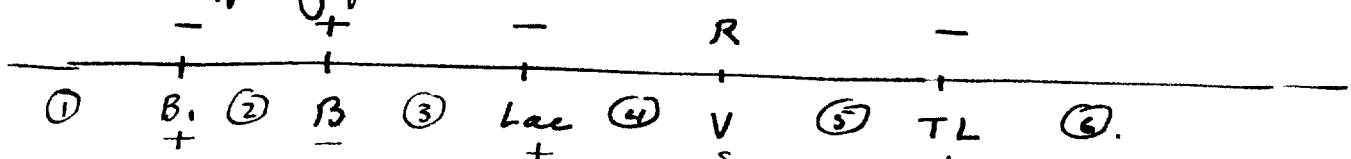
Mapping genes on the chromosome:



BX × TLB₁ V^R Lac – :

X in region ①

X	B₁	B		TL
+	–	+	– R	–
–	+	–	+ S	+

++	① · ② [3,4,5].	Distn. as in BM × TLB₁
X⁻ > X⁺	2 · [3,4,5].	do.
B₁⁻ > B₁⁺	[3,4,5]	as in BM × TLB₁.
B⁻ > B⁺	1. [3,45]	(probably Φ, C).

X in region ②

B₁	X	B		TL.
–	+	+	– R	–
+	–	–	+ S	+

++	2L · (345)	Dist. as in BM × TLB₁
B₁⁻ >> B₁⁺	(345)	
X⁻ << X⁺	2R (345)	
B⁻ << B⁺		

X in region ③

B₁	B	X		TL.
–	+	+	– R	–
+	–	–	+ S	+

++	2 · 3R45	Dist..., except that + S << than BM + TLB₁
B₁⁻ > B₁⁺	3R45	do.
X⁻ << X⁺	2 · 3L	Mostly + S.

X in region ④

B₁	B	Lac	X	V	TL
–	+	–	+	R	–
+	–	+	–	S	+

++	2 · 4R5	No + S; < – S; Mostly – R
X⁻ = X⁺	2 · 34L	
B⁻	34L · 45R,	Mostly + S < – S; No. – R.

X in region 5

B,	B	lac	V	X	TL.
−	+	−	R	+	−
+	−	+	S	−	+

++ 2·5R (all − R) (barring doubles). like BP.

$X^- > X^+$ 2·345L less − R. otherwise like BM × TLB,

$B^- > B^+$ 345L·5R do.

X in region 6.

B,	B	lac	V	TL	X
−	+	−	R	−	+
+	−	+	S	+	−

++ 2·345·6 as BM × TLB,

$B^- >$ ++ 6 all + S barring doubles

$X^- > X^+$ 2·345 as ++

X between TL (assume that order).

7L 7R.

B,	B	Lac	V	T	X	L
−	+	−	R	−	+	−
+	−	+	S	+	−	+

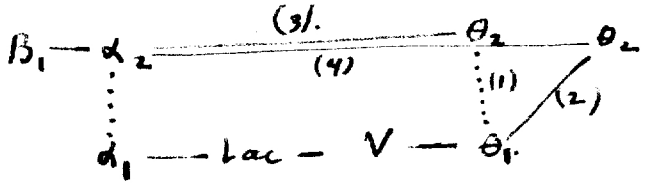
++ 2·345·7L·7R. as in BM × TLB,

$B^- \gg B^+$ 7L·7R all + S.

$X^- \gg$ 2·345 like ++

Compare 4, 5.

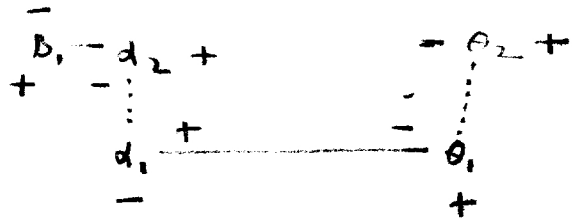
1. Since B_1^- is more frequent than B_1^+ it is linked to α_1 and is either on a different chromosome from α_1 or exterior to it:



Also θ_2 is linked (2) or spon. linked (1) with θ_1.

It may also be linked to α_2.

(1)



$\alpha_2^- = B_1^- > + \quad \alpha_2 \overset{?}{=} M$

$\alpha_1^- = \theta_1^- \geqq + \quad \alpha_1 \overset{?}{=} M$ F

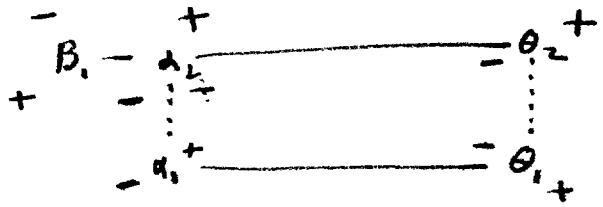
$\theta_2^- = \theta_2^+ \quad$ F

(2).

$\alpha_1^- \geqq + \quad \alpha_1 \overset{?}{=} M$

$\alpha_2^- = B_1^- > + \quad \alpha_2 \overset{?}{=} M.$

(3)

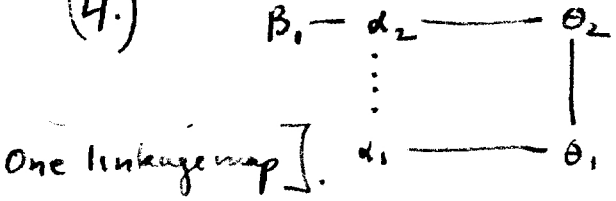


$\alpha_1^- = \theta_1^- \geqq + \quad$ F $\alpha_1 = M.$

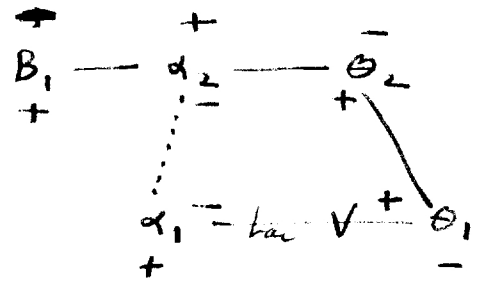
$\alpha_2^- > + \quad \alpha_2 = M$

$\theta_2^- > \theta_2^+ \quad$ F

(4.)



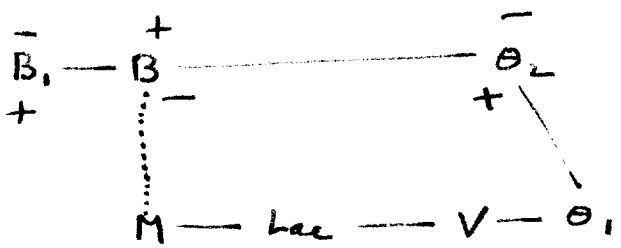
One linkage map].



Both $\alpha_1^- > +$ and α_2^-

The bond ..... is meaningless for the isolation of α_1^-.

As this theory $\alpha_1^- = \alpha_1^+$ ∴ it may be M.



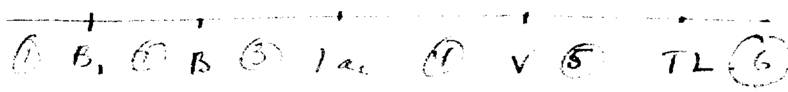
(ϕc) M – Lac – V – θ_2 – B – B_1 $\quad B- > B+$ s.s.

OK.

∴ f(B) is crucial evidence against sequence linkage

$BM\,X\,TLB_1 = \alpha$
$+S = \beta$
$-R = \gamma$

Prot.	B_1^-	B^-	X^-	Position	
α	$>\alpha$	$\gg\alpha$	$>\alpha$	1	
α	$>\alpha$	$<\alpha$	$<\alpha$	2	
α'	$>\alpha'$	$<\alpha'$	$<\beta$	3	$[\alpha'$, $+S$
γ +-S	$>\gamma$	$\geq\alpha''$	$\gg\beta$	4	$\alpha'' > +R$
γ	$>\gamma$	$>\alpha'$	$>\alpha'$	5	
α	$>\alpha$	$>\beta$	$>\alpha$	6.	
α	$>\alpha$	$>\beta$	$\gg\alpha$	T-X-L.	



1+2, ~~3~~ 4,5 are not very readily distinguishable.

Routine: Test prototrophs, colonies with B.