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Cell & Cellular Life Sciences Journal
ISSN: 2578-4811

The Sea Star Ig Kappa Gene and Cancerology

Leclerc M*

556 Rue Isabelle Romée, Sandillon, 45640, France

***Corresponding author:** Michel Leclerc, 556 Rue Isabelle Romée, Sandillon, 45640, France, Tel: 0238410209; E-mail: mleclerc45@gmail.com

Mini Review

Volume 2 Issue 2

Received Date: October 06, 2017

Published Date: October 20, 2017

DOI: 10.23880/cclsj-16000116

Abstract

It was shown 32 years ago that the sea star axial organ cells (AO cells) produced a spontaneous cytotoxicity against mouse cancerous cells. Recently, we discovered a sea star Ig kappa gene with immune properties. This gene was inserted in a CMV (cytomegalovirus) and finally in a plasmid called « young » plasmid. The induced« young » protein exerted a spontaneous cytotoxicity against Hela cells (cervix carcinoma cells) and at a weaker degree against dendritic celle, MSC cells.

Keywords: Ig Kappa; Sea Star; Organ Cells; Cytotoxicity; Dendritic cells

Introduction

In 1983, Luquet and Leclerc shown that the axial organ cells (AO cells), exerted a spontaneous and induced cytotoxicity against mouse SP2 myeloma cells and MBL2 cells [1]. The AO cells included essentially lymphocytes and phagocytes [1]. 0 years later, we discovered a sea star Ig kappa gene, with immune properties [2,3].

The aim of the present work was to study the behavior of the « young » protein secreted by the sea star Igkappa gene, an anti HRP protein, in front of human malignant (Hela cells) and healthy cells (human dendritic cells, MSC cells) by the use of plasmids.

Materials and Methods

Gene cloning in a cytomegalovirus (CMV) was done in Germany (Eurofins Genomics) from the sea star Ig kappa gene, an anti-HRP gene [2,4]. It constitutes the « promoter ».We recall the importance of anti-HRP epitopes synthesis and their relevance in Invertebrates.

Following steps as plasmid realization in correlation with the promoter, plasmid amplifications, transfections were performed [5]. Hela human cells (cervix carcinoma cells) Dendritic cells MSC cells as controls were used. They were transfected by plasmids, after electroporation, at time t=0 they were observed at t=24 h at t=48 h.

Gene Expression: At time 4h after transfection, G418 antibiotics were added in some samples to test gene expression. G418 gene was included in the genomic map [2]. It replaces in a better way Western blots assay.

Results

The protein « young », also named: invertebrate primitive antibody seem to exert a spontaneous cytotoxicity against Hela cancerous cells (48 hours after transfection: 50-60 % cytolysis).

Gene expression: The addition of G418 allows the expression of the gene in treated samples.

From another point of view, the young protein exerts also a weaker spontaneous cytotoxicity (30 % cytolysis) against dendritic cells used as controls and MSC cells.

Conclusion

It appears that the sea star Ig kappa gene exerts a natural and spontaneous cytotoxicity against human malignant cells at a higher degree than in controls such as dendritic cells and MSC cells. This does not allow, for the present time to speak of specific reactions in terms of cancerology.

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