6 9 12

For further study,
2
BAK
Dundie:
Represents types of agent.

<table>
<thead>
<tr>
<th>PB1</th>
<th>PB2</th>
<th>Sw666</th>
<th>PB2</th>
<th>TM2</th>
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<tbody>
<tr>
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</table>

Ch. pups??

It is not prepared to adequate title.

In first preparation, PB2, 13 BAKX chaul; Dundie did not. Regrow Dundie in 666, PB2 and Dundie.
From point of view of survivorship, #12 seems most likely.
Table 4 this side made: 5. luciana #12. Chen's letter
refers to 5. luciana #18 as v. specific for group XI. Presumably not this P.
Grow #12 on TM2, SW887 to test hereditarily. Also grow
#1 1/957; 9/SW730; #4/957; #17/666, 957.

Need to find better hosts for 3, 7: try isosporous stages (entodid, 
Oochorinum and yelkum).

#1 seems to differ from 01 in host range. Called plus A phase!

6/5.
#7 Sw76y (entrails) — + + + (lytic) and maternal survivors
967 (dublin) —
957 (0901) + (oregous)

DAOR
PB1 + shaded
666 ± shaded
730 —
887 ± shaded
957 ± shaded

Trans. DAOR × 666 → b, cal —

= 1063 AF
min. 65mm b: —

Repeat 7/8:
DAOR × 666 → b

Stirred.
— > 967 → (gm) +
— × H901 — —

Repeat, looking for trails in plates × 666

(Prep: yeast star 7/76y, 1/4901, etc.

PB1 — borders DAOR (now) but — 666
12/742, 887, 957
4/1901
7/76y, 4/1901

(1) Miscoff and Beat

7 × 666, 957, 957 all — in 24h.

Title?

ch2 — 8957 (ch1/742, 887, 730) all — in 24h.
B1 (CH12/BB1 ascites x sub20 salt) → salt + agglutination
B2 CH12/T42 → salt + contaminating
B3 " 1887 " → salt + contaminating
7/8. Repeat after CH1P3 treatment x 666, 957, 967 all →

A. B80R → sw666 / motility → y. numerous pseudopodes + halo →
   CH1P3al → ca. 100 G. h. / 1 ml
   Purify.
   Controls: each 0, 0.

B. 1) pools mobile transadventina (>30) all dead →
   2) indistinguishable → all dead → bile to broth for
   sub. dysagglutination test.

Bb. 1. 20 stools sent: none motile, all pure salt +. Test pure for
   dysagglutination / motility.
   " as before, no
   salt: H, F, Md, Histoxy.

C. PA90 x sw6500. / Cal same (on 3-10 plates).
   1D (Histo) ± FA. no evidence of transadventina.

CH2 T42 x 666
1930 x 1887 =
152 x 666 →
dunbar x 666 =
(over)
Lysozyme tests on 63 A-13.

A: 1-8 all are lysogenic on BAOR; sensitive to FA10.

Sw66 not == == ;
Sw928 == == ; resistant.

all are resistant to FA90.

no control, BAOR/FA90. By 90 x Sw66 these became evidently become lysogenic for BAOR indicator. In transduction platings, only rare plaque were seen. Some A1, B1 for further study.

β: 1-20 15 lysogenic on BAOR. Suggests that

BAOR might also be lysogenic in many of these.

5 may be sensitive. Initial studies a

few were resistant possibly mixed lysogens.
### 7/11/53

**Leucine lysogenic?**

<table>
<thead>
<tr>
<th>1063 A1</th>
<th>BAOR</th>
<th>PB2</th>
<th>SW666</th>
<th>FA90</th>
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</tr>
<tr>
<td>BAOR</td>
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<tr>
<td>PB2</td>
<td>-</td>
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</table>

Note difference of 1063A1/PB2 and FA90/PB2. Suggests 63A1 may be lysogenic for a phase other than BAOR!!


**BAOR lysogenic for Y-carrying:** 1063A1 = 63C1

Student 63A, 63A/PB2, and 63A + BAOR...

BAOR may be lysogenic for another phase which attacks PB2, SW666...

But this is probably distinct from the lysogenic phase in 63A-PB.

---

4008: E. coli end of SW1060 (Chery, 305-32): cross with 6713 Lac

<table>
<thead>
<tr>
<th>SW1060</th>
<th>PB1</th>
</tr>
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<tbody>
<tr>
<td>Taunton</td>
<td>-</td>
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<tr>
<td>Bursall</td>
<td>-</td>
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<tr>
<td>Dundie 1</td>
<td>+</td>
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<tr>
<td>Dundie 2</td>
<td>++</td>
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</tbody>
</table>

After 48 hours, SW1060 inhibited in 1, 2, 3 centers -> SW1060"/

Try to grow Dundie Bursall on SW1060.

---

63C1 FA90 x 63B1 /mut
63C2 FA10 x 63B1 /mut

- Hold techniques for beta-lyogenic test
T7N 174-95 for further study. From W1325 x W1394

Treat 2 colonies from EMS lac. 1 = pure lac +, poor growth. She 2 = lac-. lac +, - and ?

Results 4.?

1,2,4: Variable colony size in EMS lac; no -
3: Mostly lac-, Mal-. Occ. small +.

7/4: A: Rubules + colonies from 1,2,4 in EMB, E75 Mal +/syn.

Edges of many colonies looks lyself

Test parents intact +, - for sensitivity to 8.

B: Rubules 6 colonies from 3 (pres. +2v, not -).

All motted + in EMB lac. -> pure lac +

Replica of 1-2-3-v above : 1,2,4 and lac+ 3 me st Mal +

lac- 3 = st Mal -

Tests for 4: Using parents, 2-3- and 4-2 indicibus, and

parents, motted + in 4100:

No sign of 4 in cross-bred on E75 30.

may be diploid or more likely, contaminated prototyp - i pronounced cytoplas.

Try Mal + prototypl = on E75 Mal +/syn.
7/8/53.
N97. C. to
A. 2, 3, 4.6 plates (pax 6, 6, and meningita 6)
B. UV 400 cc (with scales)
C. Δ - 48. 10 min.

Numerous swarms - more in B than A? - in b (pax ulivella).
None m b (meningita)

wite A4: 6, 1, 2 ++? Squalbe gen. red.
7/11/53. (UV - 400 cc.) Stumbling moves.
A. 8, 3, (5)
B. 2, 10, 2
C. 1

Too variable for any clear result!

Dane 7/14 m 1, 2.

A1, A4
B1 B2
C1 C2
D1 D2.

Dane 7/19 m 1, 2.

No prompt swarms through 1, 2 were in all tests!

7/16. Refig.
6/18/53 W - 1975, 1977 in 0/0) + glycine or serine
2/liter pH 7

<table>
<thead>
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<tr>
<td>100</td>
<td>+++</td>
<td>-</td>
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</tbody>
</table>

+++ est. 10^3
(++) est. <10^3

Concludes: W1977 is specific for serine.
In most cases, 100X serine showed early inhibition - serine specificity?

6/20/53. W1977

x in sol 2mg/ml
10X/ml in 10ml tubes = 0.05 ml

Serum's compound has about 10% activity of L-serine.

100X L-serine = 100X L-serine.

Multiple early growth at serine > 50X/ml.

Might be possible to select resistant mutant, without
Occasional (ca 1/10) that at low serum adapted.

Fell wild growth not achieved for either W1975 or W1977 with 100X serine, or 100X glycine. Mixture
Not tried in these experiments, but probably L-serine
used for these experiments.
Singer later stated his compound was mostly aspartic acid! (Asterisk for unclear?)

[Handwritten note: the relationship?]}
7/17/53. SW1061 received from Edwin 7/16.
Both A1 and A2 tubes TM2 did not migrate in 1, 2, 3.

= 67A1

67A1

= 67A2

Tube of "TM2" ph1,2 5/12/53, and TM2 ph1,2

= 67A3

67A probably come from 1039-1, confused ancestry, but likely a single N3A colony.

i - 1/2, white bodies for

strength of crossed reaction.

67A3 = TM2

: 1++ 1,2 -

67A: 1-4 (S.C.)

all react 1,2 ++ ++ promptly!

67A3-1 in 2

First tube 1 \rightarrow 3 sec. from

TM2 NA with

1,2 + + b -

= 1061 No tube

1/2 +++

67B: 22/5 SW1061 -> SW266. No 1/2 ++ + in tubes

though numerous survivors might remain in

Tube to be retested! No 1/2++ tube.

In 1/2 sec, A1, A2 and SW1061 are each viroided.

TM2 (A3) passed readily through both i and 1,2

22 x 1061 also viroided.
7/18/53.

Our 1060 from China reported to be susceptible to 113 phase B, Bude, Taunton. In my hands, Dundee ++.

1. in 1:2 serum -> c phase. This was tested on below.

<table>
<thead>
<tr>
<th>FA 10</th>
<th>1/2</th>
<th>Dundee/1060</th>
</tr>
</thead>
<tbody>
<tr>
<td>FA 90</td>
<td></td>
<td>Dundee/1060</td>
</tr>
<tr>
<td>FA 18 (2271) +</td>
<td></td>
<td>Bude/1</td>
</tr>
<tr>
<td>Dundee</td>
<td></td>
<td>7-0</td>
</tr>
<tr>
<td>Dundee/618</td>
<td></td>
<td>no activity on 1060</td>
</tr>
</tbody>
</table>

PLT 7 +

This stock seems to be susceptible to PLT 22 and PLT 3 as well. Attempt to grow these phage on it.

Slide agglutination. SW 1060 (from EMPAGE, dundet):

| IV V X | II | ++ |
| I X X | II | ++ |
| VI V II | VI V III | ++ |
| I X X | II | 11 |
| IV X VIII XII | I | ++ |
| C | 1/5 | + gram |
| V | |

No neutralization of PLT 7/1060c; PLT 22/1060z. "lytic, still active" in PLT (Bundet?). Try x 616.

7/20

68A1 7... x 666) no motility

68A1 22... CC) SW 1060c itself part motile - part type

Host 1) (probable, carries own 1060) after preceding
also worked slightly with 15 serum, C, and 853. 732, 737 reacted poorly with both in plant or sol.
853 also showed failure (?) vs. P7, P22.

I do and start fresh after summer.

68B.

in C, (reuteri) or C (H) serum as indicated

in C, (0.1 ml or 0.2 ml/tube), almost same.

7/26:

1. SW1060C 1C => 1.5
2. " x PA22 1C => 1.5
3. SW1060C 1C
4. " x PA22
5. SW1060 1C
6. " /2, 2x
7. " x
8. " x
Vi + Typhi x x

Hsc. X x 0901

9-10/53. See 1071.


After 2-3 passages, both cultures were actually motile mobile, but. Read Vi + x - except for ampicillin 820 760 which was Vi - . Passage strains of 820 759 762 rotated x in ampicillin tubes + ampicillin.

A.
1. Superim. ++ + ni 24-48 hours.
2. + + + unclear. Complete inhibition.
3. PA10 x, " NO outgrowth
4. PA22 x, " "

Decayed after two weeks.

B. Use 31 as inoculum. Found not very mobile.
Repeat passages.

9-15. C. Varius didn't phage from Anderson, after 10 tubes. Test x 820 757
in tubes: (820, 83, 81, 84, 86, 23, 28, 26, 30, 32) all

negative. Redo transfer to fresh tubes, fresh tubes.
29' swarmed. Repeat test.

However, "controls" PA22, 8A85 gave no swarms. From a few trails?
Redo trials 28' and 820 swarmed in second tube. Test not the 1st. Appearance of multiple sites questionable.

Forgot - Vi,
motility x Vi.
7/27/53

W1875 x W1321 in fusion, flasks media 0.02% trp, Epireal 300. Spated each.

cont'd on.

1 full lact (full 2% of all lact + 5%)

Retentive on Epireal. Held at 1070 A1, A2 - 76 6/9 to 767.

(should be A-)


<table>
<thead>
<tr>
<th></th>
<th>Hfr</th>
<th>1177</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>1070A1</td>
<td>-</td>
<td>800-1,000 calf/ml</td>
<td></td>
</tr>
<tr>
<td>1070A2</td>
<td>-</td>
<td>control</td>
<td></td>
</tr>
</tbody>
</table>

10/6/53 W1875 + W2333-8 in broth overnight. streak on EMBroth: All showed lact + 5% ca 1-3%.

W2333

2333

2335

2336

2337 gave few or none

Use 2333 for further tests.

Mutant stuff now +.
September 5, 1953.

A. SW957 x
   1. Control
   2. FA22
   3. K (endemic stable)
   4. y 5.

B. SW66.
   1. Control
   2. FA22
   3. K (endemic stable)
   4. y 5.

Plates
A 1
   2. no sw. on plate
   3. v. numerous sw. failed.

B 1
   2. numerous sw.
   3. 3 sw. seen on plates.

Tubes

5. 5-6 mice made 100 tracks. Plate and results - 71 45.

K function as transducing phase. FA22 appears to have lost titre in part. Use 71A5 for X-gallnamun, myd serum (cf. H401)

10/1/6. 457/k (not mutaded). Tested and resistant to FA51, k.

9/9/53. k x ... sw. 3 mortality ages 1 plate each

C.
1  550
2 1063
3 1066
4 1067
5 1068
6 71A6
7 1072
8 1072

D1 FA51 (01) x 71A6
1 sw
2 53A
3 53
4

Swarms: significance?
Note: electricity is 5 as well as 2.

Note: 6 = S. Berlin/S. panel 13. XR may be related to 3.
September 15, 1953.

58-161 from single (MLA) streakout. Pick mecolony = 1072-01 (EY212ae).

9/14/53. Prepare 0.1% for reisolated, single clones.

9/15/53. Save samples; inoculate mobility tubes and plates.

A:  
1. +++
2. +
3. +
4. +
5. +
6. +
7. +
8. +
9. +++
10. +++

B:  
P19. N20 A73
P19. N20 A73
B:

9/18.

+++ = mostly complete on through tube.
Remain +++ to fresh plate. All to 5918.
Hold tubes cold, day.

P23: Already unmotile culture. Remount from top.

Store streak plates to 10/5. Pick single colonies at 10/13.

(motility and aftergrowth of second mobility solution) for compatibility tests. Note second mecoloid at 16, 19, A-B, 20B (same A) with +3, 4, 17, 18 B. Relationship to solution? Retire mecoloid colonies from 19/5. Note noticed in xenic A.
10/8. Test large drops of concentrated mixtures

\[ 2 \text{ W1177, W1876 mixtures} \]

for compatibility issues

10/10. Most × overflow? check this panel!

W1177. (Contaminated ??)

<table>
<thead>
<tr>
<th>× W1876 yield</th>
<th>predominant ketcro -</th>
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<tbody>
<tr>
<td>1</td>
<td>×</td>
</tr>
<tr>
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<tr>
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<td>×</td>
</tr>
<tr>
<td>19</td>
<td>+</td>
</tr>
<tr>
<td>20</td>
<td>+</td>
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</tbody>
</table>

X× confluent

all × 1177 are ×

Repeat 11/1/53. (test + B3)

<table>
<thead>
<tr>
<th>A1</th>
<th>W1177</th>
<th>W1876</th>
</tr>
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<tbody>
<tr>
<td>#1</td>
<td>+</td>
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<tr>
<td>B1B</td>
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</tr>
<tr>
<td>1</td>
<td>?</td>
<td>+</td>
</tr>
<tr>
<td>2</td>
<td>#5</td>
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</tr>
<tr>
<td>10</td>
<td></td>
<td>+</td>
</tr>
</tbody>
</table>

W1607 +

W1607 +

Note ratios may need adjustment.

of 1-10, 1, 2, 7 maybe F+ still. Rule 3.

Some plates may have been too heavy. Unless specified.

5, 12 should be rechecked after compatibility is confirmed.
88-161 sterile streaked out. Individual colonies = 72A (1-20) inoculated in motility tubes (1-10) or plates (11-20). Make monoclonal for second passage. Also streak out three monolayers and save s.c. = 72B (1-20) A. Streak out second passages and s.c. = 72B/B-1 for F test. Test all 1-10 by J2 (ultraviolet sensitivity, washed and plated D(0)). 11-20 by TCN (grown together, plated on EM Shae Th 577, DO Th 577).

Results of B x B series: All F- except 1, 8, 16, 14, 15.
14 may be sensitive Hf (cf. W 220 = 1022 C3). Shown up by induced fertility = F+ as well as compatibility. Few prototrophs were rechickened.

at EM Shae: 1: 1.5/1 2: 3/5 6: 1/1 7: 3/-/1 and
Huffman clearly beneficial. Should be rechickened and justified selected.
Swim A should also be reviewed.
A: FA84 x H901 mot. B: x 71A6 mot. / d 10Y3.

A: 4/5, 9/18. -> all gm+
B: dtt

A1: a/a 6/19
A1: ++, pv - gm-
A5: j++ pv++ gm? d?
B5: gm++ pv++ j- d-
unid A0: j+++ d-gm-. = sw107

Area: FA85/sw775
84/sw774

9/17. 84/A S. gelmanii
84/B
85/A S. pulmonum
85/B

0901 motors.

Luxir failure may be attributed to insufficient motility of the H901 read.

A4: maybe mixture of f, gm.

A1: s.c. = sw107
6/6 gm+ d+ (gm inj. or)
A4: c. 4/4 gm+j+

But note: Already rt. + ni pr
A0 in cupe, test SW 101.

Further: Treated to dept.
to isolate for selected higher frequencies.

Late cultures in fresh dilution YCA sw (1/60 of 1:5000)

Jambotat sw/1041, 1097
gm++ pv++ j-

1096

gm- pv j++.
\[ B_C \]

10/16 - C3 b+ ? z33 +? 1,2 - CUV - somewhat rough.

C4 still CUV+ , b - 7/8, 1, 2 -

There were some sticky spots.

Neculem s.c.i.

10/17

summit B3

bottom C1

Petest single colony isolated:

10/19 C3 b: z33 + 1, 2 - CUV - hemolytic.

C7: CUV+ b: 1, 2; CUV -

C4: CUV +.

B3: Rough. b?
A) 976 × main \rightarrow b ; 1.5 \quad / 3.5 \rightarrow 0 \checkmark

B) 8050 \rightarrow \text{long bridge} \rightarrow b \rightarrow \text{emu}

C) abm \times 976 \rightarrow \text{emu} \rightarrow b \rightarrow 0.

Note: no. 2

(higher)

Pure emu of \text{emu} \times H_1, H_2 11x is still \text{emu}?