MEDWIN PUBLISHERS
Committed to Create Value for Researchers

Annals of Immunology & Immunotherapy
ISSN: 2691-5782

Evidence of Sea Star Monocytes Evolving in Phagocytes: Asterias Rubens T.E.M Observations

Leclerc M*

Immunology of Invertebrates, Orleans University, France

***Corresponding author:** Michel Leclerc, Immunology of Invertebrates, Orleans University, France; Email: mleclerc45@gmail.com

Short Communication
Volume 4 Issue 1
Received Date: May 31, 2022
Published Date: June 20, 2022
DOI: 10.23880/aii-16000166

Abstract

Sea star Axial organ (A.O) cells were observed in T.EM: Evidence of primitive monocytes was done: They contained azurophile particles and a reniform nucleus, sometimes a phagosome appeared and amoeboid images were seen. These cells, in a second time, evolve mainly in phagocytes which may be assimilated to Vertebrate Macrophages, with functional phagosomes and azurophile particles. The sea star monocytes are smaller in diameter (4 to 5µ) than Vertebrate ones.

Keywords: Invertebrates; Sea Star ; Monocytes ; Lymphocytes; Macrophages; Platelets

Introduction

Observation of sea star Asterias rubens T and B lymphocytes have already been performed in TEM [1,2]. It was asserted by biochemistry and biophysical assays. Second sea star platelets were so observed [3]. In a third time, we confirm the existence of sea star Monocytes which, mainly, evolves in Phagocytes corresponding to vertebrate macrophages.

Materials and Methods

Sea star Asterias rubens were obtained from the Marine Institute of Arcachon (France)
Axial organs (A.O) were excised and:

- Either the whole cellular population was conserved and so observed in TEM
- Or the whole A.O was separated into B and T cell subpopulations according the well-known method of Julius and al [4].

Cells were fixed with glutaraldehyde in cacodylate buffer as precedently described No post-coloration was operated [1].

Observations were done with a Hitachi Microscope.

Results

As seen in Figure 1:

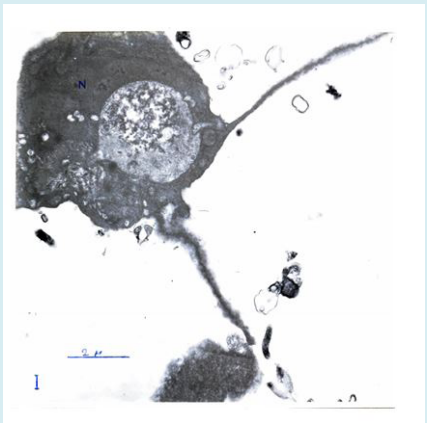

Figure 1: Monocyte with digitations. (N): Nucleus.

We observe a reniform Nucleus (N). Besides of it: azurophiles particles smaller than 0, 2 µ, these particles may correspond to lysosomes villous digitations which evoke ciliatures (2) and a small phagosome are present.

Figure 2: Spheroïdal Monocyte.
N (Nucleus); P (Phagosome).

Figure 3: True Phagocyte. Observe the Phagosome greatly opened.

In Figure 2 We see a circular cell with a nucleus containing fine chromatine. The cell diameter is about 4-5 µ. Azurophile particle are always present. In the last figure III, the cell is longer than the two precedent ones and culminates at 8µ. .There is no azurophile particles in the cytoplasme. The phagosome is greatly opened on the outside: it is a true phagocyte Figure 3.

Conclusion

The sea star Asterias rubens presents T and B lymphocytes, Monocytes, Macrophages and Platelets, in T.E.M observations. The evolution of Monocytes in Phagocytes, resembling to evolution of macrophages, in Vertebrates was shown in this work through 3 Figures.

References

1. Anteunis A, Leclerc M, Vial M, Brillouet C, Luquet G, et al. (1985) Immunocompetent cells in the starfish Asterias rubens. An ultrastructural study. Cell Biol Int Rep 9(7): 663-670.

2. Leclerc M (2012) Humoral Immune Responses to Various Antigens in the Asterids: A. gibbosa and A. rubens. American Journal of Immunology 8(4): 196-199.

3. Leclerc M (2019) Role of Sea Star Platelets, of Sea Star Lymphocytes in Invertebrates. Acta Scientific Pharmaceutical Science 3(11): 32-33.

4. Tokuda Y, Toyohara H, Kina T, Sakaguchi M (1999) Characterization of Distinct Subpopulations of Japanese Flounder Lymphocytes with Monoclonal Antibody against Serum Immunoglobulin. Fisheries Science 65(3): 347-352.