Contents lists available at SciVerse ScienceDirect

journal homepage: www.elsevier.com/locate/cbpb

# *Hyriopsis cumingii*:

College of Animal Sciences, Zhejiang University, Hangzhou 310058, China
College of Life Science, Shaoxing University, Shaoxing 312000, China

ARTICLE INFO

*Article history:*

*Keywords:*
*Hyriopsis cumingii*
*Hc*

ABSTRACT

(*Hc* *Hc*) *Hyriopsis cumingii* *Escherichia coli*

## 1. Introduction

*Pinctada fucata* *CaM* *CaLP*

*E-mail address:*

## 2. Materials and methods

### 2.1. Mussel and sample collection

### 2.2. Rapid amplification of cDNA ends (RACE)

**Table 1**

### 2.3. Sequence analysis

### 2.4. Tissue specific expression of the HcCaM and HcCaLP genes

### 2.5. Recombination and protein purification of HcCaM and HcCaLP

fi fi , ( )

### 2.6. $Ca^{2+}$-dependent electrophoretic mobility shift assay

+ ( ) fi ( μ )

### 2.7. Calcium stimulation experiment

fi *H cumingii* ( , , ) fi *Ctenopharyngodon idellus* ( ) fi *Carassius (auratus) gibelio* ( ) + , , , , , , fi fi ( , , , ) + ( ) ( ) , ( ) fl fi — , , ( ) , ( ) z — fi *Hc* *Hc*

### 2.8. Statistical analysis

*Hc* *Hc* z *β-actin* + , , ( ) , ( ) fi *P* <

## 3. Results

### 3.1. Full-length cDNAs of HcCaM and HcCaLP

*Hc* , , , , , *Hc* , , , ( ,

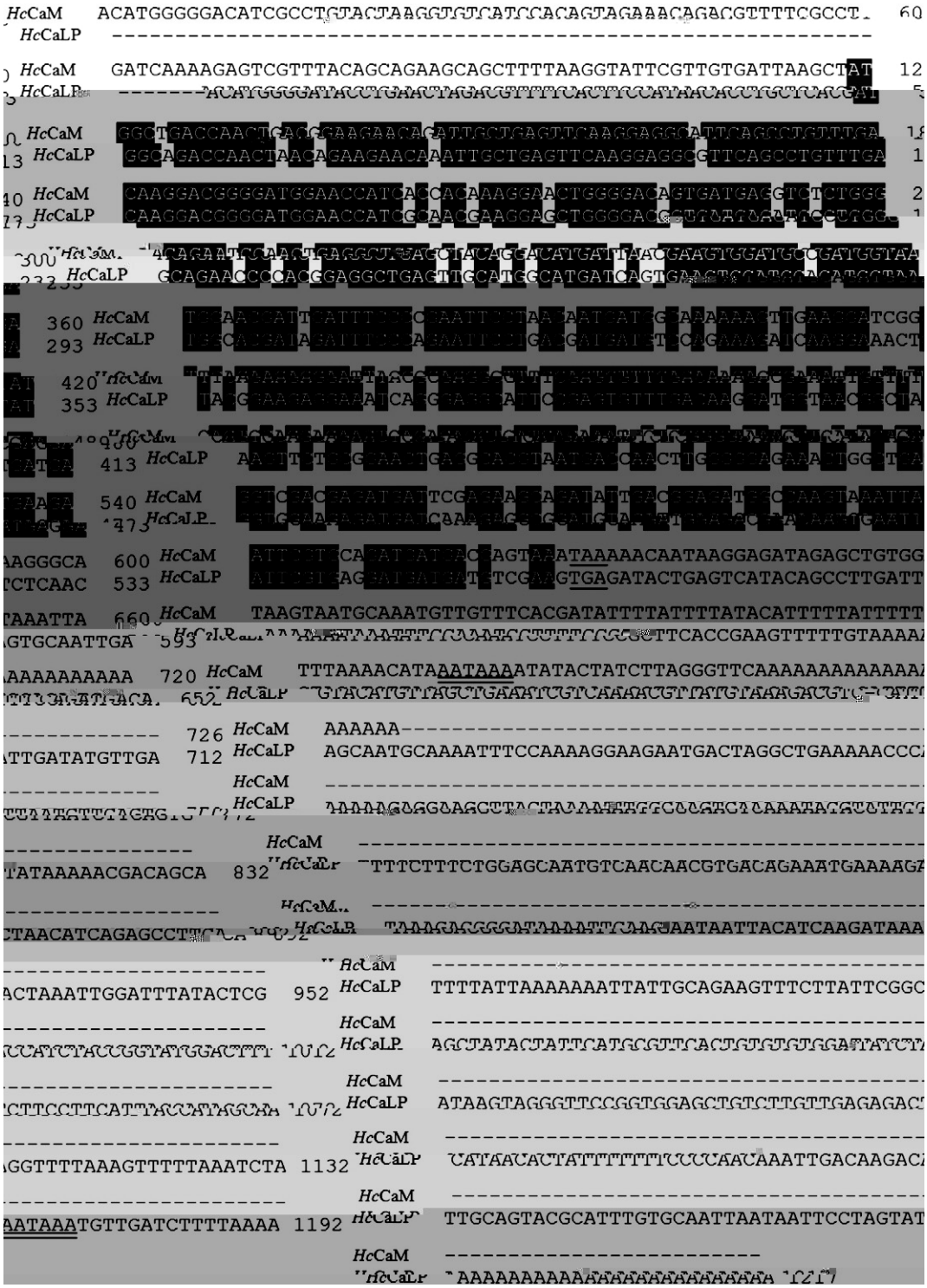


**Fig. 1.** *Hc* *Hc*

[illegible]

[illegible] *Hc* [illegible] *H cumingii,* [illegible]

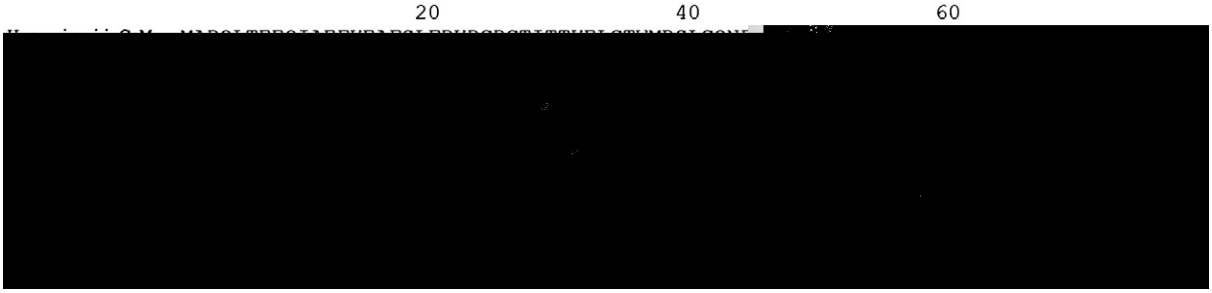


**Fig. 2.** [illegible] *H. cumingii* [illegible] *H. sapiens* ( : ) [illegible] (*) [illegible] ( ) (:) [illegible]

[illegible] fi [illegible] ( [illegible] ) [illegible] + ( [illegible] z [illegible] ( [illegible] ) *hs* [illegible] *H. schlegelii* [illegible] ) [illegible] ( [illegible] ) *P. fucata,* [illegible] ( [illegible] ) [illegible] *Hc* [illegible] *Hc* [illegible] *H cumingii* [illegible] + [illegible] + fl ( [illegible] ) *CaM* [illegible] ( [illegible] ) [illegible] *CaM* [illegible] fi *Crassostrea gigas* [illegible] ( [illegible] ) [illegible] *Hc* [illegible]

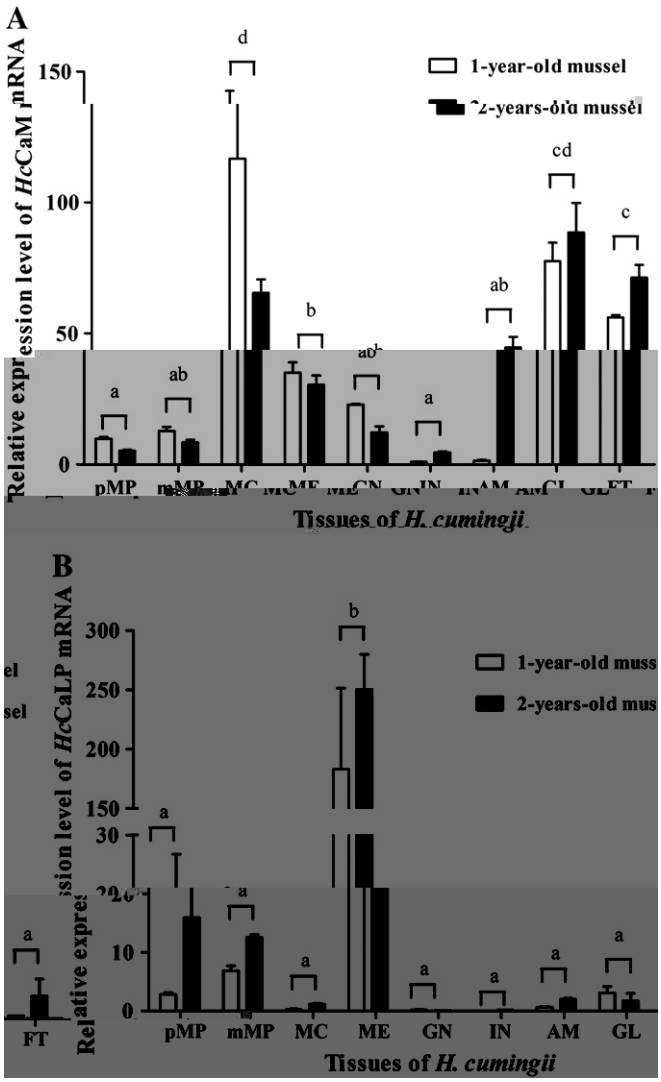


**Fig. 3.** *Hc* [illegible] *Hc* [illegible] z [illegible] *H. cumingii* : [illegible] : [illegible] : [illegible] : [illegible] : [illegible] : [illegible] : *β-actin* [illegible] z [illegible] ( ), [illegible] z [illegible] ($P <$ ) ( ) [illegible] *H* [illegible] ( ) *H* [illegible]

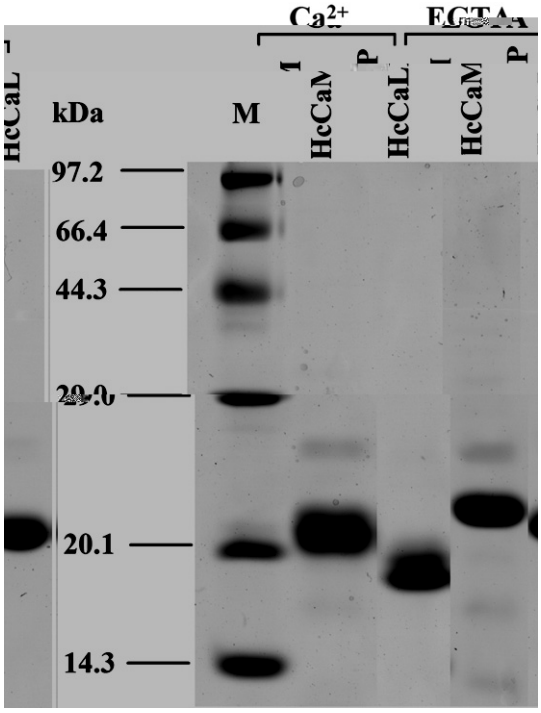


**Fig. 4.** + [illegible] fi [illegible] *E. coli* ( ) [illegible] fi [illegible] fi ( + [illegible] ) μ fi [illegible]

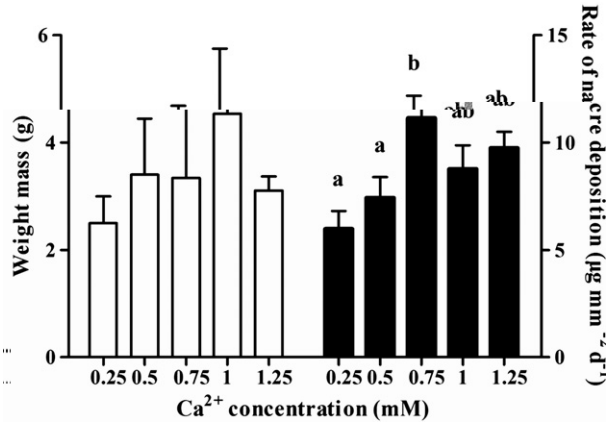


**Fig. 5.** [illegible] *H. cumingii* [illegible] ( ), [illegible] fi [illegible] ( , $P <$ ) [illegible]

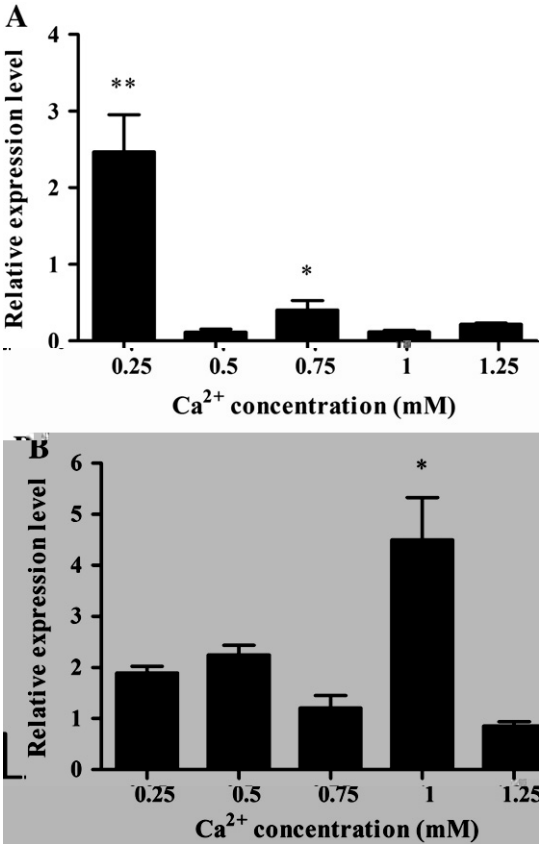


**Fig. 6.** *Hc* [illegible] *Hc* [illegible] *H. cumingii* [illegible] (_) *Hc* [illegible] ( ) [illegible] *β-actin* [illegible] ( ), [illegible] fi [illegible] ( , $P <$ ) [illegible]

*Hc* [illegible] *H. cumingii* [illegible] *Hc* [illegible] *Hc* [illegible] *Hc* [illegible] ( ), [illegible] *Hc* [illegible] *Hc* [illegible] *Hc* [illegible] *H. cumingii* [illegible] *Hc* [illegible] *Hc* [illegible] *H. cumingii* [illegible] fi *Hc* [illegible] *Hc* [illegible] *Hc* [illegible] *Hc* [illegible]

## Acknowledgments

[illegible] ( )

## References

fi [illegible] *Lymnaea stagnalis* ( ) [illegible] fi [illegible] *Pinctada margaritifera* [illegible] fi [illegible] (*Pinctada fucata*) [illegible] fl [illegible] (*Litopenaeus vannamei*) [illegible] fi [illegible] (*Pinctada fucata*) [illegible] *Pinctada fucata* [illegible] fi [illegible]

z

:

fi

z

*Cerastoderma edule*

fi

(*Bubalus bubalis*)

+ +

fi

z

*Littorina*

fi z

fi

*Sarotherodon melanotheron*

:

*Hyriopsis cumingii* ( , )

z :

*Hyriopsis schlegelii*

fi *Crassostrea gigas*