

The Asterias Rubens Sea Star Igkappa Gene when Compared to Marthasterias Glacialis Sea Star Genome (Echinodermata)

Michel Leclerc*

Immunology of Invertebrates, Div : Biochem/Biology, Orléans University (France)

*Corresponding author: Michel Leclerc, 556 Immunology of Invertebrates, Div: Biochem/Biology, Orléans University (France)

Received date: 15 November, 2021 | Accepted date: 23 November, 2021 | Published date: 26 November, 2021

Citation: Michel Leclerc. (2021) The Asterias Rubens Sea Star Igkappa Gene when Compared to Marthasterias Glacialis Sea Star Genome (Echinodermata). J Virol Viral Dis 1(1): doi <https://doi.org/10.54289/JVVD2100105>

Copyright: © 2021 Michel Leclerc. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Abstract

The sea star IGKappa gene was cloned in 2014 by the use of primers. It was compared in the present work to Marthasterias glacialis sea star genome. A high identity was found with this last one.

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 another Asterid: Marthasterias glacialis

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

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

5'GGATCCGGAGGAATGCGTGGCAACATGGCGTCTCTATGGATGTTCTTCTTTGTCGTGGGGATAACTTTAC

**AACGGAGTTTGGCGATTTACACGTTTCGCGAGCAA
CCGTCCGACACTAGCGCGTTGCAGGGGAGCACAGT
GGTGCTTCACTGCTCCGTTGAGCAGTACATAAACA
CCACGGCCATCGTTTGGTGGAGCCGTGACTCGGTC
ATCAGCCACAACAAAGACCTGAAACTGTCCAGTCT
AAACACCGACCAGCTCCAAAGGTACTCGATTTTCAG
GCGACGCATCTCGGGGGAATTCAACCTTAAAATA
GTGAACTTTACCGCCACAGACGCCGCCAGTTACCG
CTGTCAGATGTAAGAATTC3'**

Results:

Results are summarized in table below:

Blastn original sequence: Blastn results

Molecule type: dna

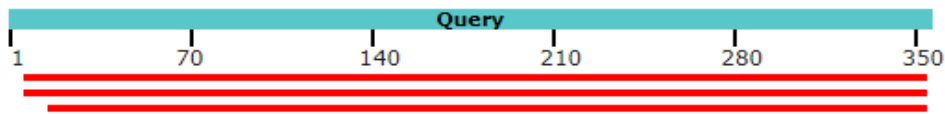
Query length: 357

Description	Scientific name	Max score	Total score	Query cover	E. Value	Per. Ident	Acc Len	Accession
Predicted: Asterias Rubens Uncharacterized Loc117296905 (Loc117296905), mRNA	Asterias rubens	634	634	97%	2e-177	99.43%	4538	XM_033780010.1
Asterias Rubens Genome Assembly, Chromosome: 11	Asterias rubens	634	634	97%	2e-177	99.43%	18069988	LR699102.1
Marthasterias Glacialis Genome Assembly, Chromosome: 6	Marthasterias glacialis	329	329	95%	9e-86	84.16%	28777708	OU452224.1

The graphic summary gives the opportunity to see the top3 Blast Hits:



Distribution of the top 3 Blast Hits on 3 subject sequences



As for Alignments we find a high identity nearly 100% as shown below:

99% Identities (347/349bp) with Predicted: *Asterias Rubens* Uncharacterized Loc117296905 (Loc117296905), mRNA

Reference Sequence: XM_033780010.1

Length: 4539

Aligment: 1546 - 1894

Query 7 to query 307 are resumed now with correspondence of nucleotids:

```

Query 7   ATGCGTGGCAACATGGCGTCTCTATGGATGTTCTTCTTTGTCGTGGGGATAACTTTACAA 66
          |||
Sbjct 1546 ATGCGTGGCAACATGTCGTCTCTATGGATGTTCTTCTTTGTCGTGGGGATAACTTTACAA 1605

Query 67  CGGAGTTTGGCGATTTACACGTTTCGCGAGCAACCGTCGGACACTAGCGCGTTGCAGGGG 126
          |||
Sbjct 1606 CGGAGTTTGGCGATTTACACGTTTCGCGAGCAACCGTCGGACACTAGCGCGTTGCAGGGG 1665

Query 127 AGCACAGTGGTGCTTCACTGCTCCGTTGAGCAGTACATAAACACCACGGCCATCGTTTGG 186
          |||
Sbjct 1666 AGCACAGTGGTGCTTCACTGCTCCGTTGAGCAGTACATAAACACCACGGCCATCGTTTGG 1725

Query 187  TGGAGCCGTGACTCGGTCATCAGCCACAACAAGACCTGAAACTGTCCAGTCTAACACC 246
          |||
Sbjct 1726 TGGAGCCGTGACTCGGTCATCAGCCACAACAAGACCTGAAACTGTCCAGTCTAACACC 1785

Query 247  GACCAGCTCCAAAGGTACTCGATTTTCAGGCGACGCATCTCGGGGGGAATTCAACCTTAA 306
          |||
Sbjct 1786 GACCAGCTCCAAAGGTACTCGATTTTCAGGCGACGCATCTCGGGGGGAATTCAACCTTAGA 1845

Query 307  ATAGTGAACTTTACCGCCACAGACGCCCGCCAGTTACCGCTGTCAGATGT 355
          |||
Sbjct 1846 ATAGTGAACTTTACCGCCACAGACGCCCGCCAGTTACCGCTGTCAGATGT 1894

```

Conclusion:

We retain from this bioinformatic analysis, a high identity between the *Asterias rubens* sea star IGKappa gene with the sea star *Marthasterias glacialis* genome. Those genes, nevertheless seem less evolved than the Ophiurid IGKappa gene we discovered 1 month ago [4] in terms of immune functions. Sea stars belong to the Asterid class. They are Echinodermata like Ophiurids.

References:

1. Vincent N, et al. (2014) A new gene in *A. rubens*: A sea star Ig kappa gene. *Meta Gene* 2: 320-322.
2. Marchler-Bauer A, et al. (2017) CDD/SPARCLE: functional classification of proteins via subfamily domain architectures. *Nucleic Acid Res* 45(D): 200-203.
3. Marchler-Bauer A, et al. (2011) CDD: a Conserved Domain Database for the functional annotation of proteins. *Nucleic Acid Res* 39(D): 225-229.
4. Leclerc M (2021) E IG V-L K appa Expression from Sea Star Igkappa Gene. *J Clin Class Immunol*. 1(1).