

CRP Gene in an Invertebrate: *Ophiocomina nigra* (Echinodermata)

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E-mail: mleclerc45@gmail.com.**Received:** 21 February 2018; **Accepted:** 15 March 2019**Citation:** Michel Leclerc. CRP Gene in an Invertebrate: *Ophiocomina nigra* (Echinodermata). *Genet Mol Med.* 2019; 1(1): 1-2.**ABSTRACT***Recently, we had discovered thromboxane genes and platelets by the use of T.E.M in an invertebrate : Ophiocomina nigra (Echinodermata).**We find to day C reactive protein (CRP) gene always in this invertebrate.***Keywords**

Genes, Platelets, C reactive protein, Immune system.

Introduction

The inflammatory C-reactive protein (CRP) promotes thrombosis after vascular injury presumably via potentiation of thromboxane activity.

The acute phase response (APR) is an early innate immune function which is initiated by inflammatory signals and CRP gene.

The CRP gene has been found in all vertebrates and fish: the Salmon [1] and other teleost species such as rainbow trout, arctic char and goldfish but never in invertebrates.

Thromboxane genes were discovered in invertebrates and particularly in the Echinodermata: *Ophiocomina nigra* [2].

The aim of this paper is to look for CRP gene in the *Ophiocomina nigra* genome.

Materials and Methods

- Animals: *Ophiocomina nigra* was purchased from the Marine Laboratory of Roscoff (France).
- Obtention of ophiurid mRNA: Digestive coeca were excised from the *O.nigra* body. *O.nigra* mRNA was obtained from Uptizol (Interchim). Quality control were operated.
- Sequencing: Sequencing was made on Illumina Next Seq 500 with paired-end: 2. 75 bp.

Transcriptome was assembled from RNA-Seq fastq files using

Trinity v2.1.1 [3] with default parameters. A BLAST database was created with the assembled transcripts using makeblastdb application from ncbi-blast+ (v2.2.31+). The sequences of transcripts of interest were then blasted against this database using blastn application from ncbi-blast+ [4] with parameter word_size 7.

Results

The characteristics of the transcriptome CRP, then the sequence in 5'-3' appear just under the high significant e-value (9,00 E-84) and the Bitscore (311,00):

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5'GGACTTCTTGCCCTTGATCTTTCAGACAGAGCTCT-
GTCTCTTAGTCCGGATCCCAGCAG
AGTCGACAGCCATGGAGAAGCTACTATGGTGTCTTCT-
GATCACGATAAGCTTCTCTCAGG
CTTTTGGTCATGAAGACATGTCTAAACAGGCCTTCG-
TATTTCCCGGAGTGTGCTACTG
CCTATGTGTCCCTGGAAGCAGAGTCAAAGAAGCCACTG-
GAAGCCTTCACTGTGTGTCTCT
ATGCCACGCTGATGTGAGCCGAAGCTTCAG-
CATCTTCTTACGCTACCAAGACGAGCT
TTAACGAGATTCTTCTGTTTTGGACTAGGGGTCAAGG-
GTTTAGTATTGCAGTAGGTGGGC
CTGAAATACTGTTCACTGCTTTCAGAAATTCCTGAGGTAC-
CAACACACATCTGTGCCACCT
GGGAGTCTGCTACAGGAATTGTAGAGCTTTGGCTTGAC-
GGGAAACCCAGGGTGCAGAAAA
GTCTGCAGAAGGGCTACATTGTGGGGACAAATGCAAG-
CATCATCTTGGGGCAGGAGCAGG
ACTCGTATGGCGGTGGCTTTGACGCGAATCAGTCTTTG-
GTGGGAGACATTGGAGATGTGA
```

Query ID	Query Name	Subject ID	Identity (%)	Length	Mismatch	Gapopen	Query cover (%)	E-value	Bitscore
NM_000567.3	CRP	TRINITY_DN2742_c0_g1_i1	75,17	721	148	25	37,00	9,00E-84	311,00

>TRINITY_DN2742_c0_g1_i1

ACATGTGGGACTTTGTGCTATCTCCAGAACAGATCAATG-
CAGTCTATGTTGGTAGGGTAT
TCAGCCCCAATGTTTTGAACTGGCGGGCACTGAAGTAT-
GAAACACACGGTGATGTGTTTA
TCAAGCCGCAGCTGTGGCCCTTGACTGACTGTTGT-
GAGTCCTGAGGCACCTCCTGGGATT
ACATTCTCTCCCTTGCCCTCCTTATGAACCTTTTAAC-
CCCAGCAGATGTTGTAGATCTG
TTTTGTGAATATGGCCTTTCACCTCTCTGCTCTGTG-
GTCCTCAGCACTAGAGCATGGAAT
TTAAATGTAAGGCTTCCAGCATGTGCATCCCAC-
TACTCTTATCAAAGAGAACCTGACTT
A C C C A C G G T G T G T G T A T G T G T A T T T A A T T A -
AAAAATTTTTAGACATAATCCTTCTCCCTC
ACACAGATGAGAAACCAGATGCACAGAAAGGAGAATA-
ATTTTTATTGTTTTGTTTCAG
AATGTCATATTGAATGGTGTACTTATATCCTTTCTATC-
CCTCCCTCTCAAATCCTCTAC
TATCCCCCCAATTCTCCCTCGAATTCATGATGTCTTATA-
ATTAGCCTTATATGCACATA
CACATCTATCTATCTATCTATCTATCTATCTATCTATC-
TATCTATCTATC3'

Discussion and Conclusion

It is obvious CRP gene exists in the Ophiocomina nigra genome: all the characteristics of the transcriptome described in this paper are highly significant.

It will in the future be of major interest to explore the interactions between the CRP gene and the Thromboxane ones in this invertebrate.

Anyway, we observe again the presence of genes in Echinodermata which had, till now, never been shown, in an Invertebrate.

References

1. Lee PT, Bird S, Zou J, et al. Phylogeny and expression analysis of C-reactive protein (CRP) and serum amyloid-P (SAP) like genes reveal two distinct groups in fish. Fish and Shellfish Immunol. 2017; 65: 42-51.
2. Leclerc M. J Royal Sci. 2019; 1: 01-02.
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