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Salivary Glands

Development, Adaptations and Disease

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A.S. Tucker  London
I. Miletich  London

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Preface

Salivary glands are vital parts of the oral cavity, defects in which can cause major disruptions to our lifestyles. This book brings together basic science researchers and clinicians to produce a review of the latest developments in salivary gland research. The book is divided into four broad areas, which chart our current understanding of salivary gland morphology, development, regeneration and disorders.

In the chapters by Miletich and Tucker, the salivary glands are introduced and unusual adaptations are investigated. These chapters aim to introduce the complex nature of salivary glands and highlight their huge variation in size, shape and function across the animal kingdom. In the following three chapters by Pirraglia and Myat, Sequeira et al., and Wells and Patel, the development of the salivary gland is addressed from specification to branching morphogenesis and lumen formation. Here data is brought together from two diverse animal models, Drosophila and mouse, to provide an understanding of the basic steps of salivary gland development. These chapters introduce the genes and complex signalling pathways that direct development as the gland grows from initiation to differentiation. The book then turns to the prospect of regenerating salivary glands in adult tissue in the contributions by Lombaert and Hoffman and Carpenter and Cotroneo. Lombaert and Hoffman focus on the location of stem cells in embryonic glands, providing exciting new data on the role of growth factors in determining cell fate. The article by Carpenter and Cotroneo moves to a rat model of gland regeneration to study the molecular triggers and morphological changes involved in regeneration. These chapters highlight new areas of research that may shape the way salivary gland disorders are treated in the future. Finally, Thomas et al. look at the disorders of salivary glands from a clinical perspective, detailing how salivary gland disorders come about, and what techniques are being developed to help treat patients. It is hoped that together these chapters will provide an intriguing overview of salivary gland development, disorders and treatment, which will be of interest to developmental biologists, anatomists and clinicians.

Abigail S. Tucker