

The Sea Star Igkappa Gene: Effects Against Human Cancerous Cells

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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 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 osteosarcom cells (U2oS cells).

Keywords: Human cancerous cells; Sea star; Igkappa gene

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 [1] 30 years later, we discovered a sea star Igkappa gene [2], with immune properties [3]

The aim of the present work was to study the behaviour of the « young » protein secreted by the sea star Igkappa gene, in front of human malignant and healthy cells, by the use of plasmids.

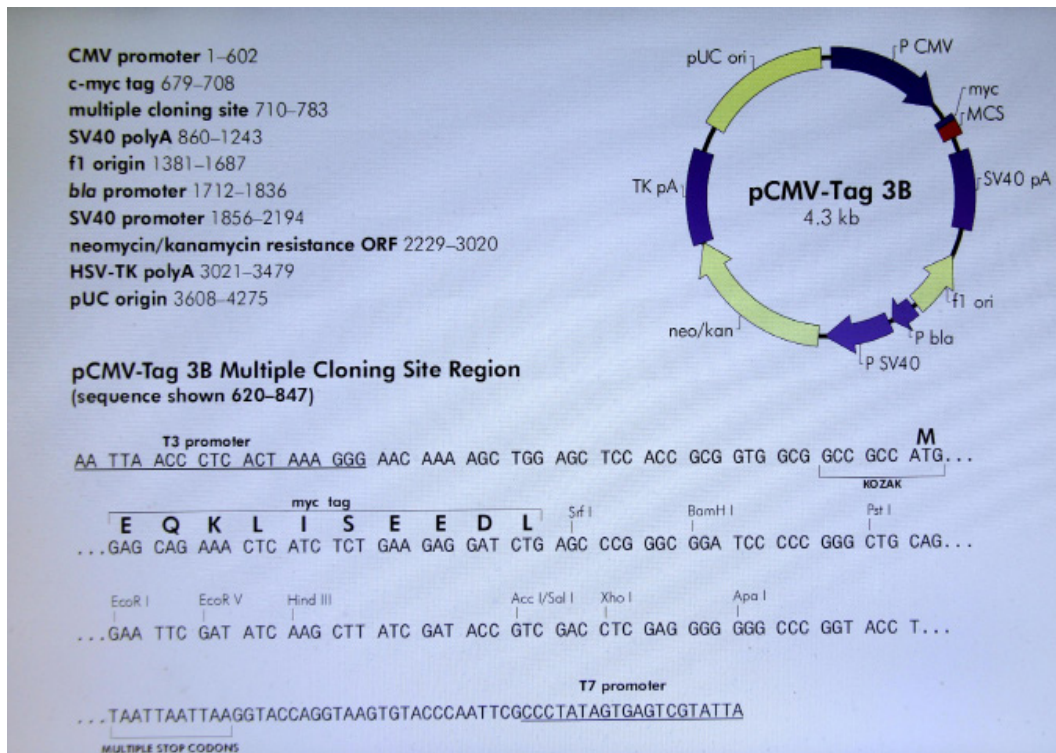
Materials and Methods

Gene cloning in a cytomegalovirus (CMV) was done in Germany (Eurofins Genomics, Figures 1 and 2), from the sea star Igkappa gene [2]. It constitutes the « promoter »

Following steps as plasmid realization in correlation with the promoter, plasmid amplifications, transfections [4] were performed in the laboratory of DR S. Ruchaud° (CNRS, FRANCE), U2oS human cells were used. They were transfected by plasmids, after electroporation at time t=0. At t=14 h: reactions were blocked to be estimated in western blots, as already described [4] Cell suspensions were put on slides. Observations were realized with an optical microscope.

Cloning in N-terminal pCMV-Tag3B (c-mic tag)/ BamH1-EcoR1

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GGA TCC GGA GGA ATG CGTGGCAACATGGCGTCTCTATGGATGTTCTTCTT
TGTCGTGGGGATAACTTTACAACGGAGTTTGGCGATTTACACGTTTCGCG
AGCAACCGTCCGACACTAGCGCGTTGCAGGGGAGCACAGTGGTGCTTCAC
TGCTCCGTTGAGCAGTACATAAACACCACGGCCATCGTTTGGTGGAGCCG
TGACTCGGTCATCAGCCACAACAAAGACCTGAAACTGTCCAGTCTAAACA
CCGACCAGCTCCAAAGGTAICTGATTTTCAGGCGACGCATCTCGGGGGGAA
TTCAACCTTAAAATAGTGAACCTTTACCGCCACAGACGCCGCCAGTTACCG
CTGTCAGATG TAA GAA TTC
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Figures 1 and 2: The pCMV-Tag 3B

Results

The protein « young » also named: invertebrate primitive antibody seem to exert a spontaneous cytotoxicity 14 hours after transfection against osteosarcom cells (U2oS cells) as seen in microscopy. Western blots do not confirm, in the present time, the protein expression, for unknown reasons.

Conclusion

These results have proven to be of particular importance and could open the way to immunotherapy. It is a preliminary work and we attempt, now^{oo} to test new lineages of human malignant cells and healthy cells. It would be spectacular if we could spread this property to all the human cancer cells, as it was shown for mouse malignant cells [1] with AO cells.

References

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