



EDITORIAL

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“The IPA (Invertebrate Primitive Antibody) and COVID 19”**Michel Leclerc**

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In the years 1980, we have discovered vaccination in Echinodermata by immunizations with various antigens (with or without Freund'adjuvant). Later, with co-workers, we discovered the sea star IgKappa gene.

Its sequence was composed of about 435 nucleotides. The work was published at Meta-Gene. We have studied the effects of sea star IgKappa gene on cancerous human cells (Hela cells, Melanoma cells). Mainly the sea star Igkappa gene, incorporated in a plasmid (CMV plasmid), exerts a high spontaneous cytotoxicity against Hela cells. But it doesn't constitute, in fact, in the present time, a good therapy for Cancer diseases. On the other hand, we consider that the sea star Igkappa gene and the IPA (Invertebrate primitive antibody) are "PRIMITIVE" A primitive gene, a primitive protein. So, as "Young" elements, they may play a role, in immunotherapy of various diseases.

It is why, we envisage to use them in coronavirus disease and particularly Covid 19 disease. We think that this primitive antibody

may add a positive effect to immunodeficiency pathology which was provoked by covid invading. As researcher, I look for co-workers who can help me in this work.

To day we envisage Immunology with a new light: We have a sea star Igkappa gene, An Invertebrate Primitive Antibody: The sea star Igkappa gene is very high in the phylogeny of the immune system of animals. It shows already two Ig sites! The forms of Igkappa genes are all found in vertebrates, they share many details with the sea star, including the presence of Ig sites.

The preservation of the Igkappa gene in treated and not treated sea stars is an excellent opportunity for further experiments. It is important to notice that the Igkappa chain V-III region HAH of *Tupaia chinensis* is situated (in the assumptions behind the theory of evolution) between the Igkappa chain precursor V-II region (RPMI/133) and Igkappa chain precursor V-IV region/121.