#### A A C

# Identification of Single-Locus PCR-Based Markers Linked to Shell Background Color in the Pacific Oyster (*Crassostrea gigas*)

Jianlong Ge<sup>1</sup> · Qi Li<sup>1</sup> · Hong Yu<sup>1</sup> · Lingfeng Kong<sup>1</sup>

(Crassostrea gigas) A -, . C -( CA ) 2-4, 11-2, Electronic supplementary material ( , :10.1007/ 10126-015-9652- ) , . . .

### Introduction

(C 1975; 1990; B 2000).

(C 1975; 1977; A 1990; 2001; 2004; 2009; 2012).

(Crassostrea gigas)

(A 2014), (B 2004; 2006). C

(C 2001).

C. gigas

( A )

( 2007),

( 2012),

( . 2014).

A ( C 2004).

(A )

(B A)

(B A)

(B A)

(B A)

(B A)

(C 2001)

(B A)

(B A)

(B A)

(C 2001)

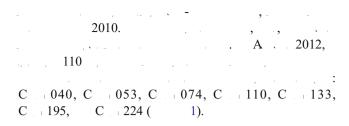
(A )

(D 2014)

#### **Materials and Methods**

#### **Oyster Materials**

A 2011.



## **BSA** and **AFLP** Analysis

. 100 /μ. ( B) \_\_\_\_\_ Α, A . (2009), \_ . (1995). EcoR /Mse 0.1 A, 8.0), 2.0  $\mu$ . . A 1.5 % 1:10 **C**., . A 10-

## **Cloning of AFLP Markers**

Table 1 . A	
., A .	
A	225
	6078
en e	1580
-	69
	86
· · · · · · · · · · · · · · · · · · ·	6
· · · · · · · · · · · · · · · · · · ·	7
B , , , CA / , ,	3

## **Conversion of AFLP Markers into Single-Locus Markers**

B A C. gigas ( ://, = - / B , A Α, . Α,  $\boldsymbol{C}$  , , , , , , 2\_ A ,  $\dots$  ,  $(C_{i}, C_{i})$ 0.5 L Taq 10-μ ( ), 1 C , 0.8 ., 0.5 μ , 1.5 C <sub>2</sub>, ... 50–100- A. C

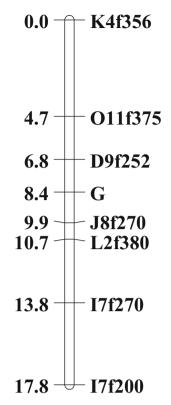


Fig. 1 (94 °C, 45 ; 55 °C, 45 ; 72 °C, 45 ), 72 C , 10 . ( CA ) 1.5 % 6 % ( , , , C.

Table 2 C 

A , . (  $_{\text{L}}$  ,  $0.5~\mu$  ,

	. , , , , ,	. ( )		(n=61) $(n=49)$
9 252	E-A C/M-C	252	60	3
7 200	E-AA /M-C	200	7	46
7 270	E-AA /M-C	268	5	46
8 270	E-AA /M-C A	271	55	3
4 355	<i>E</i> -A / <i>M</i> -C A	356	56	5
2 380	E-A A/M-CA	379	2	47
11 375	E-A A/M-C	376	58	2

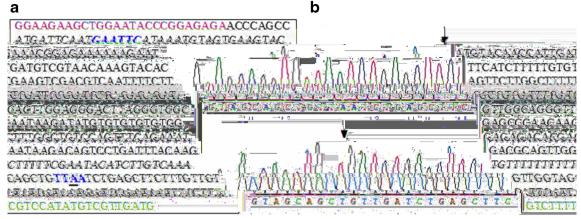


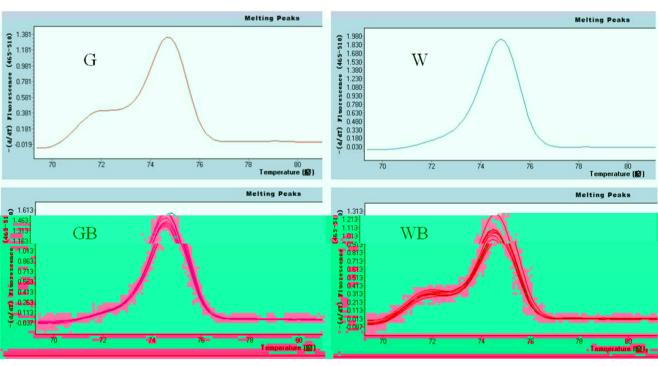
Fig. 3 C A 2 380. a A C C blue color. B EcoR Mse red

7 200 7 270 363 461,

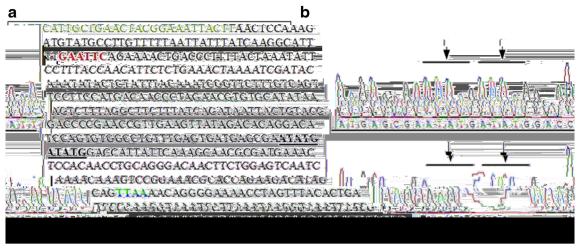
Mse , Eco

C , A

8 270 ( 268 1062). A





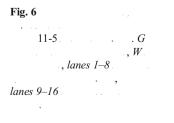


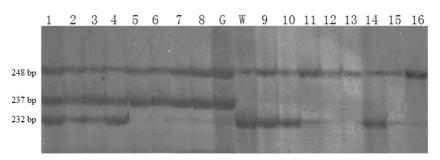
A ( .2). ,
CA CA 8-2
( 3). 1062
CA CA .

A ( . 6). A 237232- (237-5 )

**A** . . . .

## 4 Discussion







Gw , ww.

A CA ( -170).

A

- ( .2014). -170

A	C, , $C$	$A, A, \dots, \dots, \dots, \dots, \dots$
	· · · · · · · · · · · · · · · · · · ·	, ,, (2001)
	, , , , , , , , , , , , , , , , , , ,	(Oncorhynchus mykiss). 265:
	(Oncorhynchus kisutch). A 296:21–26	687–693
В	A (1998) C, A	A (2001)
	, , , 2 , , , , , , , , , , , , , . , ,	63:14–25
	A 97:960–967	, B , A , B (2012) A -
В	C (2004)	(Nodipecten
	, , , , , , , , , , , , , , , , , , , ,	subnodosus):
	, Crassostrea gigas. A	. A
В	В, , , , , , (2003)	, ,C , , (2004) CA CA
٠.	A A _ TM	CRh Plasmodionhora brassicae
	Λ 31. 55	CRb, Plasmodiophora brassicae C (Brassica rapa . pekinensis). A
C .	, B , C (1996) C -	108:1458–1465
C ,	, B , , , , , , (1990) C,	
		, , , , , (2007)
	(A ) , - , , - , ,	
~	39:373–378	, Argopecten irradians irradians
C,	(1975)	( , 1819). B, 9:66–73
	Urosalpinx cinerea. 257:794–795	, , , A , , , , , , , , (1999) A -
٠A	( , , A , , , ) (2014),	,
	A	37:3083–3091
	· · · • • · ·	B (2009) C
k	A, ,	CA
		32:564-567
	(Oncorhynchus mykiss). A 247:35–43	, , , B (2000) , ,
	CA (2014)	Littorina saxatilis.
		B 245:1–23
	(Crassostrea gigas). A 434:249–253	, , , (2001), 3.0: ,
	(2015)	
	Crassostrea gigas. A 441:21–24	• • • • • • • • • • • • • • • • • • • •
	, , (2012)	, , , , B , , (1995) A :
٠,		A 22.4407.4414
	14:218–226	A A (1990) - A 23:4407–4414
		, , A (1990)
	(1975) C	Pinctada fucata
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	(1975) C	Pinctada fucata  martensii B  56:1787–1790 , C, (2014) A Vibrio anguillarum  (Paralichthys olivaceus)  B. 16:513–521 B, (2001)
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	(1975) C	Pinctada fucata  martensii
,	(1975) C	Pinctada fucata  martensii
	(1975) C	Pinctada fucata  martensii  56:1787–1790  C, (2014) A  Vibrio anguillarum  (Paralichthys olivaceus)  B 16:513–521  B, (2001)  Argopecten purpuratus (B:  ). 92:521–525  C (2009) - A : -  30:857–859
	(1975) C	Pinctada fucata  martensii  56:1787–1790  C, (2014) A  Vibrio anguillarum  (Paralichthys olivaceus)  B 16:513–521  B, (2001)  Argopecten purpuratus (B:  ). 92:521–525  C (2009) - A : -  30:857–859  A, -, (2007) A
	(1975) C	Pinctada fucata  martensii  56:1787–1790  C, (2014) A  Vibrio anguillarum  (Paralichthys olivaceus)  B 16:513–521  B, (2001)  Argopecten purpuratus (B:  ). 92:521–525  C (2009) - A : -  30:857–859  A, -, (2007) A
	(1975) C	Pinctada fucata  martensii  56:1787–1790  C, (2014) A  Vibrio anguillarum  (Paralichthys olivaceus)  B 16:513–521  B, (2001)  Argopecten purpuratus (B:  ) 92:521–525  C (2009) - A : -  30:857–859  A, -, (2007) A  B 127:177–187
	(1975) C	Pinctada fucata  martensii  56:1787–1790  C, (2014) A  Vibrio anguillarum  (Paralichthys olivaceus)  B 16:513–521  B, (2001)  Argopecten purpuratus (B:  92:521–525  C (2009) - A  30:857–859  A, -, (2007 ) A  B 127:177–187  CA
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	(1975) C	Pinctada fucata  martensii  56:1787–1790  C, (2014) A  Vibrio anguillarum  (Paralichthys olivaceus)  B 16:513–521  B, (2001)  Argopecten purpuratus (B:  ). 92:521–525  C (2009) - A : -  30:857–859  A, -, (2007) A  B 127:177–187  CA  Brassica napus  50:611–618
	(1975) C	Pinctada fucata martensii  56:1787–1790  C, (2014) A  Vibrio anguillarum  (Paralichthys olivaceus)  B 16:513–521  Argopecten purpuratus (B:  2001)  Argopecten purpuratus (B:  30:857–859  A, -, (2007) A  B 127:177–187  CA  CA  Brassica napus  50:611–618
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	(1975) C Cepaea nemoralis ( .). 19:29–38  , (1977) . 68:203–204 , , , A C , , (2013)  C , Crassostrea gigas, A -A A 26:1659–1664 , , , , A (2004) . Haliotis discus hannai. 23:1153–1156 (1944) . , Haliotis discus hannai. 4 (2004) . A 12:172–175 , C , (2009) A , Apostichopus japonicus ( ), A	Pinctada fucata  martensii  56:1787–1790  C, (2014) A  Vibrio anguillarum  (Paralichthys olivaceus)  B 16:513–521  Argopecten purpuratus (B:  192:521–525  C (2009) - A  30:857–859  A, -, (2007) A  B 127:177–187  CA  CA  Brassica napus  50:611–618  Crassostrea virginica  B B 204:327–338
	(1975) C Cepaea nemoralis ( .). 19:29–38  , (1977) . 68:203–204 , , , A C , , (2013)  C , Crassostrea gigas, A -A A 26:1659–1664 , , , , A (2004) , Haliotis discus hannai. 23:1153–1156 (1944) A 12:172–175 , C , (2009) A , Apostichopus japonicus ( ), A , Apostichopus japonicus ( ), A , Lottia asmi ( ) Lottia digitalis ( )( ; ) B 140:173–185 , C (2004) A , . A 238:1–37	### Pinctada fucata  #### Martensii    56:1787–1790
	(1975) C Cepaea nemoralis ( .). 19:29–38  (1977) . 68:203–204 , , , A C , , (2013)  C , Crassostrea gigas, A -A A 26:1659–1664 , , , , A (2004)  hannai. 23:1153–1156 (1944) . A 12:172–175 , C , (2009) A , Apostichopus japonicus ( ), A   A 40:678–685 , (1990) . Lottia asmi ( ) Lottia digitalis ( )(	### Pinctada fucata  #### martensii    56:1787–1790
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	(1975) C Cepaea nemoralis ( ). 19:29–38  (1977) 68:203–204 , , , A C , , (2013)  C , Crassostrea gigas, A -A A 26:1659–1664 , , , A (2004)  hannai. 23:1153–1156 (1944) A 12:172–175 , C , (2009) A Apostichopus japonicus ( ), A - A 40:678–685 , (1990) Lottia asmi ( ) Lottia digitalis ( )( ). B 140:173–185 , C (2004) A A 238:1–37 , , , (2009) A Haliotis discus hannai 28:419–424	### Pinctada fucata  #### Martensii    56:1787–1790
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	(1975) C Cepaea nemoralis ( .). 19:29–38  (1977) 68:203–204 , , , A C , , (2013)  C , Crassostrea gigas, A -A A 26:1659–1664 , , , , A (2004)  hannai. 23:1153–1156 (1944) A 12:172–175 ,C , (2009) A Apostichopus japonicus ( ), A - A 40:678–685 , (1990) Lottia asmi ( ) Lottia digitalis ( )(	### Pinctada fucata  #### Martensii    56:1787–1790

