DILUTION
EFFECT

DEC 27 1950

DOES THE MILK FACTOR DESTROY LANSING VIRUS OR MERELY NEUTRALIZE OR COMBINE WITH IT ?

PURPOSE: To determine if all available virus is neutralized when a 10% blend of uncentrifuged Y-SK is mixed in a dilution of 1:10 with a pool of human milk which is known to neutralize Lansing virus. and the effect of diluting the milk which has combined with the virus.

VIRUS: Y-SK Pool II of 11/24/50 10% blend

PROCEDURE: 0.1 ml of a 10% blend of Y-SK virus was added to 0.9 ml of milk and mixed. 0.1 ml of this mixture was removed and added to 0.9 ml of saline to determine if unneutralized virus was present. The same procedure was carried out in which autoclaved cow's milk was substituted for human milk. All mixtures carried out in an ice bath and inoculated immediately into mice.

MICE 18-20 gm Maxfield 20 per dilution

CODE	SPECIMEN
A	CGH HUMAN MILK POOL USED 9/7/50 0.9 ml. MILK + 0.1 ml. Y-SK VIRUS 10^{-2}
B	CGH HUMAN MILK POOL USED 9/7/50 0.1 ml. of A + 0.9 ml. SALINE VIRUS 10^{-3}
C	AUTOCLAVED COW'S MILK 0.9 ml. MILK + 0.1 ml. of Y-SK VIRUS 10^{-2}
D	AUTOCLAVED COW'S MILK 0.1 ml. of C + 0.9 ml. of SALINE VIRUS 10^{-3}
E	CONTROL SALINE + UNCENTRIFUGED Y-SK

SPECIMEN	VIRUS	NO.	Observations (days 1–35)	MORTALITY	LD50
A	10^{-2}	1	1: —; 2: P; 3: D	6/10	11/18
CGH HUMAN MILK POOL USED 9/7/50	10^{-2}	2	1: —; 2: ? P; 4: D		
	10^{-2}	3	1–4: —; 6: (D)		
	10^{-2}	4	— — —; 14: P; 15: D		
	10^{-2}	5	— — —; 16: P; 17: P; 19: D		
	10^{-2}	6	— — —; 26: (D)		
	10^{-2}	7	— — — (through 35)		
	10^{-2}	8	— — — (through 35)		
	10^{-2}	9	— — — (through 35)		
	10^{-2}	10	— — — (through 35)		
+ 10% UNCENTRIFUGED BLEND OF YSK	10^{-2}	1	1: (D)	5/8	
MILK 0.9 ml. + 0.1 ml YSK	10^{-2}	2	1–4: —; 6: (D)		
(NO INCUBATION)	10^{-2}	3	— — —; 13: (D)		
	10^{-2}	4	— — —; 14: P; 15: PP; 16: D		
	10^{-2}	5	— — —; 31: W EE; 33: D		
	10^{-2}	6	— — —; 34: ": P"; 35: D		
	10^{-2}	7	— — — (through 35)		
	10^{-2}	8	— — — (through 35)		
	10^{-2}	9	— — — (through 35)		
	10^{-2}	10	1: —; MISSING 12/29/50		
B	10^{-3}	1	1: ?; 2: D	10/10	
0.1 ml. of A + 0.9 ml. SALINE	10^{-3}	2	1: —; 2: D		
(NO INCUBATION)	10^{-3}	3	1: —; 2: CNS; 3: D		
	10^{-3}	4	1: —; 2: ? CNS; 3: CNS; 4: CNS; 6: D		
	10^{-3}	5	1: —; 2: ?; 3: ? CNS; 4: CS; 6: D		
	10^{-3}	6	1–4: —; 6: D		
	10^{-3}	7	1–4: —; 6: D		
	10^{-3}	8	— — —; 10: P D		
	10^{-3}	9	— — —; 10: ?; 12: D		
	10^{-3}	10	— — —; PPP PR D		

SPECIMEN	VIROS	NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	MORTALITY	LD50
B (CONT.)		1	–	D																																			
		2	–	D																																			
		3	–	?	D																																		
		4	–	–	PP	D																																	
0.1 ml. of A	10^{-3}	5	–	–	CNS	CNS	D																																
+		6	–	–	–		?	CNS	CNS	P	D																												
0.9 ml of YSK		7	–	–	–		–	?	TY	TY	D	TYPHOID																											
		8	–	–	–		–	–	D																														
		9	–	–	–		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	D											
(NO INCUBATION)		10	–	–	–		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	PPP		D					9/9	19/19
C		1	–	CNS	CNS	D																																	
		2	–	CNS	CNS	D																																	
		3	–	–	–	–	D																																
		4	–	–	–	–	PP	D																															
AUTOCLAVED	10^{-1}	5	–	–	–	–	–	P	D																														
COW'S MILK		6	–	–	–	–	–	–	P																													10/10	
		7	–	–	–	–	–	–	–	–	–	P	P	D																									
+		8	–	–	–	–	–	–	–	–	–	P	PP	D																									
		9	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	?	?	P	D																
		10	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	D											19/19
10% UNCENTRIFUGED BLEND OF YSK		1	D																																		
		2	?	D																																		
MILK 0.9 ml		3	–	D																																		
+		4	–	PP	D																																		
0.1 ml. of YSK	10^{-2}	5	–	P	D																																	9/9	
		6	–	–	PP	D																																	
		7	–	–	–	–	D																																
		8	–	–	–	–	–	PR	PR	PR	D																												
		9	–	–	–	–	–	–	–	–	P	PP	D																										
		10	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	D											
(NO INCUBATION)																																							

DEC 27 1950

SPECIMEN	VIRUS	NO.	Days 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35	MORTALITY	LD_{50}
D		1	— PP D … Ex — — — — — — — — — — — — — — — — —		
		2	— P D		
		3	— P D		
		4	— ? D		
	10^{-3}	5	— — PP D		
AUTOCLAVED		6	— — P D	10/10	
COW'S MILK		7	— — ? ? D		
		8	— — — — PPP D		19/20
		9	— — — — — — — — — — — D		
+		10	— — — — — — — — — — — ? ? ww PP D		
YSK		1	— PR D		
		2	— PPP D		
		3	— — PP D		
0.1 ml. of C		4	— — PP D		
+	10^{-3}	5	— — ? D		
0.9 ml. of SALINE		6	— — — D	9/10	
		7	— — — D		
		8	— — — — — — — P D		
(NO INCUBATION)		9	— — — — — — — — — ? P D		
		10	— — — — — — — — — — — — ? ? ? ? — — — — — — — ? ? ? ? — — —		
E		1	— D		
		2	— ? D		$10^{-3.6}$
		3	— ? PP D		
		4	— — P D		
CONTROL	10^{-2}	5	— — ? ? D	10/10	
		6	— — — — D		
SALINE		7	— — — — — — ? ? ? — ? P D		
+		8	— — — — — — — — — — — — P D		
UNCENTRIFUGED YSK		9	— — — — — — — — — — — — ? P D		
		10	— — — — — — — — — — — — — — — ? ? — — — — ? PP PP PP PP PP D		
(NO INCUBATION)					

SPECIMEN	VIRUS	NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	MORTALITY	LD50
E (CONT.)		1	–	RNJ	RNJ	D																																	
		2	–	P	PP	D																																	
		3	–	–	PP	D																																	
		4	–	–	WN	D																																	
CONTROL	10^{-3}	5	–	–	–	–	D																															8/9	
		6	–	–	–	–	D																																
		7	–	–	–	–	?	–	–	–		–	–	–	–	D																						
SALINE		8	–	–	–	–	–	–	–	–		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	D							
		9	–	–	–	–	–	–	–	–		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
+		10	–	–	–	–	–	–	–	missing 11/5/51																													
UNCENTRIFUGED Y-SK		1	–	?	?	?	–	–	–	–		–	–	–	–	D																						
		2	–	–	–	–	–	–	–	–		–	–	–	–	–	–	?	D																				
		3	–	–	–	–	–	–	–	–		–	–	–	–	–	–	–	–	–	?	?	D															
		4	–	–	–	–	–	–	–	–		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		3/10	
	10^{-4}	5	–	–	–	–	–	–	–	–		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–			
		6	–	–	–	–	–	–	–	–		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–			
		7	–	–	–	–	–	–	–	–		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–			
		8	–	–	–	–	–	–	–	–		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–			
		9	–	–	–	–	–	–	–	–		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–			
		10	–	–	–	–	–	–	–	–		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–			

4.0
1.7
2.3

4.0
2.3
1.7

EFFECT OF BOSTON MILK DIRECTORY — LATE HUMAN MILK OF 7/24/50 ON LANSING VIRUS

PURPOSE: To determine if the anti-Lansing factor in Boston milk directory — late human milk of 7/24/50 destroys the virus or merely neutralizes it.

VIRUS: Lansing virus: Pool VII of 2/15/51. 10% suspension in saline. Centrifuged at 2000 rpm for 10 minutes to remove flocculant ppt.

PROCEDURE: 0.9 cc of undiluted milk and 0.1 cc of Lansing virus were mixed so that the final concentration of milk was 90% and that of virus was 10^{-2}. This mixture was incubated at room temperature for one hour and inoculated into 20 mice. Serial ten-fold dilutions of the milk-virus mixture were made so that dilution of milk + virus were: 9% and 10^{-3}; 0.9% and 10^{-4}. These mixtures were inoculated without incubation.

As control on the effect of dilution of milk the following mixtures of milk-virus were inoculated: 18% milk + virus 1:500 — final concentration 9% milk + virus 10^{-3}; 1.8% milk + virus 1:1,500 — final concentration 0.9% milk + virus 10^{-4}.

Controls on virus were as follows: 0.9 cc saline + 0.1 cc virus 1:10 — virus final concentration of 10^{-2}. This mixture was incubated at room temperature for one hour and inoculated into 20 mice. Serial ten-fold dilutions were made from this mixture of virus 10^{-3}, 10^{-4} and inoculated without incubation.

MAY 3 1951

SPECIMEN

A

MILK CONC. 90% | 10^{-2}

0.9 cc MILK + 0.1 cc VIRUS #10

FINAL CONC. VIRUS 10^{-2}

+

LANSING

INCUBATED 37°C x 1 hr.

and

then

B

MILK CONC. 9%

"A" DILUTED 1:10

+

LANSING

	VIRUS	NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	MORTALITY
A	10^{-2}	1	–	–		P	D																															
		2	–	–		–	–	–	–	–			–	–	–	–	–	–		–	–	EE	D															
		3	–	–		–	–	–	–	–			–	–	–	–	–	–		–	–	–	–	–			–	–	–	–	–		–	–	–	–		
		4	–	–		–	–	–	–	–			–	–	–	–	–	–		–	–	–	–	–			–	–	–	–	–		–	–	–	–		
		5	–	–		–	–	–	–	–			–	–	–	–	–	–		–	–	–	–	–			–	–	–	–	–		–	–	–	–		3/20
		6	–	–		–	–	–	–	–			–	–	–	–	–	–		–	–	–	–	–			–	–	–	–	–		–	–	–	–		
		7	–	–		–	–	–	–	–			–	–	–	–	–	–		–	–	–	–	–			–	–	–	–	–		–	–	–	–		
		8	–	–		–	–	–	–	–			–	–	–	–	–	–		–	–	–	–	–			–	–	–	–	–		–	–	–	–		
		9	–	–		–	–	–	–	–			–	–	–	–	–	–		–	–	–	–	–			–	–	–	–	–		–	–	–	–		
		10	–	–		–	–	–	–	–			–	–	–	–	–	–		–	–	–	–	–			–	–	–	–	–		–	–	–	–		
LANSING	10^{-2}	1	–	–		–	–	–	D																													
		2	–	–		–	–	–	–	–			–	–	–	–	–	–		–	–	–	–	–			–	–	–	–	–		–	–	–	–		
		3	–	–		–	–	–	–	–			–	–	–	–	–	–		–	–	–	–	–			–	–	–	–	–		–	–	–	–		
		4	–	–		–	–	–	–	–			–	–	–	–	–	–		–	–	–	–	–			–	–	–	–	–		–	–	–	–		
		5	–	–		–	–	–	–	–			–	–	–	–	–	–		–	–	–	–	–			–	–	–	–	–		–	–	–	–		
		6	–	–		–	–	–	–	–			–	–	–	–	–	–		–	–	–	–	–			–	–	–	–	–		–	–	–	–		
		7	–	–		–	–	–	–	–			–	–	–	–	–	–		–	–	–	–	–			–	–	–	–	–		–	–	–	–		
		8	–	–		–	–	–	–	–			–	–	–	–	–	–		–	–	–	–	–			–	–	–	–	–		–	–	–	–		
		9	–	–		–	–	–	–	–			–	–	–	–	–	–		–	–	–	–	–			–	–	–	–	–		–	–	–	–		
		10	–	–		–	–	–	–	–			–	–	–	–	–	–		–	–	–	–	–			–	–	–	–	–		–	–	–	–		
B	10^{-3}	1	–	–		–	–	–	–	–			–	–	–	–	–	–		–	–	–	–	–			–	–	–	–	–		–	–	–	–		
		2	–	–		–	–	–	–	–			–	–	–	–	–	–		–	–	–	–	–			–	–	–	–	–		–	–	–	–		
		3	–	–		–	–	–	–	–			–	–	–	–	–	–		–	–	–	–	–			–	–	–	–	–		–	–	–	–		
		4	–	–		–	–	–	–	–			–	–	–	–	–	–		–	–	–	–	–			–	–	–	–	–		–	–	–	–		0/20
		5	–	–		–	–	–	–	–			–	–	–	–	–	–		–	–	–	–	–			–	–	–	–	–		–	–	–	–		
		6	–	–		–	–	–	–	–			–	–	–	–	–	–		–	–	–	–	–			–	–	–	–	–		–	–	–	–		
		7	–	–		–	–	–	–	–			–	–	–	–	–	–		–	–	–	–	–			–	–	–	–	–		–	–	–	–		
		8	–	–		–	–	–	–	–			–	–	–	–	–	–		–	–	–	–	–			–	–	–	–	–		–	–	–	–		
		9	–	–		–	–	–	–	–			–	–	–	–	–	–		–	–	–	–	–			–	–	–	–	–		–	–	–	–		
		10	–	–		–	–	–	–	–			–	–	–	–	–	–		–	–	–	–	–			–	–	–	–	–		–	–	–	–		

4

SPECIMEN	VIRUS	NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	MORTALITY
B (CONT.) MILK CONC. 9% "A" DILUTED 1:10 + LANSING	10^{-3}	1	−	+	~	~	~	?	?	−	−		−	−	~	−	−	−		−	−	~	−	−	−		−	−	−	−	~		−	−	−	−	
		2	−	+	−	−	−	−	−	−			−	−	−	−	~	−		−	−	~	−	−	−		−	−	−	−	−		−	−	−	−	
		3	−	~	~	−	−	−	−	−			−	~	−	−	−	−		−	−	~	−	−	−		~	−	−	−	−		−	−	−	−	
		4	−	−	~	−	−	−	−	−			−	~	−	−	−	~		−	−	−	−	−	−		~	−	−	−	−		−	−	−	−	
		5	−	−	~	−	−	~	−	−			−	−	−	−	~	−		~	−	~	−	−	−		~	−	−	−	−		−	−	−	−	
		6	−	−	~	−	−	−	~	−			~	−	−	~	~	−		~	−	~	~	−	−		~	−	−	−	−		~	−	−	−	
		7	−	−	~	~	~	~	~	−			−	−	−	−	~	−		−	−	~	−	−	−		~	~	−	−	−		−	~	−	−	
		8	−	−	~	~	~	~	~	~			−	−	~	~	~	−		~	~	−	−	−	−		~	~	−	−	−		−	~	−	~	
		9	−	−	~	~	~	~	~	~			~	−	~	~	~	−		−	−	−	−	−	~		~	~	−	−	~		~	~	−	−	
		10	−	−	~	~	~	~	~	~			~	~	~	~	~	~		~	~	−	−	−	−		~	~	−	−	~		~	~	−	−	~
C MILK CONC. 0.9% "B" DILUTED 1:10 + LANSING	10^{-4}	1	Ⓓ																																			0/19
		2	~	~	~	~	~	~	~	~			~	~	~	~	~	~		−	−	−	−	S	S		S	S	?	?	−	−		−	−	~	−	
		3	−	−	~	~	~	~	~	~			~	~	~	~	~	~		−	−	−	−	−	−		−	−	−	−	−	−		−	−	−	−	
		4	−	−	~	~	~	~	~	~			~	~	~	~	~	~		−	−	−	~	−	−		−	−	−	−	−	−		−	−	−	−	
		5	−	−	~	~	~	~	~	~			~	~	~	~	~	~		−	−	~	−	−	−		−	−	~	−	−	−		−	−	−	−	
		6	~	~	~	~	~	~	~	~			~	~	~	~	~	~		−	−	~	−	−	−		−	−	~	−	−	−		−	−	−	−	
		7	~	~	~	~	~	~	~	~			~	~	~	~	~	~		−	−	~	−	−	−		−	~	~	~	~	~		~	~	~	~	
		8	~	~	~	~	~	~	~	~			~	~	~	~	~	~		~	~	−	~	−	−		−	~	~	~	~	~		~	~	~	~	
		9	~	~	~	~	~	~	~	~			~	~	~	~	~	~		~	~	~	~	~	~		~	~	~	~	~	~		~	~	~	~	
		10	~	~	~	~	~	~	~	~			~	~	~	~	~	~		~	~	~	~	~	~		~	~	~	~	~	~		~	~	~	~	
LANSING	10^{-4}	1	~	~	~	~	~	~	~	~			~	~	~	~	~	~		−	−	~	−	−	−		−	−	−	~	−	−		~	~	~	−	
		2	−	−	~	~	~	~	~	~			~	~	~	~	~	~		−	−	~	~	−	−		−	−	−	~	−	−		−	−	−	−	
		3	−	−	~	~	~	~	~	~			~	−	~	~	~	~		−	−	−	−	−	−		−	−	~	−	~	−		−	−	−	−	
		4	~	~	~	~	~	~	~	~			~	~	~	~	~	~		−	−	~	−	−	−		−	−	−	−	~	−		−	−	−	−	
		5	−	−	~	~	~	~	~	~			~	~	~	~	~	~		−	−	~	−	−	~		−	−	−	−	~	−		−	−	−	−	
		6	~	~	~	~	~	~	~	~			~	~	~	~	~	~		~	−	−	~	~	−		−	−	−	~	~	~		−	−	−	−	
		7	~	~	~	~	~	~	~	~			~	~	~	~	~	~		−	−	~	~	−	−		−	−	~	~	~	−		−	−	~	−	
		8	−	−	~	~	~	~	~	~			~	~	~	~	~	~		−	−	−	~	~	−		~	−	−	~	~	~		−	−	~	~	
		9	−	−	~	~	~	~	~	~			~	~	~	~	~	~		−	−	~	~	~	~		~	~	~	~	~	~		−	~	~	−	
		10	−	−	~	~	~	~	~	~			~	~	~	~	~	~		−	~	−	~	~	~		~	~	~	~	~	~		−	~	~	−	

MAY 3 1951

SPECIMEN	VIRUS	NO.	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35	MORTALITY
D MILK CONC. 9% 0.5cc 18% MILK + 0.5cc VIRUS 1:500 + LANSING	10^{-3}	1	– – D	19/20
		2	– – D	
		3	– – D	
		4	– – P D	
		5	– – P D	
		6	– – ? ? ? – – – PP P D	
		7	– – – – – – – – – – – – – – – – – – EP PEE PEE D	
		8	– EP EE D	
		9	– P P D	
		10	– –	
		1	– D P D	16/20
		2	– – PP D	
		3	– – P D	
		4	– – PP D	
	10^{-3}	5	– – P D	
		6	– – P D	
		7	– – – P D	
		8	– – – – – – – – D	
		9	– – – – – – – – – E D	
		10	– EP EE D	
E MILK CONC 0.9% 0.5cc 1.8% MILK + 0.5cc VIRUS 1:5,000 + LANSING	10^{-4}	1	– – – – – – P D	8/20
		2	– – – – – – – D	
		3	– – – – – – – D	
		4	– – – – – – – P PP PP D	
		5	– – – – – – – – – – ? PP EE D	
		6	– –	
		7	– –	
		8	– –	
		9	– –	
		10	– –	

SPECIMEN	VIRUS	NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	MORTALITY
E (CONT.)		1	–	–		D																																
		2	–	–		E D																																
		3	–	–		– –	TY	TY	TY	TY			D	TYPHOID																								
MILK CONC. 0.9%		4	–	–		– –	–	–	–				–	–	–	–		P		D																	
0.5cc 1.8% MILK +	10^{-4}	5	–	–		– –	–	–	–	–			–	–	–	–	–	–		–	–	–	–	–		–	–	–	–	–		–	–	–	–		
0.5cc VIRUS 1:5,000		6	–	–		– –	–	–	–	–			–	–	–	–	–	–		–	–	–	–	–		–	–	–	–	–		–	–	–	–		
+		7	–	–		– –	–	–	–	–			–	–	–	E	–	–		–	–	–	–	–		–	–	–	–	–		–	–	–	–		
		8	–	–		– –	–	–	–	–			–	–	–	–	–	–		–	–	–	–	–		–	–	–	–	–		–	–	–	–		
LANSING		9	–	–		– –	–	–	–	–			–	–	–	–	–	–		–	–	–	–	–		–	–	–	–	–		–	–	–	–		
		10	–	–		– –	–	–	–	–			–	–	–	–	–	–		–	–	–	–	–		–	–	–	–	–		–	–	–	–		
F		1	–	–		P																															
		2	–	–		D																															
		3	–	–		: : P		D																													
		4	–	–		– –	"	D																													
0.9cc SALINE +	10^{-2}	5	–	–		– –	–	PE	P	E	D																										
0.1cc VIRUS 1:10		6	–	–		– –	–	–	–	P	D																										
		7	–	–		– –	–	–	–	–	P		D																								
		8	–	–		– –	–	–	–	–	–		D																								
+		9	–	–		– –	–	–	–	–	–		–	–	E	EE	D																				
		10	–	–		– –	–	–	–	–	–		–	–	–	–	–			–	–	–	–	–		EE	P	D									
LANSING		1	–	D																																	
		2	–	D																																	
		3	–	D																																	
INCUBATED 23°C X 1 HR.		4	–	–		– –	–	–	–	P	D																										
	10^{-2}	5	–	–		– –	–	–	–	EE	EE	P	D																								
		6	–	–		– –	–	–	–	–	P		D																								
		7	–	–		– –	–	–	–	–	TY		D	TYPHOID D																								
		8	–	–		– –	–	–	–	–	–		–	P	P	D																						
		9	–	–		– –	–	–	–	–	–		–	EPP	EE	D																						
		10	–	–		– –	–	–	–	–	–		–	–	–	–	–			–	–	–	–	–		PPP	D										

19/19

MAY 3 1951

SPECIMEN	VIRUS	NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	MORTALITY
G		1	—	P		D																																
		2	—	?		D																																
		3	—	—		D																																
		4	—	—		D																																
"F" DILUTED 1:10	10^{-3}	5	—	—		D																																
		6	—	—		D																																17/20
		7	—	—		?	EE	D																													
+		8	—	—		—	—	—	—	PP	D																											
		9	—	—		—	—	—	—	?	?		—	—	—	—	—		—	—	—	—	—		—	—	—	—	—		—	—	—		—	—	—	
		10	—	—		—	—	—	—	—	—		—	—	—	—	—		—	—	—	—	—		—	—	—	—	—		—	—	—		—	—	—	
LANSING		1	—	?		D																																
		2	—	—		P	D																															
		3	—	—		—	EE	D																														
		4	—	—		—	—	?	D																													
	10^{-3}	5	—	—		—	—	—	EE	D																												
		6	—	—		—	—	—	—	?	PP		D																									
		7	—	—		—	—	—	—	—	—		D																								
		8	—	—		—	—	—	—	—	—		—	—	—	—	?	P		D																
		9	—	—		—	—	—	—	—	—		—	—	—	—	—	—	—	—	—	—	—		P	P	P EE	PP EE	D								
		10	—	—		—	—	—	—	—	—		—	—	—	—	—	—	—	—	—	—	—		—	—	—	—	—		—	—	—		—	—	—	
H		1	—	—		PP	D																															
		2	—	—		—	—	—	P	PP PP	D																											
		3	—	—		—	—	—	?	?	D																											
		4	—	—		—	—	—	—	—	—		D																									7/17
"G" DILUTED 1:10	10^{-4}	5	—	—		—	—	—	—	—	—		D																									
		6	—	—		—	—	—	—	—	—		?	E	E	?	?	?		H	H	H	H	H	H	D												
+		7	—	—		—	—	—	—	—	—		—	—	—	—	—	—		—	—	—	—	—		—	—	—	—	—		—	—	—		—	—	—	
		8	—	—		—	—	—	—	—	—		—	—	—	—	—	—		—	—	—	—	—		—	—	—	—	—		—	—	—		—	—	—	
LANSING		9	—	—		—	—	—	—	—	—		—	—	—	—	—	—		—	—	—	—	—		—	—	—	—	—		—	—	—		—	—	—	
		10	—	—		—	—	—	—	—	—		—	—	—	—	—	—		—	—	—	—	—		—	—	—	—	—		—	—	—		—	—	—	

SPECIMEN	VIRUS	NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	MORTALITY
H (CONT.)		1	–	–		?	D																															
		2	–	–		–	S	D																														
		3	–	–		–	CNS?	CNS	CNS	D																												
"G" DILUTED 1:10		4	–	–		–	–	–	–	–			–	–	–	–	–		–	?	?	–	–		–	–	–	P	PP	D						
	10^{-4}	5	–	–		–	–	–	–	–			–	–	–	–	–		–	–	–	–	–		–	–	–	–	–	–			–	–	–	
+		6	–	–		–	–	–	–	–			–	–	–	–	–		–	–		–	–		–	–	–	–	–	–			–	–	–	
		7	–	–		–	–	–	–	–			–	–	–	–	–		–	–		–	–		–	–	–	–	–	–			–	–	–	
LANSING		8	–	–		–	–	–	–	–			–	–	–	–	–		–	–		–	–		–	–	–	–	–	–			–	–	–	
		9	–	–		–	–	–	–	–			–	–	–	–	–		–	–		–	–		–	–	–	–	–	–			–	–	–	
		10	–	–		–	–	–	–	–			–	–	–	–	–		–	–		–	–		–	–	–	–	–	–			–	–	–	

THE EFFECT OF RAPID BLIND PASSAGE ON INCUBATION PERIOD OF LANSING VIRUS IN MICE.

PURPOSE: To develop a strain of Lansing virus which will have a uniform incubation period in mice. Because of the erratic behaviour of this virus in which mice inoculated with dilution varying from 10^{-1} to 10^{-5} will become paralyzed from 2 to 35 days after inoculation, it was decided to attempt to alter the virus and bring about a uniform incubation period. It was felt that a given suspension of virus might contain a combination of "slow-growing" and "fast-growing" particles, and the combination of which might determine the rapidity with which mice are down with paralysis. These could possibly be separated out by passage of the virus at limiting dilutions to pick up the "fast-growing" virus, followed by blind passage at 18 hour intervals.

PROCEDURE: The virus was passaged at dilution of 10^{-3} and 10^{-4} into groups of 10 mice. Any mouse which became paralyzed after 2 to 3 days was sacrificed and its cord + brain stem passaged again at 10^{-3} and 10^{-4}. After the eleventh such passage the cord and stem of one mouse was passaged into a group of 10 mice as a 10% suspension. At 18 hours all mice were sacrificed, the cords and brain stems removed and again passaged at 10^{-1}. This was repeated for 10 blind passages. On the 10th passage material & titration was carried out simultaneously with a titration on the original material from which the blind passage was initiated. Serial ten fold dilution ranging from 10^{-1} to 10^{-5} were made in saline of the 7th passage of fast growing virus and the 10th blind passage.

VIRUS: Lansing Virus

MICE: 18-20 gram Swiss albino
20 per dilution.

MAR 10 1952

SPECIMEN	VIRUS	NO	Days 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35	MORTALITY	LD 50
A		1	– D	19/19	$10^{-4.2}$
		2	– D		
		3	– D .		
TITRATION		4	– – – – – – P D		
OF "FAST-		5	– – – – – – PPP D		
GROWING"		6	– – – – – – PPP D		
LANSING VIRUS		7	– – – – – – – P PP D		
		8	– – – – – – – – – – PPP D		
		9	– – – – – – – – – – TY TY TY (D)		
		10	– – – – – – – – – – – – – – – – – – – T D		
POOL VII	10-1				
		1	– D		
PASSAGE 7A		2	– ? D		
		3	– – – D		
		4	– – – – – D		
		5	– – – – – – – P PP D		
		6	– – – – – – – – PP D		
		7	– – – – – – – – – ? PP D		
		8	– – – – – – – – – – – P D		
		9	– – – – – – – – – – – – CNS D		
		10	– – – – – – – – – – – – CNS T D		
		1	– P D	19/20	
		2	– P D		
		3	– – – D		
	10^{-2}	4	– – – – – – CNS D		
		5	– – – – – – ? ? – – – – – – D		
		6	– – – – – – – – – – – – – – – – PPP D		
		7	– – – – – – – – – – – – – – – – P PP D		
		8	– – – – – – – – – – – – – – – – – – – T D		
		9	– T D		
		10	– –		

SPECIMEN	VIRUS	NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	27	22	23	24	25	26	27	28	29	30	31	32	33	34	35	MORTALITY	LD 50
A TITRATION OF "FAST GROWING" LANSING VIRUS POOL VII	10-2	1	-	D																																			
		2	-	D																																			
		3	-	PP	D																																		
		4	-	P	P	D																																	
		5	-	P		D																																	
		6	-	?		P	D																																
		7	-	-	-	-	-	-	-	?	PP	D																											
		8	-	-	-	-	-	-	-	-	D																												
		9	-	-	-	-	-	-	-	-	-	-	PP		D																								
		10	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
PASSAGE 7A		1	-	P	P	D																																20/20	
		2	-	P	P	D																																	
		3	-	CNS	PR	D																																	
		4	-	-	T	D																																	
		5	-	-	P	P	D																																
		6	-	-	-	D																																	
		7	-	-	-	-	-	-	-	?	D																												
		8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P	D																					
		9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	?	P	D																
		10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CNS	PP	D															
	10-3	1	?	D																																			
		2	-	-	D																																		
		3	-	-	PP	D																																	
		4	-	-	P	D																																	
		5	-	-	-	D																																	
		6	-	-	-	-	-	-	-	-	-	-	-	? CNS		D																							
		7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P	D																			
		8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P	D	PP	P	D														
		9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P	D															
		10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CNS	D															

MAP 7A 10E4

SPECIMEN	VIRUS	NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	MORTALITY	LD 50
A TITRATION OF "FAST-GROWING" LANSING VIRUS POOL VII PASSAGE 7A	10-4	1	-	CNS	P CNS	PP	D																															11/19	
		2	-	CNS	?	?	-	-	-	D																													
		3	-	-	-	PP	D																																
		4	-	-	-	-	-	-	D																														
		5	-	-	-	-	-	-	-	-	?	P	PR			D																							
		6	-	-	-	-	-	-	-	-	-	-				-	-	-	-	-			-	-	-	-	-		-	-	-	-	-	-	-	-		
		7	-	-	-	-	-	-	-	-	-	-				-	-	-	-	-			-	-	-	-	-		-	-	-	-	-	-	-	-		
		8	-	-	-	-	-	-	-	-	-	-				-	-	-	-	-			-	-	-	-	-		-	-	-	-	-	-	-	-		
		9	-	-	-	-	-	-	-	-	-	-				-	-	-	-	-			-	-	-	-	-		-	-	-	-	-	-	-	-		
		10	-	-	-	-	-	-	-	-	-	-				-	-	-	-	-			-	-	-	-	-		-	-	-	-	-	-	-	-		
	10-4	1	-	?	?	?	?	?	?	-	-	-	?			D																						
		2	-	-	-	P	D																																
		3	-	-	-	-	D																																
		4	-	-	-	-	-	-	-	-	-	-				-	-	-	D																				
		5	-	-	-	-	-	-	-	-	-	-				-	-	-	-	CNS			D																
		6	-	-	-	-	-	-	-	-	-	-				-	-	-	-	-			D																
		7	-	-	-	-	-	-	-	-	-	-				-	-	-	-	-			-	-	-	-	-		-	-	-	-	-	-	-	-		
		8	-	-	-	-	-	-	-	-	-	-				-	-	-	-	-			-	-	-	-	-		-	-	-	-	-	-	-	-		
		9	-	-	-	-	-	-	-	-	-	-				-	-	-	-	-			-	-	-	-	-		-	-	-	-	-	-	-	-		
		10	-	-	-	-	-	-	-	-	-	-	MISSING 3/18/52 HOLE IN BOX.																										
	10-5	1	-	-	-	-	-	-	-	-	-	-				-	-	-	-	-			-	-	-	-	-		-	-	-	-	-	-	-	-	2/19	
		2	-	-	-	-	-	-	-	-	-	-				-	-	-	-	-			-	-	-	-	-		-	-	-	-	-	-	-	-		
		3	-	-	-	-	-	-	-	-	-	-				-	-	-	-	-			-	-	-	-	-		-	-	-	-	-	-	-	-		
		4	-	-	-	-	-	-	-	-	-	-				-	-	-	-	-			-	-	-	-	-		-	-	-	-	-	-	-	-		
		5	-	-	-	-	-	-	-	-	-	-				-	-	-	-	-			-	-	-	-	-		-	-	-	-	-	-	-	-		
		6	-	-	-	-	-	-	-	-	-	-				-	-	-	-	-			-	-	-	-	-		-	-	-	-	-	-	-	-		
		7	-	-	-	-	-	-	-	-	-	-				-	-	-	-	-			-	-	-	-	-		-	-	-	-	-	-	-	-		
		8	-	-	-	-	-	-	-	-	-	-				-	-	-	-	-			-	-	-	-	-		-	-	-	-	-	-	-	-		
		9	-	-	-	-	-	-	-	-	-	-				-	-	-	-	-			-	-	-	-	-		-	-	-	-	-	-	-	-		
		10	-	-	-	-	-	-	-	-	-	-				-	-	-	-	-			-	-	-	-	-		-	-	-	-	-	-	-	-		

SPECIMEN	VIRUS	NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	MORTALITY	LD50
A		1	D																																				
		2																			D																		
		3																						D															
LANSING "FAST-GROWING" VIRUS PASSAGE 7A	10^{-5}	4																																				
		5																																				
		6																																				
		7																																				
		8																																				
		9																																				
		10																																				
B		1																																				0
		2																																				
		3																																				
		4																																				
		5																																				
TITRATION OF 10th BLIND PASSAGE OF LANSING VIRUS		6																																			
		7																																				
		8																																				
		9																																				
		10																																				
	10^{-1}	1																																				
		2																																				
		3																																				
		4																																				
		5																																				
		6																																				
		7																																				
		8																																				
		9																																				
		10																																				

MAR 10 1952

SPECIMEN	VIRUS	NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	MORTALITY	LD 50
B		1	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	S	S		D																
		2	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-		-	D															
		3	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-												
		4	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-												
		5	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-												
		6	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-												
		7	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-												
		8	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-												
		9	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-												
TITRATION OF 10 BLIND PASSAGE OF LANSING VIRUS		10	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-												
	10-2	1	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-												
		2	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-												
		3	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-												
		4	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-												
		5	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-												
		6	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-												
		7	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-												
		8	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-												
		9	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-												
		10	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-												
	10-3	1	-	-	D																																		
		2	-	-	?	?	?	?	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-												
		3	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-												
		4	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-												
		5	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-												
		6	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-												
		7	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-												
		8	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-												
		9	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-												
		10	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-												

SPECIMEN	VIRUS	NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	MORTALITY	LD 50
B		1	CNS?		?		?	S	D																														
		2						D																															
	10^{-3}	3										?	D																										
		4															D																						
		5																																					
		6																																					
TITRATION OF 10th BLIND PASSAGE OF LANSING VIRUS		7																																			
		8																																					
		9																																					
		10																																					
		1									D																												
		2																			D																		
		3																																					
		4																																					
		5																																					
		6																																					
		7																																					
		8																																					
		9																																					
		10																																					
	104	1							TY	D																													
		2																																					
		3																																					
		4																																					
		5																																					
		6																																					
		7																																					
		8																																					
		9																																					
		10																																					

STANDARD B & P "NOTEAR"

MAR 10 1952

SPECIMEN	VIRUS	NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	MORTALITY	LD 50
B		1	D																																				
		2	-	-	/	D																																	
		3	-	-	/	-	-	-	D																														
		4	-	-	-	-	-	-	-	-	-	-	-			-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-			-		
		5	-	-	-	-	-	-	-	-	-	-	-			-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-			-		
		6	-	-	-	-	-	-	-	-	-	-	-			-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-			-		
TITRATION OF 10TH BLIND PASSAGE OF LANSING VIRUS		7	-	-	-	-	-	-	-	-	-	-	-			-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-			-		
		8	-	-	-	-	-	-	-	-	-	-	-			-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-			-		
		9	-	-	-	-	-	-	-	-	-	-	-			-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-			-		
		10	-	-	-	-	-	-	-	-	-	-	-			-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-			-		
	10-5																																						
		1	-	-	-	/	-	-	-	-	-	-	-			-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-			-		
		2	-	-	-	-	-	-	-	-	-	-	-			-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-			-		
		3	-	-	-	/	-	-	-	-	-	-	-			-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-			-		
		4	-	-	-	-	-	-	-	-	-	-	-			-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-			-		
		5	-	-	-	-	-	-	-	-	-	-	-			-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-			-		
		6	-	-	-	-	-	-	-	-	-	-	-			-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-			-		
		7	-	-	-	-	-	-	-	-	-	-	-			-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-			-		
		8	-	-	-	-	-	-	-	-	-	-	-			-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-			-		
		9	-	-	-	-	-	-	-	-	-	-	-			-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-			-		
		10	-	-	-	-	-	-	-	-	-	-	-			-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-			-		