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Original Research Article

The Sea Star *Asterias Rubens* IGKappa Gene: Comparisons With 2 Other Sea Star Genomes from *Patiria Miniata* and *Acanthaster Planci* (Echinodermata)

Michel Leclerc*

*Immunology of Invertebrates, Division Biochemistry, Biology, Orléans University, 556 rue Isabelle Romée, 45640 Sandillon, France.

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ABSTRACT

The sea star IGKappa gene was cloned in 2014 by the use of primers. It was compared, in the present work, to 2 other sea star genomes: *Acanthaster planci* and *Patiria miniata* sea star genomes. A high identity, from a bioinformatic point of view, was found, with these last ones, with, a significant e-value.

INTRODUCTION

The sequence of the sea star Asterias rubens IGKappa gene was described by our team, in 2014 [1]. Since we have tried to find homologies between this gene and genes from two other Asterids: *Patiria minata* and *Acanthaster planci*. The Asterids belong to Echinodermata phylum.

We report, in the precedent paper, results obtained with these last ones by the use of blasts [2,3].

RESULTS

a) The sequence of the sea star IGKappa gene is the following [1].

5'GGA TCC GGA GGA **ATG** CGTGGCAACATGGCGTCTCTATGGATGTTCTTCTT

TGTCGTGGGGATAACTTTACAACGGAGTTTGGCGA TTTACACGTTTCGCG

AGCAACCGTCGGACACTAGCGCGTTGCAGGGGAGC ACAGTGGTGCTTCAC

TGCTCCGTTGAGCAGTACATAAACACCACGGCCAT CGTTTGGTGGAGCCG

TGACTCGGTCATCAGCCACAACAAAGACCTGAAAC TGTCCAGTCTAAACA

CCGACCAGCTCCAAAGGTACTCGATTTCAGGCGAC GCATCTCGGGGGGAA

TTCAACCTTAAAATAGTGAACTTTACCGCCACAGAC GCCGCCAGTTACCG

CTGTCAGATG **TAA** GAA TTC**3'**

b) BlastX original sequence: BlastX results **(Table 1 & Figure 1)**

Molecule type: DNA

Query length: 357

The table allows us to obtain the following Graphic Summary **(Figure 1)**.

c) As for Alignments we observe:

97% Identities (114/118aa) with uncharacterized protein LOC117296905 [*Asterias rubens*] protein

Reference Protein Sequence: XP_033635901.1

Reference dna Sequence: XM_033780010.1

Length: 932 aa

Alignment: 14-131

CONCLUSION

We retain from this bioinformatic analysis, the presence of high identities between the sea star IGKappa gene and the *Patiria miniata* genome and the *Acanthaster planci* one. Recently, we have also described the Ophuirid IGKappa gene we discovered 1 month ago (Ref4): it is more evolved in terms of Immune functions.

These genes from Echinodermata (Invertebrates) bring us a new light in Immunogenetic World.

Corresponding author: Michel Leclerc, Immunology of Invertebrates, Division Biochemistry, Biology, Orléans University, 556 rue Isabelle Romée, 45640 Sandillon, France, Tel: +92219926130; E-mail: mleclerc45@gmail.com

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Table 1. Results of BlastX.

Description	Scientific name	Max score	Total score	Query cover	E. Value	Per. Ident	Acc Len	Accession
uncharacterized protein LOC117296905 [Asterias rubens]	*Asterias rubens*	245	245	99%	2e-73	96,61%	932	XP_033635901.1
uncharacterized protein LOC119722929 [Patiria miniata]	*Patiria miniata*	104	104	89%	4e-23	44.25%	951	XP_038049262.1
uncharacterized protein LOC110978882 [Acanthaster planci]	*Acanthaster planci*	91.3	91.3	78%	2e-18	45.26%	933	XP_022089895.1

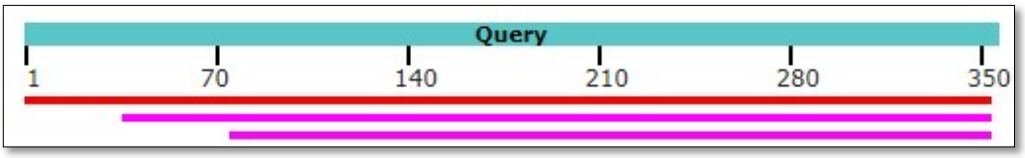

Figure 1. Graphical Summary of BlastX results.

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