





Exploration of Immunology: challenging knowledge, developing curiosity and transforming passion into discovery

Dominique J Charron^{1,2,3*}, Reem Al-Daccak¹

¹Human Immunology Pathophysiology Immunotherapy, Inserm U976, Université de Paris, Hôpital Saint-Louis, APHP, 75010 Paris, France

²Department of Immunology and Hematology, Inserm U1109, Université de Strasbourg, 67000 Strasbourg, France

³Jiao Tong University Ruijin Hospital, Shanghai 200025, China

***Correspondence:** Dominique J Charron, Inserm U976, Bâtiment Bazin Hôpital Saint-Louis, 1 av Claude Vellefaux, 75010 Paris, France. d.charron.sls@gmail.com

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When launching a new journal for **Immunology**, the title is the first impression that emphasizes the promise of a distinct identity and discloses its own innovative spirit and aim.

Exploration, precisely highlights the idea of an authentic and powerful tool for developing creative, reliable, and trustworthy new knowledge. **Immunology**, is a real challenge amply echoed in Socrates' most famous paradox "I know that I know nothing". Within this spirit, the new **Exploration of Immunology** is intended to be a forum of high-quality open-source free-access knowledge in **immunology**. As such it will offer an integrated vision of current **Immunology** to the global scientific, medical, biotech, and social communities contributing thus, to the development of the open science of **Immunology**.

The earliest description of the concept of immunity belonged to ancient times [1]. The General and Historian Thucydides reported in his writings (Ιστορία τοῦ Πελοποννησιακοῦ Πολέμου, 430 BC) that during the Peloponnesian war, those who survived the plague were out of danger even during an ongoing epidemic whereas in ancient China, variolation was used as a protective measure against smallpox. Macroscopic **Exploration** afterwards localized the anatomical sites and described the tissues and organs involved in an immune status. The identification of tissues cellular composition and fine architecture, through microscopic **Exploration**, revealed then that immunity is not ascribed to a unique organ localized at a single site, but rather a phenomenon with multiple distinct players as well illustrated in the discovery path of early vaccines by Edward Jenner and Louis Pasteur.

We knew about immunity long before knowing about **Immunology**. It took over twenty centuries for **Immunology** to develop into a scientific theory and for Elie Metchnikoff to coin the word around 1900. Analytical **Exploration** of the molecular and cellular contributors and their interactive networks, signals, and crosstalk allowed over the 20th century to define immunity as a wholly integrated system displaying a high degree of connectivity but also established the self/non-self paradigm of **Immunology**. While the later defined one's biological identity, the cognitive nature of functional immune response advanced the concept of individuality within species and populations [2, 3].

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The 21st century high-throughput multi-omics, *in vivo* imaging, bioinformatics, and computing innovative technics advanced the contemporary **Exploration** of immune physiology and pathology, which is now attainable at the single cell level *in vitro* as well as in the whole organism *in vivo* [4]. How the immune homeostasis is maintained? How metabolic pathways are coupled to immune function? How the environmental components (microbiota, nutrients, climate, lifestyle...) interact to shape the immune processes at the individual and population levels? are all leading questions that are paving the way towards an ecological cohesive and ultimately holistic intelligence of **Immunology**.

The many challenges to integrate **Immunology** and to leverage immune scientific discoveries for the benefit of humankind are yet to be confronted. The generation of inclusive knowledge in **Immunology** needs to be collectively accelerated to reach a more universal level. Open science [5] is fundamental to develop the 21st century biology and medicine; an approach pioneered by immunologists and geneticists through the organization of the International Histocompatibility (HLA) Workshops since 1964 [6] and the launch of the Human Genome Organization in 1988 [7]. While initially the implication of **Immunology** in medicine only concerned infectious diseases, it was extended over the 20th century to auto-immune diseases and transplant rejection. Emerging as a multidisciplinary and integrative multiscale field, **Immunology** is today crucial to all medical practice standing at the forefront of contemporary medicine in translating basic science into novel therapeutics. As mainstream, **Immunology** is empowered to develop valuable innovative biomarkers and algorithms not only for diagnosis and advanced biotherapies in cancer, inflammatory diseases, degenerative disorders, but also for aging. Therefore, it is integral to societal and well-being health policies.

Every scientist, physician, and health worker in their daily practice will have to further **Explore Immunology** while every person may benefit from the fast-track immunological knowledge for predictive, preventive, and increasingly curative medicine. All, so well-illustrated in the current COVID-19 pandemic disease with its load of progress and debates [8].

The Editorial team of **Exploration of Immunology** is fully dedicated and energized to work with the community of immunologists to develop **Exploration of Immunology** to fulfill the fascination we all have to advance the **Immunology** of the future in an open-science philosophy.

*“Exploration is what you do when you don’t know
what you are doing. That’s what scientists do every day.”*

Neil de Grasse-Tyson

Declarations

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The authors declare that they have no conflicts of interest.

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