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Short Communication

Evidence of Complement C1q Tumor Necrosis Factor-Related Protein 4 in the Sea Star *Asterias Rubens*: A New Sea Star Cytokine

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Abstract

In the present paper, we show a survey of the *A. rubens* sea star genome for genes associated with NF-kappa-B proteins implied in the immune response: the Complement C1q tumor necrosis factor-related protein 4 (a cytokine) which modulates the NF-kappa-B action in mammals, is described in sea star model.

Keywords: *NF-kappa-B; Cytokines; Sea Star; Invertebrate*

Introduction

Recently, we discovered the interleukin 17 receptor B [1] which mediated the activation of NF-kappa-B proteins in mammals [2]. Then we shown the existence of NF-kappa-B genes in the sea star *Asterias rubens* [3]. A survey of the one genome allowed us to discover among the complement components genes, a gene which codes for a particular protein: the complement C1q tumor necrosis factor-related protein 4, we study now.

Material and Methods

Sea stars were obtained from the Biology Institute (Gothenburg University).

Immunizations, genomic studies were already described [3].

After ligation of adapters for Illumina's GSII sequencing system, the cDNA was sequenced on the Illumina GSII platform sequencing.

1.100 bp from one side of the approximately 200 bp fragments sequences were assembled using Velvet [4].

Results

Results were given in controls(Non-immunized animals to HRP) (Horse-radish peroxydase)

1) Control:Contig135 sp|Q8R066|C1QT4_MOUSE Complement C1q tumor necrosis factor-related protein 4 OS=Mus musculus GN=C1qtnf4 PE=1 SV=1

Other results appeared in immunized sea stars (HRP)

2) HRP:Contig1583|m.5343 sp|Q8R066|C1QT4_MOUSE Complement C1q tumor necrosis factor-related protein 4 OS=Mus musculus GN=C1qtnf4 PE=1 SV=1

Discussion and Conclusion

In mouse, the nuclear factor Kappa B (NF-KappaB) signaling pathway, regulates immune and inflammatory responses and is implicated in the pathogenesis of multiple diseases.

The principal mechanism controlling NF-Kappa B activation depends on the association of NF-Kappa B transcription factor dimers with Ikappa B molecules, which prevents the accumulation of NF-Kappa B in the nucleus and the activation of target gene transcription.

Since NF-Kappa B gene has been discovered in sea star genome [3], we may envisage a similar pathway in it, corroborated by the presence of the C1q tumor necrosis factor related protein 4: a new sea star cytokine which induces activation of sea star NF-Kappa B.

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