

The Sea Star Igkappa Gene : Effects Against Mouse Tumoral Cells

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Abstract

The sea star Axial organ cells exert a spontaneous cytotoxicity against mouse cancerous cells (Leclerc and Luquet then Luquet and Leclerc (1983))

Recently, we discovered a sea star Igkappa 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 significant degree against Mouse tumoral cells

INTRODUCTION

In 1983, Luquet and Leclerc (1) shown that the axial organ cells (AO cells), exerted a spontaneous and induced cytotoxicity against mouse SP2 myeloma cells and MBL2 cells.

The AO cells included essentially lymphocytes and phagocytes.

Many years later, we discovered a sea star Igkappa gene (2), with immune properties (3) .In the present work we study the behaviour of the « young » protein(secreted by the sea star Igkappa gene :an anti HRP protein), against mouse tumoral cells.

MATERIALS AND METHODS

Gene cloning in a cytomegalovirus (CMV) was done in Germany(Eurofins Genomics) (4) from the sea star Igkappa gene(2), an anti-HRP gene.We recall the importance of anti-HRP epitopes synthesis and their relevance in Invertebrates (5).

Following steps as plasmid realization in correlation with the promoter, plasmid amplifications, transfections (6) were performed. Mouse tumoral cells were transfected by plasmids, after electroporation, at time t=0 They were observed At t=24 h.

Gene Expression

at time 4h after transfection, G418 antibiotics was

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 exert a spontaneous cytotoxicity against Hela cancerous cells(4) .

A table summarizes the obtained results with mouse tumoral cells.

Electric treatment alone : 1 150 000 cells

a. with control plasmid: 890 000 cells

b. with sea star Igkappa gene: 333 000 cells

Ratio survival cells : $333000/890000 = 0,37$

Gene expression : the addition of G418(antibiotics) allows the expression of the sea star Igkappa gene in treated samples.

CONCLUSION

It appears that the sea star Igkappa gene exerts a natural and spontaneous cytotoxicity against human malignant cells (Hela cells)at a high degree:50-60 %of cytolysis .

We observe a significant cytotoxicity of the « young » protein against mouse tumoral cells:ratio survival

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cells of 0,37. It corroborates the obtained results 30 years ago with sea star lymphocytes.

It is obvious that the sea star Igkappa plasmid remains a potential candidate for further experiments in the domain of cancerology .

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