

Preface

It is 30 years since what is generally considered the discovery of Wnt signaling: the realization that the *Drosophila* developmental selector gene wingless and the mouse oncogene int-1 are homologs. This Dr. Jekyll and Mr. Hyde split personality (good and bad) of Wnt signaling has endured: Wnt signaling is considered benevolent in embryonic development and in regulating stem cell differentiation for tissue homeostasis in the adult yet is also implicated in unpleasant diseases, particularly cancer. Wnt signaling has come a long way in the last three decades and is now recognized among the most important signaling mechanisms in development and disease. This 30-year anniversary provides an ideal opportunity to review the remarkable progress we have made in understanding the mechanisms and functions of Wnt signaling but also to reflect upon the still unresolved important questions about fundamental molecular pathway mechanisms and their biological roles.

Core topics in Wnt signaling will be explored by expert reviewers, providing first clear access to the core foundations before advancing

to some of the very cutting edge of current scientific research. In this book, we start by discussing the molecular pathway mechanisms and their integration into the cell's regulatory networks and then home in on a select few molecules considered to be key players before reviewing some of the benevolent roles of Wnt signaling in embryonic development and adult tissue homeostasis and ending up considering the roles of Wnt signaling mechanisms in chronic disease. Each of these parts of the book will be briefly introduced to facilitate independent access to individual chapters of interest to the reader.

This book aims to focus on biological insight and current scientific questions about Wnt signaling that are likely widely applicable. Advantages of different model systems and application of novel methods for ingenious experimental approaches of course give access to and drive this scientific discovery and are therefore embraced in the individual chapters, which however focus on what is revealed about the fundamental biology of Wnt signaling.