

教育學碩士學位請求論文

ABO Rh 가

**A study on the importance of ABO and Rh blood groups
information in Public Health**

2000 年 2 月

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生物教育專攻

柳 承 國

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指導教授：李 昌 重

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2000 年 2 月

主審: _____ 印

副審: _____ 印

副審: _____ 印

Abstract

•

1. -----1

•

1. -----3

2. -----5

1) ABO -----5

2) Rh -----5

3) -----6

3. -----7

1) -----7

2) -----7

4. -----9

1) -----9

2) -----9

3) -----10

4) -----11

5) -----11

6) “ (Quality)” -----11

5. ABO ----- 13

6. Rh	-----	17
7.	-----	19
1) Cis-AB	가? -----	19
2) Cis-AB	1 -----	20
3) Cis-AB	-----	22
4) Weak D(Du)	-----	23
5) Weak D	1 -----	24
6)	Rh(D) 가	
	-----	25
.	-----	26
.	-----	28
.	-----	30

Abstract

Accurate determination of the people ABO blood group requires two different test procedures, red cell grouping and serum grouping.

The individual is assigned to one of four ABO blood groups, A, B, O and AB with Rh positive or negative respectively. A series of tests performed by Karl Landsteiner in 1900 led to the discovery of the ABO blood groups and Rh blood groups was discovered in 1940 by Karl Landsteiner and Wiener. The red cell grouping tests utilize anti-A and anti-B to determine the presence or absence of the antigens. The serum grouping tests use reagent A and B red cells to detect serum anti-A and anti-B. Routine grouping of person's blood type must include both red cell and serum tests. In Korea, however, many institutions performed only red cell grouping tests. Therefore, many cases are not reported about the ABO discrepancies between cell and serum grouping. For example, there are Cis-AB blood group which shows rarely unusual inheritance of ABO group on the same chromosome by crossing over or mutation. The second weak or mixed field agglutination in ABO blood grouping or disagreement between the cell group and serum indicates a genetic variant or a change due to disease. It gives rise to family troubles, social problem. Also ABO grouping is the most important laboratory test performed on potential transfusion recipients and blood donors. The Rh system includes many antigens but the major is D. The term Rh positive is used to denote red cells that carry D antigen or its variant Du (Weak D). The red cells that have neither D nor D^u on their membranes are termed Rh

negative. The D antigen is after A and B, one of the most important rbc antigen in transfusion practice.

The purpose of this study was to acheive a system classification of ABO and Rh blood groups in more detail, and quality control of ABO and Rh blood tests for public health.

1.

1900 Karl Landsteiner
Landsteiner Wiener

ABO
Rh

1940 Karl

가 가

가

가

ABO

20

Rh

가

가 ,

가

가

Rh(D) , Rh(D)

A , B , O , AB

ABO & Rh

, 가

가
가

ABO, Rh

•

1.

1998 , 1

ABO & Rh

가

가
가

가

가

가

가

가

1998 , 1

1

1

1. (1998)

* 1998 1 .

	15,000
*	145
	0.96%
**	0%
***	140
가 ****	12

*

..

**

..

**** 가

2.

1) ABO

ABO (凝集原) (凝集素)
 A B
 가 A , B , O , AB
 A A , B B AB
 A B 가 O A
 B 가
 anti-A anti-B A
 anti-B 가 , B anti-A 가 O
 anti-A, anti-B 가 AB anti-A anti-B
 가

2. ABO

A	A	Anti-B	34.4%
B	B	Anti-A	27.2%
O		anti-A, anti-B	27.1%
AB	A,B		11.3%

2) Rh

ABO

1940 Karl

Landsteiner Wiener

Rh(D) , Rh(D)
 . Rh Rhesus
 . Rh Rh(D) D 가 Rh , D
 Rh 가 .

3)

가 ,
 가 .
 가 ,
 .

3.

1)

O
AB

가 .

(質)

A , Rh , A , Rh A , B
Rh , Rh
가 .

2)

O

가 A Rh
O Rh

ABO

Rh

ABO Rh

가

가

가

가

가

4.

1)

ABO

(Serum typing)

(Cell typing)

가 . 가 . 가 . ,

가 . 가 . ,

가 ABO

Slide ,

, , ABO

Slide

가 .

2)

(1)

(subgroups)

Receptor
ABO

A

B O .
(2) , , 가

(3)

(4) 가 .
(Polyagglutination)

(5) 가
가 (Autoantibody), (Cold antibody)가

(6) A , B , O AB
가

3)

(1) 가 , ,

(2) A, B ,

4)

(1)

가

(2)

(3)

(4)

(5)

(6)

(7)

(8)

5)

6)

“ (Quality)”

가

가

가

가

,

.

,

가

5. ABO

1) (Cell typing) – Slide Plate

()
A , B

()
Plate
Applicator()
1 mL

View box()
Dropper()
FDA A B

()
Plate A B

A A , B B

applicator 20mm x 40 mm

View box Plate 2

2) (Cell typing) – ,Tube typing

()

(12 x 75mm)

FDA A B

Dropper

View box

2-5% ()

()

2-5%

(2-5%

1mL

Dropper 1drop).

“A” “B”

“A” A , “B” B 1

drop

1 drop 가 .

3,400 rpm

15-20

.(View box).

3) (Serum typing) – ,Tube typing

()

“A” , “B”

.

Slide

가

()

(12 x 75mm)

A B 2-5%

View box

()

“A” “B”

2

(Plain tube

2,500 rpm 5

“A” A “B” B 1
 .
 3,400rpm 15-20 .

3. ABO

	A	B	A	B
A	+	-	-	+
B	-	+	+	-
O	-	-	+	+
AB	+	+	-	-

** + : , - :

4)

가

Slide Plate

2

, A, B 가

, 2

6. Rh

Rh	가	가	Rh(D)	Rh
Anti-D	Rh(D)	가	Rh(D)	.
Rh	Rh	,	Rh	.
Rh		Rh	Plate	.
	가			

1) Plate

()

Anti-D

Plate

Applicator

Viewbox(Rh)

Dropper()

()

Plate

1drop

Anti-D 1drop

.(20mm x 40mm)

Rh viewbox

2

2)

()

(12 x 75mm)

Dropper()
Anti-D

Viewbox

()

2-5%

2-5%

1drop

Anti-D 1drop

3400 rpm

15-20
가

6.

가
(Subgroup)

Rh(D) Cis-AB , Rh(D) Weak D
가
(Hemolytic Disease of the Newborn)

1) Cis-AB
ABO

가?

9
가

가
가
O
AB
B
Cis-AB
A B
가
ABO
가
A B
가
A B
가
AB/O
가
A B
가

Cis-AB

Cis-AB

가

2) Cis-AB

1

()

1997 7

가

O

Cis-AB

A

가

Cis-AB

가

가

Cis-AB

가

가

Cis-AB

AB

Cis-AB

4, 5

4.

AB

Anti- A	Anti-B	A	B
4 +	4+	-	-

* : 4+ > 3+ > 2+ > 1+ > - :

5. Cis-AB

Anti- A	Anti-B	A	B
3 +	1+	-	1+

* : 4+ > 3+ > 2+ > 1+ > - :

AB 가
 B 가
 A B 가
 Cis-AB . 1968 Madsen 가

Cis-AB A B 가 가
 가

ABO 가

Cis-AB Fig 1. .

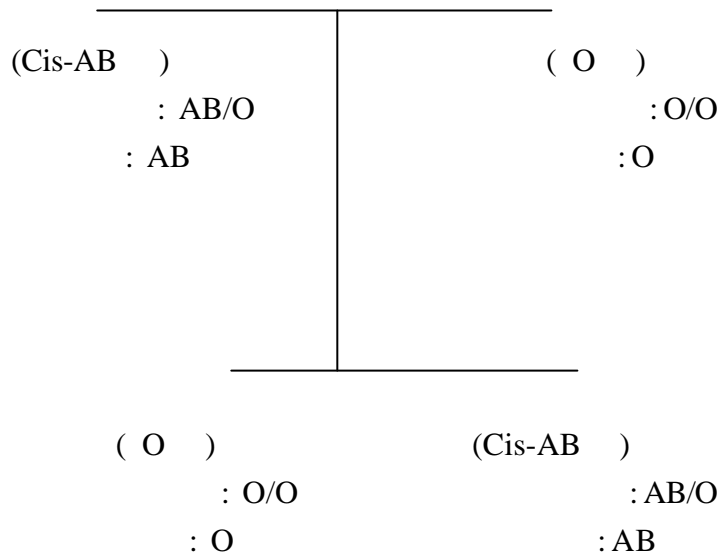


Fig 1. Cis-AB

Cis-AB
가

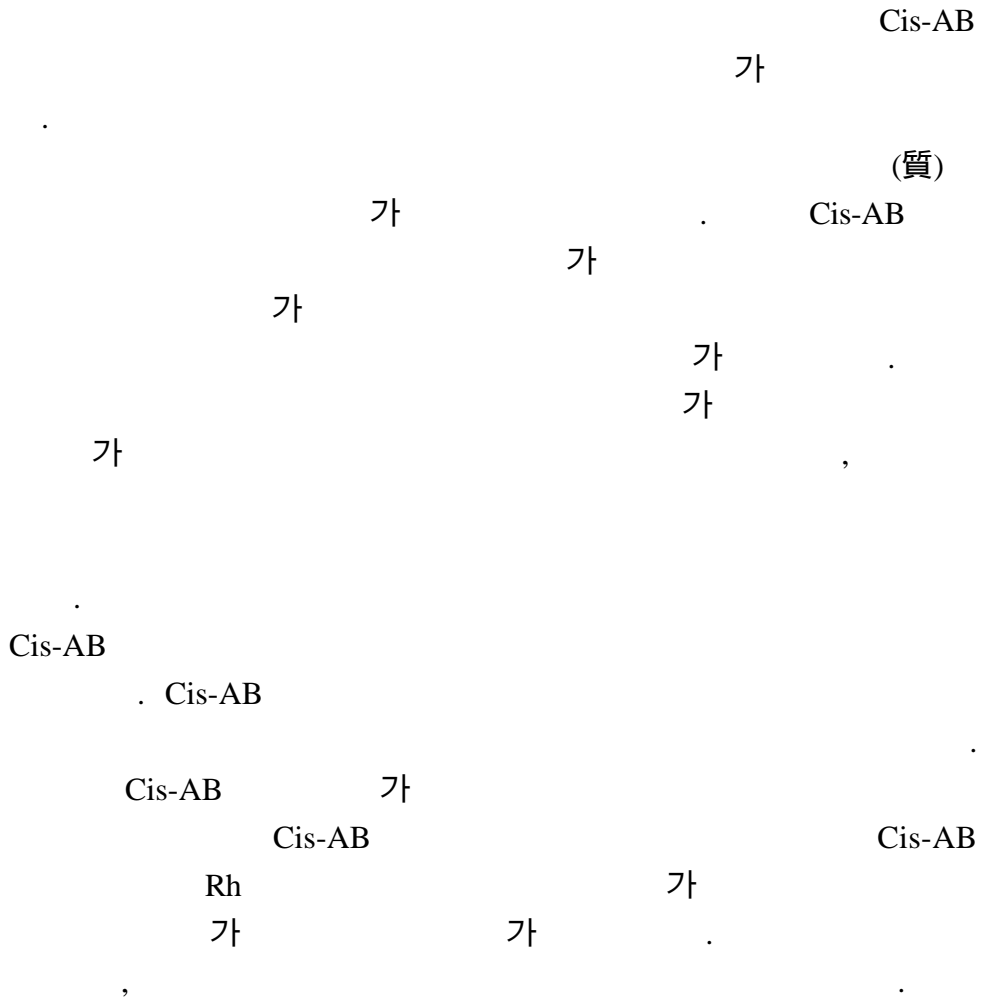
. Cis-AB
A2B3, Cis-A2B

Cis-AB

Cis-A1B3, Cis-

3) Cis-AB

가



4) Weak D

Weak D , D

D Rh
 D
 Rh
 Weak D Anti-D
 가
 Rh Weak D
 Weak D Rh
 Rh Weak D
 Rh Rh
 Rh Rh 가 Weak D
 Rh Anti-D Weak D
 Weak D
5) Weak D 1
 1999 3 20 가
 Rh
 Rh Rh
 가 Weak D Rh
 Weak D Rh
 Weak D Weak D
 Weak D

Rh
 Weak D
 Weak D
 6) **Rh(D)** 가
 (Hemolytic Disease of the Newborn) 가
 가
 Anti-D Rh(D) 가
 Rh(D) 가 Anti-D
 Rh(D)
 ABO & Rh
 Rh(D)
 Rh(D) Anti-D
 Rh(D) Rh(D)
 Anti-D 가 Anti-D
 가
 가

•

가

가

, 가

.

.

,

.

가

가

가

가

, 1
150

ABO & Rh

15,000

1%

가

100%

70% 가

30%

.

,

.

가

가

“ (Quality)”

가

가 ,

가 ,
가 가

ABO & Rh

Manual

Manual

1.

“ (Quality)”

2.

Double checking

2

3.

,

가 ,

가

4. ABO & Rh

가

가

5.

, B , O , AB
Rh , Rh
A
Rh
A

6.

가
가
가

7. 가

1. , , : ABO
1992; 3: 65-69
2. , , , : Cis-AB 가 4
1990;25:267-272
3. , , , : Cis-A2B 2 가 .
1982;16:90-94
4. , , , : ABO discrepancy 82
1991;11:493-499
5. , , : . , 1993,151-213
6. Yamaguchi H, Okubo Y, Hazama F: An A2B3 phenotype blood showing atypical mode of inheritance. Proc Jpa Acad 1965;41:316-20
7. Standard committee AABB: Standards for blood banks and transfusion services, 15th ed. American Association of Blood Banks, Bethesda, Maryland
8. Stroup M.and Treasy M: Blood group antigens and antibodies. Ortho Diagnostic Systems 1982;pp:123
9. Walker RH, ed. Technical manual. 10th ed. Arlington, VA: American Association of Blood Banks 1990;pp:173-187
10. Mollison PL : Blood transfusion in clinical medicine. 9th ed. London: Blackwell scientific Publications 1993;pp:310-18
11. Lacy PA, Caskey CR, Werner DJ, Moulds JJ : Fatal hemolytic disease of the newborn due to anti-D in an Rh-positive Du Variant mother .Transfusion 1983;23:91-94

