

The Invertebrate Antibody- Sea Star Lymphocytes

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DESCRIPTION

We have discovered, in the past, the sea star lymphocytes (Figure 1); these cells of 4-5 μm in diameter are smaller than Vertebrate lymphocytes and we discovered recently the IPA (Invertebrate Primitive Antibody) with the sea star IGKAPPA gene with IG sites. Therefore genomic data assert the evidence of primitive antibody in Echinodermata. Furthermore, we find MHC genes class I and class II and Fab gene, Fc receptor gene in these invertebrates. The sea star Igkappa gene is clearly the oldest IgKappa gene of the immune system of animals. 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 immunized and non-immunized 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 VII region and Igkappa chain precursor V-IV region/121. The preservation of the IgKappa gene for so extended a period of evolution in organisms as distinctively different as sea star, fish, rodent, mammal, indicates that it plays

an essential rôle in the survival of the organisms, rôle in the regulation of the immune response.

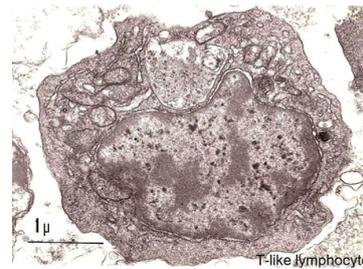


Figure 1: T-like Lymphocyte.

Additionally, the existence of members of the IgKappa gene family with conserved functional characters, indicate that the sea star IgKappa gene has evolved prior to the evolutionary divergence between Invertebrate and Vertebrates: It must be claimed. On the other hand, the discovery of a Fc receptor gene, of a Fab gene, in *Asterias rubens* genome corroborate the presence of the primitive Invertebrate antibody in asterids (IPA).

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