

가 4 -223 62

7 -237 34

12 -232 53

27, -3068

645 -3145

(74)

:

(54) -

가 / 가

(IRDS ARDS) , /

(LS) -

. LS , (: Robertson Taeusch, 1995.)

0% () 10% 90% (1
% 20% (76%) (PC), 3 80
(DPPC) , 11%) 2 (PG)
, 4% , 3% , 2% , 1.5%
0.2% , 가 , A(SP-A) 4%

SP-B SP-C SP-D 1%

가 가
가 가

10% w/w 0.9% w/w
0.5 120 (, 3 60) - -

(,)

25 mM , 50 mM , 75 mM , 100 mM , 125 mM , 150 mM , 200 mM ,
5 mM , 10 mM , 15 mM , 20 mM ,
60% w/w , 65% w/w , 70% w/w , 75% w/w , 80% w/w , 85% w/w ,
90% w/w , 95% w/w , 98% w/w , 55% w/w

가

LS

가

(RDS)

- a) $t_{1/2}$
- b) - $t_{1/2}$;
- c) 가 가 가

가

1 3

()

10% W/W

0.9 % W/W

0.5

120

3

60

(4).

1

가

(Na⁺, K⁺, Li⁺, Ca²⁺, Mg²⁺ / NH₄⁺)

(HPO₄⁻²),

(PO₄⁻³),

(H₂PO₄⁻),

pH

pH

5

8

0.

9% W/W

0.9%

1

5 mM

10 mM

15 mM

20 mM

25 mM

50 mM

75 mM

100 mM

125 mM

$$I=0.5 \sum c_i z_i^2$$

c_i

0.0156 M(15.6 mM)

z_i

(loading)

0.9 % W/W
0.138 M(138 mM)

가

가

(2).

가

가

/

LS
0.5 45 % w/w
55 % w/w 80 % w/w 90 % w/w
1
가가 가 가 2 3
0.5 120 3-60), 가 60 ()
(birefringence)' 2 - ()
(anisotropic) 가 ; ,
(network) 가 (tubules)' 가
(3).
(,) , pH) 가
(steady state)
가 (PLS)가 가 ,
, PLS 가 ,
(Bligh et al., 1959)
Denmark). (Leo Pharmaceutical Products, Ballerup,
/ / ATCC
A549(ATCC, 10801 University Boulevard, Manassas, VA 20110-2209, USA) 가
, DPPC, PG, , SP-B SP-C
SP-B SP-C 가
LS SP-B SP-C pH-
(PC)
90 98 % w/w 80 99.5 % w/w, 85 98% w/w
(DPPC)
SP-A, SP-B, SP-C / SP-D, SP-B /

SP-C
% 7.5 % w/w, 0.5 5% w/w, 0.5 2.5 % w/w, 0.5 10 % w/w, 2% w/w 0.5

가 0.5

(Pharmacia amp; Upjohn, Sweden) 130 mmol Na⁺,
4 mmol K⁺, 2mmol Ca²⁺, 1mmol Mg²⁺, 30 mmol Ac⁻ 100 mmol Cl⁻
SP-A 가

가 2 3 / /

-B PG/SP-C 가 LS , PG/SP

가 가 LS 가

() /

가 (IRDS), (ARDS),

/ SP-B

2 90 , 2 80 , 2 70 , 3 60 , 3 50 , 3 100 ,
5 40 , 5 35 , 10 35 , 15 35 20 35 45 ,

(,) (,) (,) (,)

가 / 가

1 2 , 1
, 2

w/w 가 , 0.9 %

1 2 , 2 , 1 1
2

3

(a) 1

(b) 2 ,

(c) 3

SP-B / SP-C

0.5 - 300 mg/m

I LS , 1 mg/ml, 2 mg/ml, 3 mg/ml, 4 mg/ml, 5 mg/ml, 6 mg/ml, 7 mg/ml, 8 mg/ml, 9 mg/ml, 10 mg/ml, 15 mg/ml, 20 mg/ml, 25 mg/ml, 30 mg/ml, 40 mg/ml, 50 mg/ml, 60 mg/ml, 70 mg/ml, 80 mg/ml, 90 mg/ml, 100 mg/ml, 125 mg/ml, 150 mg/ml, 175 mg/ml, 200 mg/ml

가

가

1

가

2

0.5-12
 0 , 1 100 , 2 90 , 2 80 , 2 70 , 3
 60 , 3 50 , 3 45 , 5 40 , 5 35 , 10 35 , 15
 35 , 20 35
 가 3 60 가 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, 36, 3
 7, 38, 39, 40, 45, 50, 55, 60, 75, 90, 100 120 가 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, 36, 37, 38, 3
 9, 40, 45, 50, 55, 60, 75, 90, 100 120
 , 60 ,
 60 75 .

ARDS

가

LS

가

가,

, 5 % w/v

4

10 % w/v

가

9 %,

10 % w/v

4 %,

5 %,

6 %,

7 %,

8 %,

5 % w/v

가

(가)

(IRDS),

(ARDS),

SP-B

, DNA -ase,

DNA

가

가

가 : (A :), , , , , , / SP-B

(4 , 3-5).

가

pH 가 가

가

1	5			10% W/W PLS	90% W/W
PLS					
2	15	1			가
3	30	1	2		
4		2			

1

(PLS)

PLS

Denmark)(PLS) . PLS Bligh Dyer (Leo Pharamaceutical Products, Ballerup, (Can. J. Biochem. Physiolol. 1959, 37, 911-917)

w/w), SP-B SP-C(0.5-2.0 % w/w) (10 % w/w) (90-98 %

PLS

(Leo Pharamaceutical Products, Ballerup, Denmark)(PLS)

가

PLS

PLS

w/w 10 % w/w) 0.5 (, 0.9 % w/w 1.8 %

1 (Pharmacia amp; Upjohn) (Na + 130 mmol, K + 4 mmol, Ca²⁺ 2 mmol, Mg²⁺ 1 mmol, Ac⁻ 30 mmol, Cl⁻ 100 mmol) PLS

25 / 42 . Leitz Sony CD

, 10%(w/w) PLS 90%

가 () 30 가 () (1). 가 () 가 ()

(0.9 % w/w PLS가 1.8 % w/w) , 3 2

PLS가 가 PLS

가 PLS가 /

2

2

- PLS

(Rotterdam) 가 . NIH (Harlan, CPH, Zeist,), 240-320 g

. 16 (65/33/2%) (Nembutal; Algin BV, Maaassluis,) 60 mg/kg/h ; (Pavulon; Organon Technika, Boxtel,), 2.0 mg/kg/h

(Servo Ventilator 300, Siemens-Elma, Solna, Sweden) 30 b pm, I/E 1:2, (PIP) 12 cm H₂O, (PEEP) 2 cm H₂O , PIP 1 20 cm H₂O 가 , PIP PE (BAL) PaO₂ <85 mmHg , PIP PE EP 26 6 cm H₂O 가 .

(0.9 % w/w 25 mg/ml 35 mg/ kg) . PLS 0.5 (t_{1/2}) 20 . 8 , 60 (4 ml/kg BW ± 0.4 ml) (14 ml/kg) () .

PaO₂ PaCO₂ BAL 5 (가) (ABL 505, Radiometer A/S, Copenhagen, Denmark) 5, 15, 30, 60, 90 120

PLS
 2 , PLS
 2 PaO₂ . PLS PaO₂ . PLS
 PLS
 PLS / PLS
 가 가 () - PLS PLS
 t_{1/2} ± 15%, t_{1/2} ± 10%, t_{1/2} ± 7.5%, t_{1/2} ± 5% PL
 가 ,
 PLS , PLS PLS 1
 5-30
 4

Alveofact), (Curosurf) (Exosurf). : (

[1]

			*		g/kg (m
TM (=)	' , '	DPPC PG(7:3)	100%	0%	100
I1) * (=SF-R	' , '		88%	1%	100
BLES	F. , '		90%	1%	100
*#	' , '		99%	1%	200
*	- , ,	DPPC, ,	84%	0%	67.5
* (=CLSE)	. ,		95%	1%	100
-TA) * (=	' , '	+ DPPC	84%	1%	100
) TM (=	' , '	+ DPPC	84%	1%	100

DPPC, PG, *,
 (99% w/w)
 1 1000 mg 0.9% w/w 50 mg

가
 PLS

(57)

1. 10 % w/w 0.9 % w/w 0
 .5 120 - -
- 2.
- 3.
4. 3 80 99.5 %w/w, 85
 2 98 %w/w, 90 98 %w/w
5. 4 (DPPC)
6. 5 , SP-A, SP-B, SP-C / SP-C
7. SP-B / SP-C
8. 7 0.5 7.5 % w/w, 0.5 5 % w/w, 0.5 2.5 % w/w, 0.5 10 % w/w,
 6 0.5 2 %
9. 8 10%w/w
10. 9

- 10 11. , .
- 10 12. 11 , , , .
- 1 13. 9 , - .
- 1 14. 9 , 가 .
- 6 15. , .
- 55 %w/w 16. 5 mM , .
- 16 17. , 10 mM , 15 mM , 20 mM , 25 mM , 50 mM , 75 mM , 100 mM , 125 mM .
- 16 18. 17 , 60% , 65% , 70% , 75% , 80% , 85% , 90% , 95% , 98 % w/w .
- 16 19. 18 , .
- 16 20. 19 , Na^+ , K^+ , Li^+ , Ca^{2+} , Mg^{2+} / N H_4^{2+} .
- 16 21. 20 , (H_2PO_4^-) , (HPO_4^{2-}) , (PO_4^{3-}) , .
- 16 22. 21 , 0.9 % w/w .
- 1 23. 22 가 , .
- 23 24. , , , , .
- 25.

39

41.

1 1 26 , 2 , 1
2

42.

41

43.

42

44.

41

43

45.

44

0.9 % w/w

46.

41

45

가

47.

1

가

39

40

, 2

48.

1

26

49.

48

32

40

50.

48

49

가

51.

48 RDS),

50

(IRDS),

(A

52.

48

50

SP-B

53.

5 mM

1

26

0.5

120

가

54.

0.5 1 120 26 - -

55.

53 54

56.

1 , 26 /

57.

1 26

58.

, / 1 26

59.

58 , , / ,

60.

1 26

61.

- (a) $t_{1/2}$;
- (b) - $t_{1/2}$;
- (c) 가

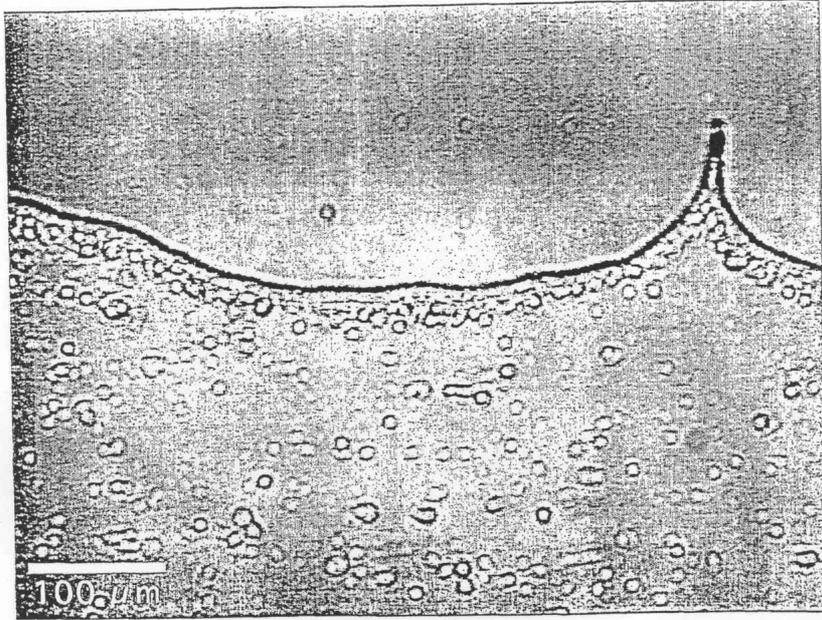
62.

, / , 가

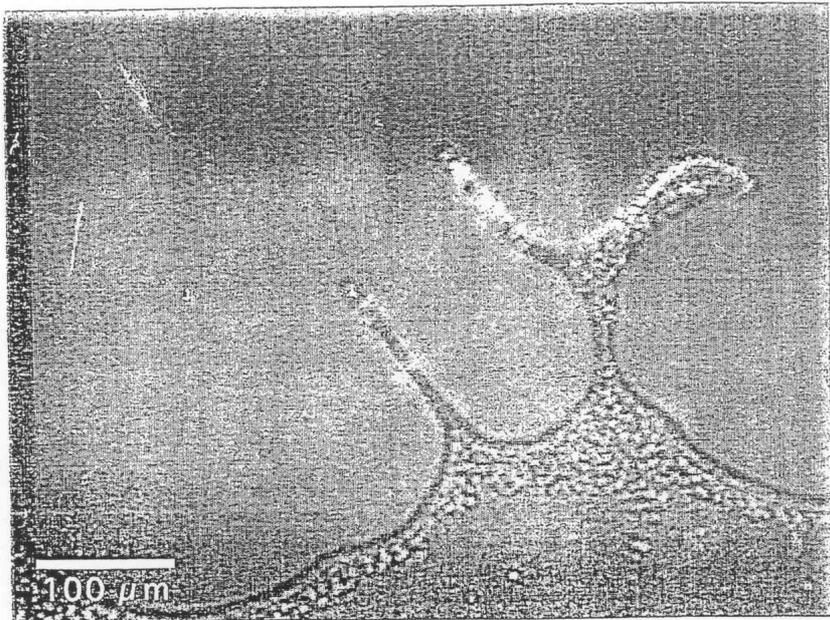
/ 가
 , / 가
 10 % w/w 0.5 0.9 % w/w 120 - -

1

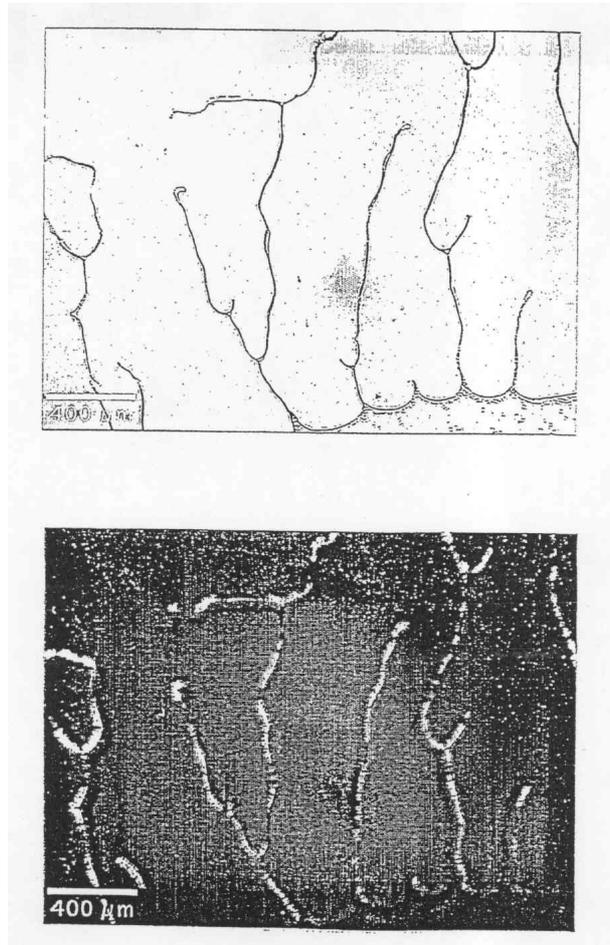
1



2



3



4

