

W351

Nov. 10, 1948.

58-161 x W583. m E145 Lac B₁

L	M	G	X	A
+	-	+	-	+
-	+	+	-	+
+	-	+	-	+
+	-	+	-	+
+	-	+	-	+
+	-	+	-	+
-	-	+	-	+
+	-	+	-	+
+	-	+	-	+
+	-	+	-	+
+	+	+	-	+
+	-	+	-	+

L M G X A

4

check TI sensitivity on Gal EMS.

- 20 Ar+ : All Gal+
MS
1 R
- 23 Ar- : 1? Gal+
22 Gal-
all S; no R.
- 58-161 : S
- W583 : R

Summarized. 164 total.

Lac + 187

Lac - 27

Note excess of Lac+!

Among 27 Lac- Mal+ Kyl+ Gal- Ar-

Total :

Ar + Gal closely linked.

12 Gal- Ar-

1 Gal- Ar+

0 Gal+ Ar-

151 Gal+ Ar+.

test Ar with Lac.

Lac- Ar- 15

Lac- Ar+ 19

apparent interaction of Ar \bar{c} Lac.

Lac+ Ar- 5 (triples?)

Lac+ Ar+ 126

However, the distorted recovery of lac- makes the conclusion dubious. Suggests that Gal and Ar are very near to ~~the~~ V₁. Check directly.

W477 Lac^R.

W352-

Nov. 10, 1948.

Streakout W477 on EMB Lac

11/12/48. Pick ~~top~~ 2 papillae to (1). EMB Lac

T₁ - col

P14 to (2) to 5 purification = W588!

Nov. 11, 1948.

Struck out, on glucose, for papillation:

from W252,

- 1 W431
- 2 436
- 3 437
- 4 438.

252 stock apparently Glu+. Retest
Present stock apparently contains
or omitted.

12/6/48. W-252 received from
Doudoroff. Check OK as Lac+ Glu-

from W327, Mal-

- 5 W441
- 6 443
- 7 W52-~~446~~
- 8 448

Mal sl

- 9 447
- 10 453
- 11 439
- 12 440

- ①: 4 Glu+ colonies examined: all +. Store as 353+1. Probably ~~was~~ Lac₃+
- ②: 1 20+. Not Lac+!

	Glu	Mal	Lac
353-1.	+	+	+
2			
3	+	+	-
4			
5			
6			
7			
8			
9			
10			
11			
12			

11/16/48. Restraints from EMB Lac plates above.

N17.

- | | | |
|------------------------------|----------------------------------------------------------------------|------------------------------------|
| 1. many +. | Pick to EMB Lac individually for possible β -gal + Lac- types. | |
| 2. papillae in wood streaks. | Restraints. | A few +. As 1. |
| 3. " | " | pap. hold. |
| 4. all - | " | pap - hold |
| 5. " | " | - hold. |
| 6. Several +. | As 1. All were ⁽¹⁴⁾ Lac-. S.O. ① 20353-6. | |
| 7. papillae | Restraints | +,- As 1. |
| 8. all - | " | Some slow + hold. |
| 9. pap. | " | +,- As 1 |
| 10. pap. | " | do. |
| 11. pap. | " | Some slow + hold . As 1 |
| 12. Same + cols, but | " | As 1. |

① → 11 tested. 2-; 2+ and -; 7 +. Pick 1- and 1+ for purification

11/25. Take these cultures up again which had been held for a week

2: 7 all Lac - (should be tested on Mal)

11: 8 all Lac - (" ")

16 Lac + ~~slow~~
C Lac - slow.

9. β -gal ++ and β -gal slow. Test on Mal

10. all β -gal +

6+7 all - (7 slow + ?)

11/30/48.

-9. 3 colonies glu^{++} } Mal^{++} } Purify 1 each. Kup. as 353-9
2 cols. glu^{\pm} } Mal^{-} } glu^{\pm} . T.O.

-2 3 Lac^{++} } ① each. glu^{++} Kup as 353-2
2 Lac^{-} } glu^{\pm} T.O.

-3 5. all Lac^{-} ① glu^{\pm} T.O.

-4. 11 all Lac^{-} ①. glu^{\pm} T.O.

-5 5 ~~Mal^{+}~~ }
1 Mal^{++} } 1 each. glu^{\pm} T.O.
2 Mal^{-} }

-8 6 Mal^{-} ① ~~glu^{\pm}~~ T.O.

-10 4 Mal^{-} ① glu^{\pm} T.O.

-12 8 Lac^{-} ① Kup as 353-12

-11. Lac^{-} glu^{\pm} T.O.

~~11/11/48.~~

83 plates T2 } 8-161 Hanovia UV lamp 7 sec.
 85 EMB } glucose. Ca. 100 / plate = 16,800 tests.
 1 each from T2 and EMB.
 W593 W594

Under T1, Lac, Mal, Xyl.

11/12/48.

To a base of Peptone 10
 Ferrumacetate .5
 K₂HPO₄ 1.0
 Agar 15 / liter

Prepare plates with following supplements (1 liter).

K-12

SW13.

1. Na thiosulfate .8 g

2. —

3. Cysteine 100 mg

4. " + Nats

5. N₂Case 20g

6. " + Nats

In 18 hours, all grew quite well, but none were discolored. do. 72 hours.

Kligli's Phacetate agar ~~also~~ ^{to} used. neither gave sharp reaction c K-12 or Sd/11.

11/9/48.

S.O. stabs suspensions on EMS sln.

P11 Pick 4 cols. each to water. S.O. Lact Xyl EMB.)

	1	2	3	4	
H1	-	-	++	-	
H22	-	-	-	-	
H52	±V	±V	±V	±V -	OK 1-3
H62	-	-	-	-	
H72	±V	-	-	-	
H85	±V	±V	±V	±V	
H93	V	V	V	V	

These critical strains should be carried by repeated single-colony transfer.

So H52/1; H72/1; H85/1 and H93/1 on EMS Lac. and old stocks of the other strains here. Not recovered from suspensions. Detect single lac+ colonies, and s.o. concurrently on EMS. Recover from EMB to EMS Lac.

11/16/48

H1. 8 tests. 1-4, 5, 8 OK.

H22 8 tests 6 best V; other OK.

H52. 4 tests 1, 4 OK.

H62. 8 tests 1-4, 5, 8 very good 6, 7 OK.

H72. from lact EMS. 2 tests both Lac -H85. in Xylose EMB. 2 tests both v.g. (on lact EMS. Med Xyl ~~#~~)H93 2 tests both OK. on lact EMS near -.

H-72 needs be recovered! OK ✓ . 11/18.

11/12/48

.2ml serum / 10ml

NaP 7.5 4/50.

.001ml 319A.

Serum	D_i	D_e	D_i^{cor}	Δ
1. —	007	190	190	190
2. 11/11	580	630	522	108?
3. 11/6	437	546	397	149
4. 11/4.	350	481	315	166

See L. J. case
for definition of
these sera.

Streak out individual mosaic colonies from each heterozygote to classify with respect to lac_1 ; lac_2 . Also test individual colonies, as seen, on β -gal in .5 ml tubes.

	β gal.	S.O. on LacEMB.
1	+	
2	-	
3	not H.	
4	-	- , V
5	-	- , (V)
6	-	- , V , +
7	-	- , V , (+)
8	-	- , V
9	-	- , +
10	+	- , +
11	-	- , V
12	-	- , V
13	-	- , + , (V)
14	-	- , + , (V)
15	-	- , + , V
16	-	- , V , +
17	-	- , +
18	+	- , V
19	+	- , V , +
20	-	- , (V) , +
21	-	- , (V)

W477 +
W45 -
W583 +

Study, in detail, 1-4. Pick ^{8.} colonies and test on β -gal.

- ①. 1-3, 5-8 are β -gal + #4 is β -gal -.
- ②. 1-3, 5, 6, 8 are β -gal -; 4, 7 β -gal +
- ③. 1-4, 7 are β -gal -; 5, 6, 8 are +. streak each of these out again
isolate and retest on lacEMB. to cross tests

Segregation from $\frac{Lac_1}{Lac_2} \pm$

357b.

December 2, 1948.

H-135. *S. colonicus* nutritional test:

	Bugal.	Nutr.
1	-	TB ₁
2	-	M
3	-	M
4	-	M
5	+	++
6	+	++
7	-	M
8	+	M

12/6. Originals, on EMS loc., of these cultures
cannot be found.

$\text{Lac}^- \text{Gal}^+$ 6 \therefore This is the right order.

$\text{Lac}^+ \text{Gal}^-$ 0.

BM	^{ca 4u.} Lac Gal	V ₁

1/14/99

This class is missing because Gal⁻ is epistatic to Lac⁺.

(2)

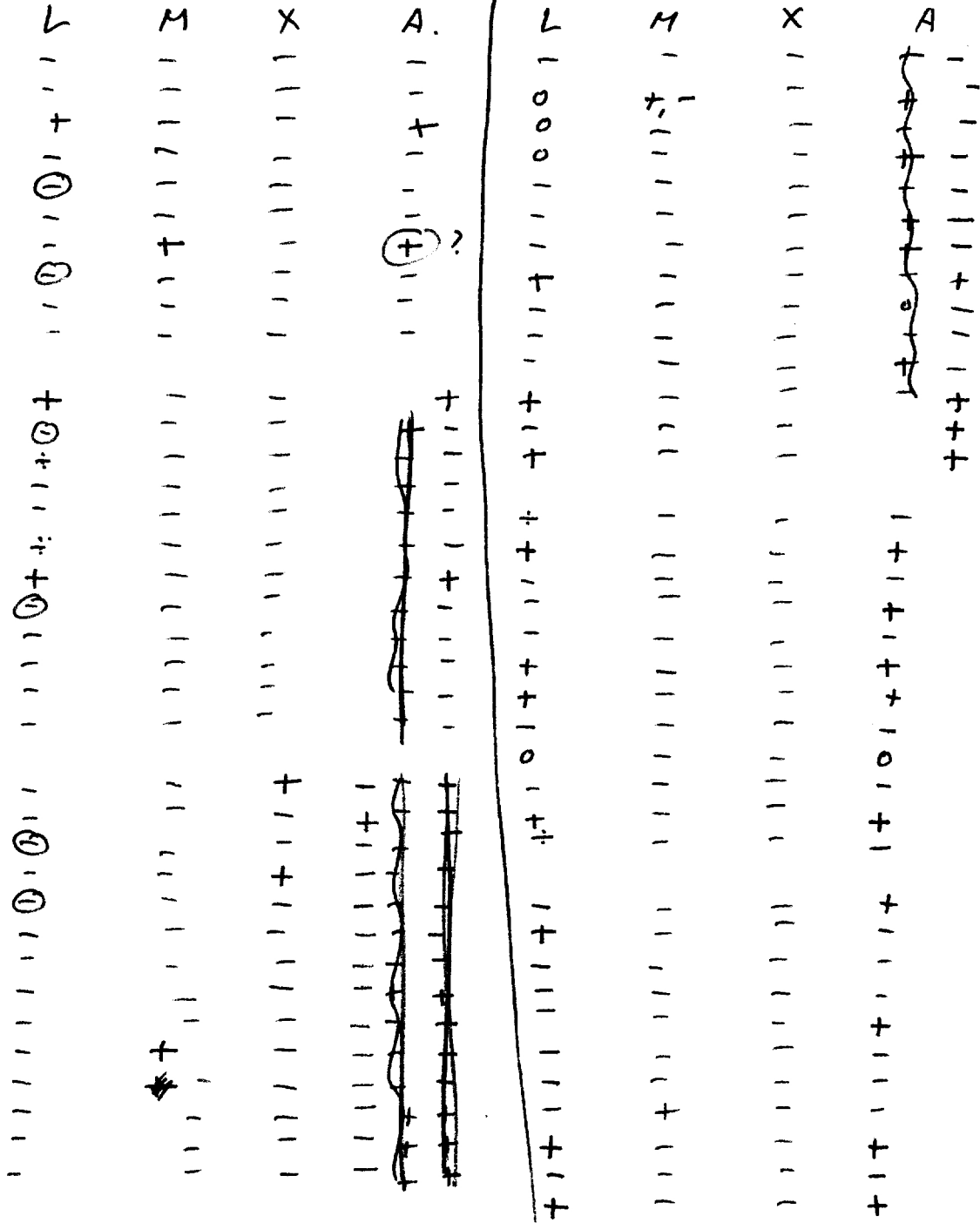
T(B). 10

	L	M	B	X	A
10	+	-	-	-	-
5	-	+	+	+	+
6	+	-	+	+	+
7	-	+	+	+	+
8	+	+	+	+	+
11	+	+	+	+	+
12	-	-	-	-	-

	L	M	B	X	A
9	-	-	+	-	+
4	+	+	+	+	+
4	+	+	+	+	+
4	+	+	+	+	+
4	+	+	+	+	+
4	+	+	+	+	+
4	+	+	+	+	+
4	+	+	+	+	+
4	+	+	+	+	+

Kal and Aal are clearly linked to Lac., but ~~the~~ relative positions are not clearly established. The critical recombinants, i.e. B±L± should be rechecked for classification. *Have been rechecked.*

Additional tests (sugars initiated).



(3)
T(B₁)

Pick colonies to Xyl EMS(B₁) for scoring of this character alone.

899

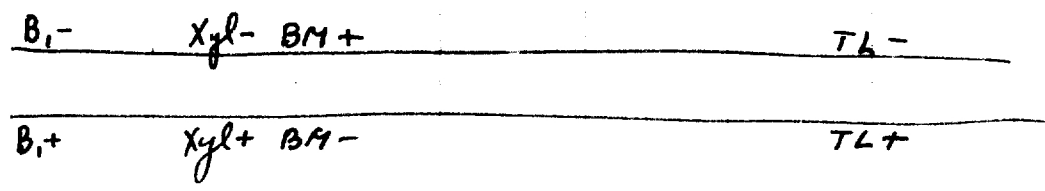
	Xyl+	Xyl-	Σ					
- B ₁	4	95	99	!	omitted :	4	95	99
T(0)	30	73	103			7	82	89
	37	82	89			<hr/>		
	41	250	291			11	177	188
				= 14%				5.8%

T(B₁)

3	81	84	
2	75	77	
3	111	114	
2	118	120	=
	101	102	
<hr/>			
11	486	497	

3.3%

There are definitely a higher number of Xyl+ among the B₁+ than among the B₁-.



There should be a greater discrepancy between B₁- and B₁+, but this seems to place Xyl in the indicated position, between B₁- and B₁+

11 "Xyl+" tested on Mal. 10 were Mal+
1 Mal-

T(B₁) This establishes a linkage between Mal and Xyl.

11/15/48

357 W45 x W477 m EMS lac

359.. W145 x W466 " " 1/16.

359. - 27 + colonies from 10 plates. S.O. on lac EMB.

357 $\frac{38}{65}$ + colonies. 17 are lac Var. (ca 40%)
mutated

357:

	to EMS lac for retest	Xyl EMB	Lac EMB	→
1	1		✓	⊙
2	5	+	✓	⊗
3	6	+	—	●
4	10	+	✓	⊗
5	12	+	✓	⊙ and ⊗
6	13	+	✓	⊗ + pred.
7	15	+	✓	⊗
8	16	+	✓	⊙
9	17	+	✓	⊗
10	19	+	✓	⊗
11	20	+	✓	⊗
12	21	+	✓	⊙
13	22	+	✓	✓ type?
14	25	+	✓	⊗ + pred.
15	28	+	✓	⊗
16	30	+	✓	⊗
17	31	+	✓	⊗
18	33	+	✓	⊙
19	37		✓	

deo 20 + 21 20 is ⊙ 21 is both.

359.

	Xyl	Lac	Sma	Mal
21	++	++	++	++
22	++	++	++	++
23	++	++	++	++; 2-cda!
24	++	++	++	++ prob onto.
25	++	++	++	++
26	++	⊗	++	++
27	++	+, -	++	++
28	++	++	+++	+++
29	++	++	+++	+++
30	++	⊗	++	++
31	++	⊗	++	++
32	++	++	++	++
33	++	+, -	++.	++

∴ either possibly 5 lac⁺/lac⁻ 1 mixture of these.

⊗ = sectorial variation
⊙ = periclinal variation.

380.

Chloroacetate papillation as a test for diploidy
streptomycin resistance

11/16/48.

Take single colonies from 356 a H-stokes to water and streak on T(O) ~~10~~ + Na Chloroacetate 1mg/ml and streak out on EMB Lac. cf. K-12.

	Stoks	Quadrant (v. 356a)	T(Cla)	EMB Lac	T(O)
1.	H-1	1		✓	+++
2	"	2		✓	+++
3	"	3		✓	+++
4	"	4		✓	+++
5	"	5		✓	+....
6	"	6		++	+++
7	"	7		++	+++
8	"	8		✓	+++
9	H52	4		✓	++
10	"	2		-	+++
					+++

K-12.

H17: no growth or papillation T(Cla)...

Plate W478 heavily on USA ± 100u/ml Streptomycin.
11/16/48.

PIA - no colonies.

Plate typical Chloroacetate at various conc. (µml: in T(O)).

	100 µg	200 µ	500 µ	1mg.	T(O)	EMB Lac.
K-12	- pap	-	-	-	++	✓
H-72 -1	- "	-	-	-	++	✓
-2	- "	-	-	-	++	✓
Aerogenes.	++	++	-	-	++	

- amount of residual streptomycin.

Mannitol utilization tests.

11/17/48.

73 plates x 300/plate 21,000 tests.

W583, 7 sees 40, Mannitol EMPD.

quite a few slow, lilac 1.

		Mannitol	Sorbitol	Glucose	T7
1.	W593 slow.	-	-	+	S
2.	W596 unopurification	+	-	+	S
W597	3. - or slow?	-	-	+	S
4.	- slowish. not certain	-	-	-	?
W598	5. -	-	±	+	S
W599	6. -	+	-	+	S
K		+	+		K. R

Repeat tests.

- 1
- 2
- 3
- ⑤
- 6

slow + slow +
 slow + slow or ++
 + v. slow +

slow + - - W595.
 +

Streak out streaks, heavily on EMS Xyl.

- H: 87. no cols.
 88. 2-? colonies.
 85, 86 4. col.
 91 mostly -; occ. + cols.
 92 ca 5+ cols.
 93 no cols; 2 cols mentioned.
 94
 95 } no cols.
 97. }

11/22/48. ^xH88. both xyl - Gal - no longer heterozygous for xyl.

H91. xyl +, - cols. [Restrained on xyl EMS.] + and - cols. noted.
Gal - but 2 kinds of colonies noted: "R" and "S"

^xH92 Pure xyl + on EMB.
Gal -

H93. Gal - Lac(s) - #3 is xyl(V).

Streak out H93 for papillations on Lac; Gal EMS.

Re-test on xyl EMB., 8 cultures. All +. No heterozygote.

11/24/48.

Streak out M93 on EMS Gal, Acet + Lac. and as EM3 Xyl.
To look for reversion.

11/27. Papillae from Gal + Lac to same EMS. Acet + Lys + slowly, ^{initiating selection}

4/4. Numerous Lac+ colonies from papillae 1 + 2.
 ^ ^
 - 1/4. 1 2 3 4.

EM3lac + EM3lac.

All 4 are Lac variegated! Confirmation of lac-homozygous.
Gal papillae on EMS Gal are not cleared.

→ They have the form, however, , being + only in the center.

The diploids on Lac EMS, even if more slowly, but have a recognizable appearance.

4. Gal papillae taken to Gal EM3 EMS.

A	Gal EMS Mostly intact, strong ++	Gal EMS. All -	Probably, signified
B	" "	++	
C	Numerous colonies which have distinct centers and light margins. Not obviously variegated.	+ like EM3.	
D.	like A.	++.	

12/2. Streak out A B C + D from EMS to EM3 Gal and Xyl.
Also streak out C from EM3.

Xyl: A var B var C ++ D -. A + B are variegated.

Lac₂ + - heterozygote

364.

11/19/48.

W45 x W588

20 Lac⁺ colonies picked.

#17. for retest. This does segregate for Lac and is presumably $\frac{\text{Lac}_2^+}{\text{Lac}_2^-}$.

H118. Predominantly +. Strains out on LacEMB. Maintains on EMS. From mosaic A + B obtain - col. and test mutation.

A1	mg.		B1	MTL	C1	MTL	W 606 607
A2	++	70	B2	MTL	C2	M-	
A3	+++	70	B3	MTL.	C3	M-	

Control on Bugel fermentation and selection of Lac-.

P28. inoculate, roughly, 58-161 and Y10 each into 2 tubes of Bugel..

P29. Strains out on LacEMB. Bugel tube:

58-161-	1	about 20% -	A	+±	Some Lac slow? = D.
	2	all +		++	E
Y10	1	about 50% -	B	+±	
	2	about 1% -	C	++	W 602-5.

P30. Purify one - from each culture.

Re-test all 4 cultures. P30.

A1.

58-161	A	1	as about.
"161		2	
Y10	A	1	1:1
Y10	B	2	100:1

→ +/-

Retest D and E on Bugel.

D: Bugel ++ Strains out on lac
 E: Bugel - rL.

additional bar-recovered

Streak out mosaic colonies and test (1-3) Lac - from each.

12/2. 1. ++

12/3.

A. MTL

B. MT

C1 MT

C2 ++

C3 MTL

D1 M¹ TL

D2 MT

D3 M

12/4. A1 M
A2 MT(B₁)
A3 M

B1 M
B2 M
B3 ++

C1 MTL
C2 MTL

D1 MTL
D2 MTL

12/5. A1 M
A2 M
A3 MT

B1 MTL
B2 M
B3 ++(B₁)

C1 MTL?
C2 MTL?
C

D1 M
D2 ++

12/12 Culture in T(TLB₁) liquid. streak out on EMS lac + TLB₁ and test single lac - colonies. Hcl10 were B₁ - .

11/19/48.

1% x EMB.

- A. KNa tartrate
- B. Propylene Glycol
- C. Dextrin
- D. Gum Arabic
- E. Sucrose

	A	B	C	D	E
K-12	- pop.	-	-	-	-
Aerogenes	±	-	-	-	++
S. typhimurium					
Malt+					
" Mal-					

11/21/48. Streak out papillae of K-12 on EMB tartrate. Also S.O., 58-161
W583.

11/29/48. No evident ~~for~~ acid production. Streak out to EMB ammonium H
tartrate, which may be more oxygenic.

11/21. Y87 on EMB sorbose. No obvious fermentations.
No marked utilization

11/29 neg. papillae
noted. Reverts to
EMB sorbose.

11/24/48....

P23. Inediate 10ml washed suspensions of Y87 and W126 in H₂O,

- A) 10 secs. in operator dial inoculate 1ml/10 Y2 broth for crossing.
- B) for control, Y87 x W126. (see 367).

P24. Cross

10 plates x ca 250 prototrophs / plate. N26, # Lac + seen.

1 from B. 25.

Check out on Lac EM3 and ~~on H₂O~~ EMS.

N27 A: #6.

24h.1 to EMS.

EMB

1. Lac ++

Lac ++

2. missing, 1st test.

3. variegated or incomplete +



4. " " , maybe much very rough



5. " " " "



See 371

11/24/48.

P24. Quadrant, as 365, 5 secs. independent. broccolate
 1ml / 10 Y2 for cross.

Cross 11/25.

P27: ~~Very~~ heavy yield, ca 100/plate. V. few + 10 plates
 9 lac+. S.O. lac EMS + ~~lac EMS~~ lac EMS

lac EMS.

- ① Mostly -; occ. + probably Var.
- 2 lac ++
- ③ ⊕
- 4 mostly -
- ⑤ ⊕
- 6 lac ++
- 7 lac ++
- 8 lac ++
9. Mostly lac-; + maybe many.

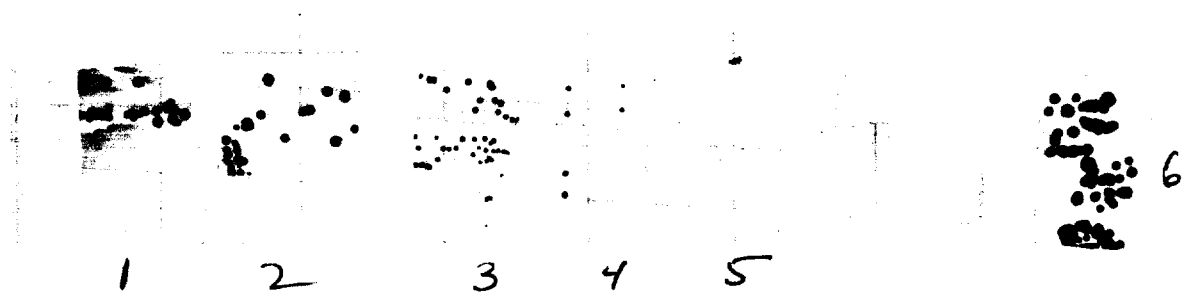
Resticals from lac EMS.

See 371

11/24/48.

Cross 487 x W126 on a variety of EMS media - variable supply of NH_4SO_4 sulfate. lac

A.S. g/liter	K-12 control	M.	Acid.	Plates	Yield
5.0	1. A	++	++	8 plates, ca 300+ each.	4+ 11/26.
1.0	2. B	++	++	5 plates ca 40 ea.	1?+
0.1	3. C	+±	+	5 plates ca 10 ea.	10+
0.05	4. D	+	±	ditto	
0.01	5. E	±	-		
5+ 5ml glycerol	6. F	+++	+	Glycerol addition seems to inhibit acid production	



Yields are very much lower on "2" than on "1" suggesting a dependence on ammonium concentration.

367A: 4+

- 1. ++
- 2. +1-? and -
- 3. +F
- 4. ++

S.O. on EMS lac and nitrat

B.

- 1. +.

See 371

-6.

P27. All colonies read + (Glycerol +).

See 371.

-2]. 1+ picked for test / 5 plates.

-3. Very low yield. Colonies appear very rough + dry.
1+ found + picked for test.

-4. Ditto No +.

-5. Very tiny prototrophs, few in number. Not scoreable

11/25/48.

W-595 (Lac, Mal, Xyl, Gal, Ar, Than,) x 58-161 m
 EMS ± B₁ (Xyl v Mal).

Mal B₁ plates have too heavy a background to enumerate
 Mal+

Xyl (0) yield very low - only a few + colonies.

Mal (0) somewhat heavy background.

Xyl (B₁) colonies v. small but were numerous; see +.

incubate Xyl (0) further.

369 data

Mal (0).

+	-	Σ
4		32
1		43
6		85
4		57
4		88
10		130
2		37
<hr/>		
31		552

Xyl (B₁)

2	30
3	42
2	48
3	42
3	89
0	28
4	94
4	68
<hr/>	
21	441

11/24/48.

50-161, etc. Fructose EMB. 67 plates x ca 300 = 20,000 tests
 (plates are not properly gelled, but can be streaked.)

			Lac	Max	Gal	Slu
# 2.	very slow on fructose.	W596	++	++	++	++
5	- , sm. cols.	597	-	-	-	-
7	- , sm. cols.	598.	-	-	-	-

Check on lactose, glucose

~~W596 (may show significant α -mannitol reductase activity.)~~

W596 is also slightly slower than type on mannose.

Test on mannitol & sorbitol:

W596 M S.

4/30 Streaked W108 on Mannose, fructose EMB.

11/24/48.

Test Mal+ on EMS Mal on EMS Xyl
Xyl+ " Xyl B, " Mal B,.

a) Mal+ : 16 Xyl+
(0) 15 ~~Mal-~~

b) Xyl+ : 4 Mal+
(15) 14 Mal-.

strains out Mal+ on Mal EMS; Xyl+ on Xyl EMS for instances of heterozygosis

1-16 a Xyl+ } Mal
17-29 a Xyl- }
30-33 b Mal+ } Xyl.
34-47 b Mal- }

1-3, 5-8, 9-12, 17-20, 21-24, 25-28
29-32 Intact Mal+.
29, 31-32, 33, 41, 42, 46, (2), ~~Mal+~~ Xyl+.
~~30~~ Xyl- : 30, 31, 35, 36, 37-40, 43, 44

#4

Many Xyl+ Mal- were misclassified and should be Xyl-

which alters ratios!

#4 was pred. Mal- with some peculiar Mal (+slow). Strains out on Mal EMS. Mal+ and Mal- each pure. No sign of segregation. What are slows? not clear. May have been Mal+

New heterozygotes.

11/28/48

Summarize apparent heterozygotes from cross of YP7 x W126.

~~365~~ H-

Check from EMS.

1.	119	365-2	tech microplate.	Varieg.
2.	120	365-3	lac +/-	Varieg.
3.	121	365-4	+/-	Varieg.
4.	122	365-5	+/-	Varieg.
5.	123	366-1	+/-? Prod. -; Repurify.	—
6.	124	366-3	+/-	Varieg. (rel. stable).
7.	125	366-5	+/-	Varieg.
8.	126	366-9	mostly - . Some + may be var. Mostly - on EMS. purify 11/29.	Varieg.
9.	127	365-6	on EMS only	Varieg. (rel. stable)
10.	128	367-2	"	Varieg.
11.	129	"A1"	+/-	Varieg.
12.	130	"A2"	mostly -; +/-?	Varieg.
13.	131	- B	lac +/-	Varieg.
14.	132	- C.	+/-	Varieg.

Obtain & characterize segregants from various of these.

1.	H120B:	lac - ✓	M -	} W	599	
2.	H120A:	lac + ✓	TB -		W	600
3.	H119A:	lac -	TLB ₁ -		W	601

November 30, 1948.

A. W595 x W65.

B. W595 x W48

C. W595 x W182

(D) W595 x 58-161

Lac EMS

Mal
Xyl
Man
EMS
± B₁

No prototrophs P2.
A3. A. no prototrophs

15 x C Very few, unmeasurable + or -

Pick 12 from B and 8 from C for further

test - 12/13 on EMS Lac.
all Lac-

Mal EMS		Mal B ₁		Xyl		Xyl B ₁		Man		Man B ₁											
+	-	+	-	+	-	+	-	+	-	+	-										
2	16	1	84	0	0	12	109	0	5	0	81										
0	7	3	169	0	0	3?	18	0	33	1	46										
7	31	6	210	0	0	5?	28	0	3	3	54										
2	34			0	0	0?	26	0	4	1	5										
0	1			0	0	3	54	0	1	0	23										
0	7			0	0	3	36	0	5	0	35										
1	9			0	0	2	14	0	3	0	48										
0	13			0	4			0	3												
12		118		10		463		0.4		28		285		0		57		6		242	
9.2% +		2.2% +				0		9%				0		1.7%							

Pick +'s to homologous medium.

1-6 are Man B₁,
7-10 are Man (0)
see 3729.

Mal B₁ plates turbid; Xyl plates empty!
work difficult to read

Retests: all Mal correctly scored
All Man " " "

Hostapp. "Xyl+" are Xyl-

Recount certain plates:

(M&L) Mannitol EMS:	Mal EMS.	Xyl EMS B ₁																																								
<table border="0"> <tr><td>+</td><td>-</td></tr> <tr><td>0</td><td>7</td></tr> <tr><td>2</td><td>14</td></tr> <tr><td>0</td><td>4</td></tr> <tr><td>1</td><td>5</td></tr> <tr><td>1</td><td>1</td></tr> <tr><td>0</td><td>4</td></tr> <tr><td colspan="2"><hr/></td></tr> <tr><td>4</td><td>35</td></tr> </table>	+	-	0	7	2	14	0	4	1	5	1	1	0	4	<hr/>		4	35	<table border="0"> <tr><td>+</td><td>-</td></tr> <tr><td>3</td><td>15</td></tr> <tr><td>4</td><td>6</td></tr> <tr><td>1</td><td>0</td></tr> <tr><td colspan="2"><hr/></td></tr> <tr><td>8</td><td>21</td></tr> </table>	+	-	3	15	4	6	1	0	<hr/>		8	21	<table border="0"> <tr><td>+</td><td>-</td></tr> <tr><td>2</td><td>129</td></tr> <tr><td>0</td><td>62</td></tr> <tr><td colspan="2"><hr/></td></tr> <tr><td>2</td><td>191</td></tr> </table>	+	-	2	129	0	62	<hr/>		2	191
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ca. 1%

This late appearance of mannitol+ recalls interaction of glycerol+ and B₁- noted in 1946.

Pick to homologous EMS and S.O. on EMB.

Mal (0)+ 16 tested: #1 pred.-, occasional +
 on EMB. others are +.

M&L (0) 10+ tested on All +
 M&L EMB

December 1, 1948.

Struck out Y87 and W126 for single colonies to repeat 371.
Use microcrosses and keep for record on EMB/lac plate.

A. Y87A x W126A. } 8 plates each.
etc.; B, C, D.

E. W599 x W588 i.e. M' x H. Wrong stock used. Had in mind that 588 was a lac+ reversion of 583.
F. W601 x W352 (Lac+ Xyl-).

~~G. W600~~
G. W600 x Y87.

12/3: Yields variable; Lac - very small. Ca 100,000/plate.

A. 7+	(#1) 11 Var. 6 ++	
B. 1+ (-yields low)	1 ++	Should be repeated.
C. 6+	4 Var. 2 ++ (#3, #5)	
D. 8+	6 Var. 2 ++. (#1, #7)	
E. Numerous ++.	11 Var. 11 ++.	Equal numbers of Var & ++.
F. No yield.	High yield. + in excess. Good plates; sharp definition + no background.	
G. Small lac+ colonies.		

E: 28 streaked out on EMB lac 6 are Lac variable: #5, 13, 14, 18? + others

G. 60 " " " " # 34, 37, 38 streaked on lac EMS.
All others ++.

34 + 37 all -. 38: ++

December 3, 1948.

A. W65 x W595 on Lac EMS.
Lac₊ x Lac₋

No yield. 12/6

12/2/48.

70 plates W596 (58-111, Fuc ±) irradiated 7 sec on EMF Dlx.
ca 300 / plate → 20,000 tests.

Numerous mucoid and slow colonies interfused with sampling:
Following finally screened.

	glu	lac	W
1	-	-	610
2	-	-	611
3	-	- pap	W612
4	slow ++	+	
5	"	+	
6	"	++	
7	"	++	
8	"	+	
9	"	++	
10	"	++	614
11	- s.r.	- thin	
12	++ and -	++	- 613
13	slow +	±	

Save 1, 2, 3 from glucose and reverify 12.
Do not keep slow mutants except 10