Developmental Biology of Peripheral Lymphoid Organs

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Editor

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Preface

The human immune system is a complex network of tissues and organs dispersed throughout the body. These anatomic formations at definite locations and numbers are populated overwhelmingly with white blood cells (lymphocytes and other leukocytes) that are specialized to recognize invading pathogens and eventually destroy these.

The scene for such collaborative work is the set of tissues collectively referred to as peripheral lymphoid tissues and organs, to distinguish from those central/primary lymphoid tissues where the bulk of pathogen-responsive cells develop. Among vertebrates, the mammalians (including humans) possess the broadest range of peripheral lymphoid tissues and organs. Although similar in functions, these territories are remarkably different in the way how they emerge during development, gain functional competence, and what tissue organization they achieve.

This interlinked relationship of development–structure–functionality necessitates a volume dedicated to those developmental events that occur at the site of future immune responses, but take place prior to any encounter with external pathogens, and are crucial for subsequent immunological defense. In this regard, these biological processes strikingly mirror the evolution and advance of human society where, as a result of several thousands of years of history and social development, sophisticated infrastructure suiting highly diverse activities has been created. Buildings for living, education, work, as well as transport routes and rules have been created well before the actual need arises, but in a foreseeable and predictable pattern as a common element in preventing chaos and collapse of the system. These sites are to be filled in by people trained to perform their own individual tasks for the society's benefit as dictated by their individual capacities and conditions. In this regard, lymphocytes (demonstrating a high-degree of individuality through their clonally rearranged antigen receptors) populate and interact within those tissues whose formation had been initiated well before the duty bell rang, in the form of antigens engaging both clonal and nonclonal receptors.

This book addresses the formation of peripheral lymphoid organs without the intention of competing with excellent textbooks and other sources that are available on histology and general immunology. The objective of this book's contributors is

to provide for the first time a comprehensive source in this field for those students and professionals who endeavor in studying the wonders of peripheral lymphoid organs. It is our hope that this volume will be but the first of many efforts with similar focus, and that some readers will be attracted to have a peek at the blueprint of our urban society within, so the day may come when its failures can be tackled more efficiently.

Pécs, Hungary Péter Balogh
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Contents

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