

E IG V-L K appa Expression from Sea Star Igkappa Gene

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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 Vertebrate Immunoglobulin genes. A high identity was found with these last ones. A length of 105 amino acids fit with Immunoglobulin domain.

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 upper genes from lower Vertebrates to human genes.

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

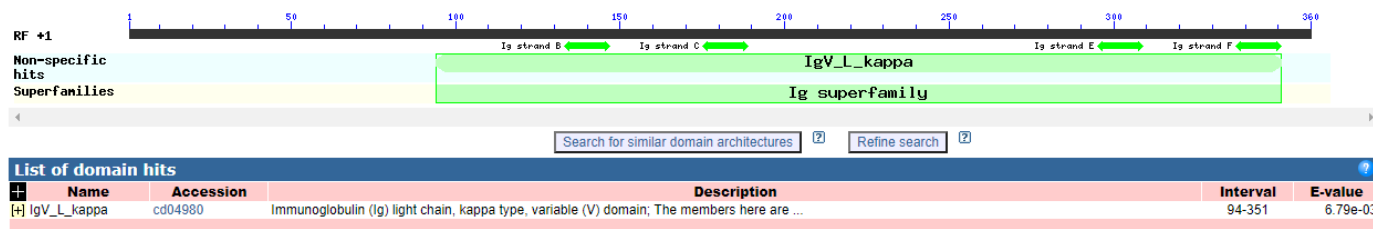
Results:

The sequence of the sea star IgKappa gene is the following [1]:

**5'GGATCCGAGGAATGCGTGGAACATGGCGTCTC
TATGGATGTTCTTCTTTGTCGTGGGATAACTTTAC**

**AACGGAGTTTGGCGATTTACACGTTTCGCAGCAAC
CGTCGGACACTAGCGCGTTGCAGGGGAGCACAGTG
GTGCTTCACTGCTCCGTTGAGCAGTACATAAACACC
ACGGCCATCGTTTGGTGGAGCCGTGACTCGGTCAT
CAGCCACAACAAAGACCTGAAACTGTCCAGTCTAA
ACACCGACCAGCTCCAAAGGTAAGTTCGATTTCAGGC
GACGCATCTCGGGGGAATTCAACCTTAAATAGT
GAACTTTACCGCCACAGACGCCCGCCAGTTACCGCT
GTCAGATG TAAGAATTC3'**

The bioinformatic work leads us to show similarities between sea star IgKappa gene and Immunoglobulin domain from Vertebrates



Non-specific hits: IgV_L_Kappa

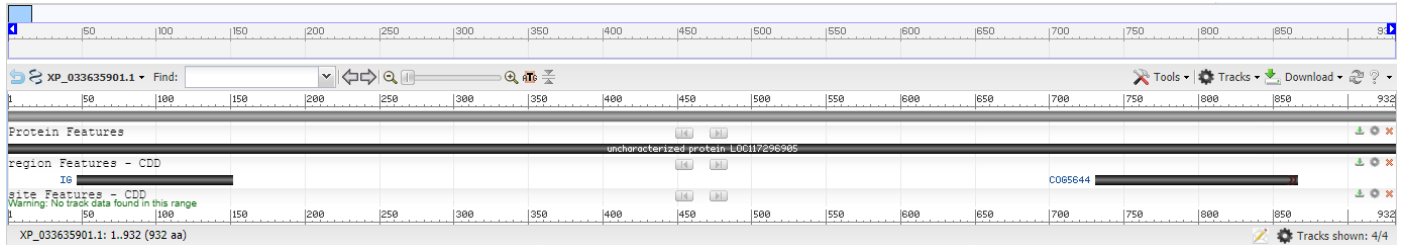
[Non-specific hit, value = 6.79e-03] cd04980, Immunoglobulin (Ig) light chain, kappa type, variable (V) domain; The members here are composed of the immunoglobulin (Ig) light chain, kappa type, variable (V) domain. This group contains the standard Ig superfamily V-set AGFCC'C"/DEB domain topology.]

Super-families: Ig superfamily



[Superfamily, evalue = 6.79e-03] c111960, Immunoglobulin domain; The members here are composed of the immunoglobulin (Ig) domain found in the Ig superfamily.]

The **Table 1**, as shown below, resumes our results: We observe again the Immunoglobulin domain and a particular one without immune function.



Two region features:

- | | |
|---|---|
| <p>a. Region Ig
 Comment: Immunoglobulin
 Location: 47...151
 Length: 105 aa
 CDD: 214652</p> | <p>b. COG5644
 Comment: U3 small nucleolar RNA-associated protein 14 (function unknown)
 Location: 731...866
 Length: 136 aa
 CDD: 227931</p> |
|---|---|

Table 1: PREDICTED: *Asterias rubens* uncharacterized LOC117296905 (LOC117296905)

Conclusion:

We retain from this bioinformatic analysis, the presence of Immunoglobulin domain in the sea star IGKappa gene with the CDD:214652. This gene, nevertheless, seems less evolved than the Ophiurid IGKappa gene we discovered 1 month ago [4] in terms of Immune functions.

These 2 genes from Echinodermata (Invertebrates) bring us a new light in Immunogenetic World and mainly in Comparative Immunology between Invertebrates and Vertebrates animals.

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