

Different Epitopes of ABH Antigens Exist in Red Cell and Body Fluid

Jian CHEN*, Yuji YAMAMOTO and Hideo ISHIZU

Department of Legal Medicine, Kochi Medical School, Nankoku, Kochi 781-51, Japan

INTRODUCTION

Our previous work have proved that anti-ABH monoclonal antibodies (McAbs) have a different affinity to animals' red cell. On the fact that one anti-A McAb reacted with pig red cell and the others did not, we surmise there are two epitopes in A antigen: pig sharing epitope and pig not sharing one. Two anti-B McAbs reacted with rabbit red cell and the others did not, so that we surmise there are two epitopes in B antigen: rabbit sharing epitope and rabbit not sharing one. In this work we used 8 McAbs to study ABH antigens in human saliva. We found that different epitopes exist in ABH antigens of human red cell and human saliva.

REACTION OF McAbs WITH SALIVA

The immunogen of McAbs we used was ABH antigen of human red cell. McAbs which react with human red cell in high affinity were used. The result shows some of McAbs reacted with ABH antigens in human saliva in high affinity and some of them did not react, while polyclonal antibodies and lectin reacted with those antigens. The McAb that reacted with A antigen in human saliva also reacted with pig red cell and the McAb that reacted with B antigen in human saliva also reacted with rabbit red cell (Table 1).

DIFFERENT EPITOPES EXIST IN ABH ANTIGENS

This result clearly shows at least two epitopes exist in ABH antigens. One is human red cell specific epitope (hrcS) and another is human red cell nonspecific epitope (hrcNS) which coexists in human red cell, human saliva and some animals' red cell as seen in Table 2. Our previous works have proved that hrcS also has high species specificity; RT3, HM1 and RT15 only reacted with chimpanzee and orangutan red cell in very low affinity. RT10 did not react with all the 20 kinds of animals red cell including 7 kinds of primates. In this work we prove those McAbs did not react with human saliva, which means they reacted with hrcS. In forensic science those results supply us the possibility to use those McAbs which react with hrcS to discriminate human blood from human body fluids and animals' blood.

* Institute of Forensic Science, Ministry of Justice, PRC. Shanghai, P. R. China.

Table 1. Reaction of McAbs with human saliva and animal red cell

Samples	A antibodies			B antibodies			H antibodies			AB antibodies	
	RT3	SCA	AP	RT10	SCB	BP	HM1	HM2	HL	RT15	SCAB
Human saliva											
A type	-	+	+				-	+	+	-	+
B type				-	+	+	-	+	+	-	+
O type							-	+	+		
Animal red cell											
Pig	-	+								-	+
Rabbit				-	+					-	+

AP,BP: polyclonal antibodies. HL: lectin. + : reaction.
- : nonreaction.

Table 2. Epitopes in ABH antigens

	A epitopes		B epitopes		H epitopes	
	hrcS	hrcNS	hrcS	hrcNS	hrcS	hrcNS
Human red cell	+	+	+	+	+	+
Human saliva	-	+	-	+	-	+
Pig red cell	-	+				
Rabbit red cell			-	+		

hrcS: human red cell specific epitope.
hrcNS: human red cell nonspecific epitope.

REFERENCES

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Any information to Hideo ISHIZU