Letter to Editor

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The Sea Star And Ophuirid Invertebrate Primitive Antibodies (Ipa) And Rag Fish System

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Primitive Antibodies, Immunity, Anti-HRP.

My studies in a general way, concern the comparative immunology between sea star, ophuirid, immune systems and vertfebrate ones.

How the Immunologists called: « The Evolutionnists » could say that what we find in Echinoderms i-e:

- The sea star and Ophuirid IGKappa genes [1]
- MHC genes [2]
- Fab gene [3]
- Fc receptor gene [4]
- -Cr receptor gene [5]
- CDR1, CDR2 determining regions [6]

Must be attributed to the development of a « Sophisticated Innate system, a sort of « Hyper Innate system » instead of an Adaptative system in Echinoderms: it really amounts to resorting to a « simplistic response ».

These same Immunologists are, in the same time, appealing to cartilaginous Fish RAG system and they are claiming it does not exist in Echinoderms !!! As if this were now a necessary condition for defining adaptative immunity.

Of course, sea star and Ophuirid have no jaw !!!!As for RAG, no studies allow us to clarify the presence or not of RAG1, RAG2 genes in their genome.

From my side, in the present time, at my knowledge, I recall that the sea star and the ophuirid don't need RAG system [7] to express their own Adaptative Immunity, to respond specifically to an antigen such as HRP (Horse radish Peroxydase). It is possible thanks to immunocytes we call lymphocytes (Figure 1 and 2) which generate the Anti-HRP antibody (Figure 3).

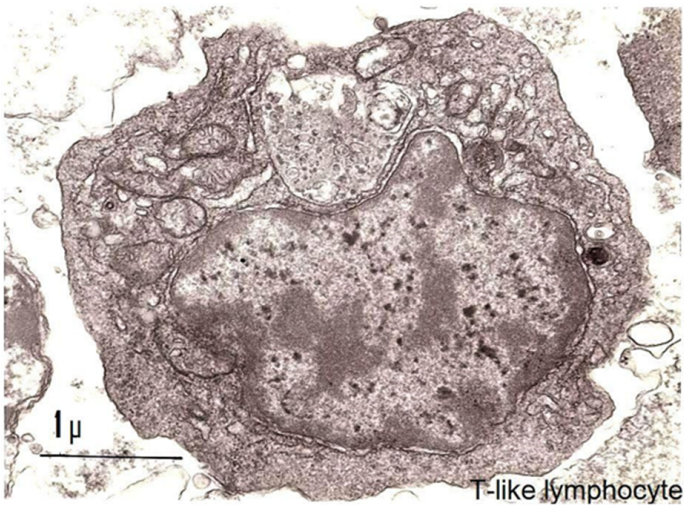

Figure 1: Sea star Lymphocyte (T sea star lymphocyte).

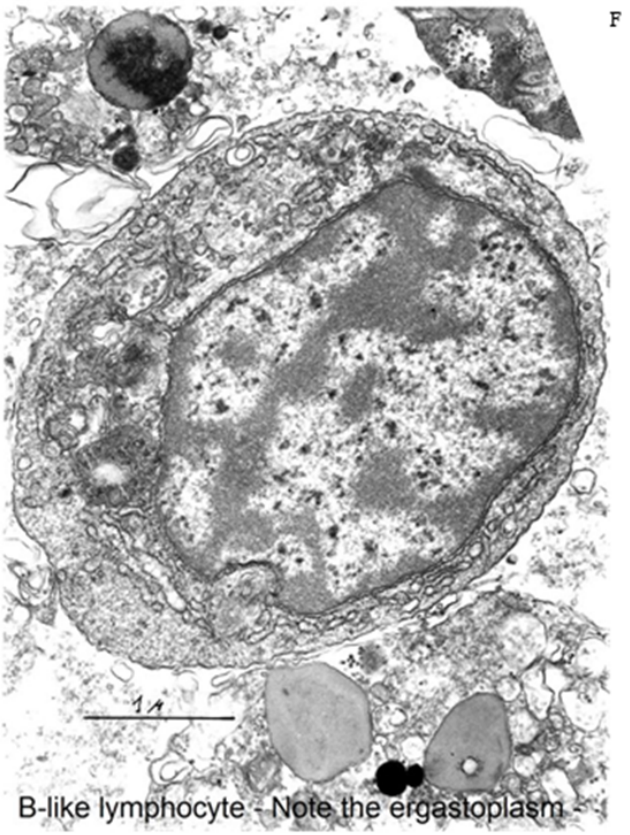

Figure 2: Sea star Lymphocyte (B sea star Lymphocyte).

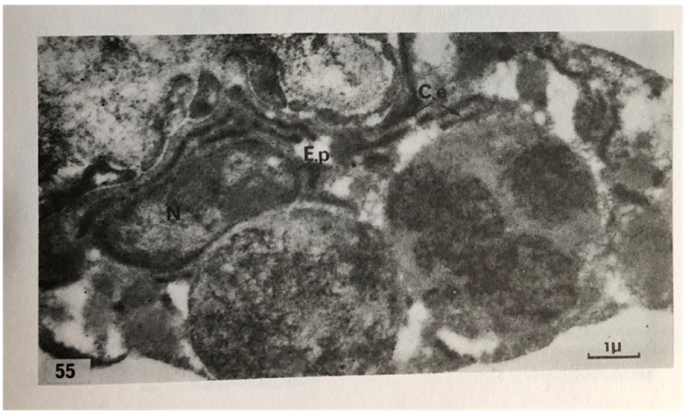

Figure 3: Adaptative Immunity: The sea star Anti-HRP « precipitate s» antibody in black.

And now, as it is said in Genesis : « **Let there be light and Light. »**

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