

Preface

Understanding the many complex cellular and molecular mechanisms underlying human vascular diseases is essential in improving the treatment of this important and wide-ranging group of diseases that affect a large proportion of the world population. This book is based on lectures presented at an International Vascular Biology Workshop held in London and chaired by Professor Dame Carol Black. The contents are complemented by some invited chapters, all written by world experts in areas of basic science and clinical medicine highly relevant to vascular biology and disease. We are particularly grateful to Professor Arshed Quyyumi, Professor of Medicine and Cardiology at Emory University, who with his research group and clinical colleagues, has provided a substantial contribution to this book. In common with our previous book – *Vascular Complications in Human Disease: Mechanisms and Consequences* published by Springer in 2008, our aim with this book is to highlight some of the established relationships between basic science and clinical medicine, and to outline new and exciting fields of research and practice in vascular biology and pathobiology.

There are two sections: Basic Science of Vascular Biology and Clinical Aspects of Vascular Biology. In the first section, dealing with basic science, we have included three important growth areas: “Genetics and Gene Therapy” cover approaches to gene therapy and delivery systems, “Animal Models to Study Vascular Disease” with chapters on animal models of scleroderma, animal models of atherosclerosis, and finally on the endothelin system. The final section on basic science titled “Molecules and Mediators and Therapeutic Applications” encompasses the role of endothelin in systemic sclerosis, and other aspects of the genetics and biology of endothelium and vascular function and includes a chapter on Cell Therapy for Cardiovascular Diseases and Cell and Molecular Mechanism(s) Underlying Vascular Remodeling. These basic science topics underpin what may further improve the clinical care of patients with vascular diseases.

The first section on clinical aspects of vascular biology is written by our colleagues from Papworth Hospital, currently the only UK center operating on patients with chronic thromboembolic disease associated pulmonary hypertension; this section also includes a chapter on imaging in acute and chronic thromboembolic disease. Vascular disease in connective tissue diseases includes chapters on pulmonary arterial hypertension in connective tissue disease, registry and epidemiological data

in systemic sclerosis associated pulmonary arterial hypertension, and a review of vascular disease in systemic sclerosis. The final clinical section on Cardiovascular Disease, includes the important topics of coronary heart disease in women, graft performance in coronary artery surgery, predicting cardiovascular risk and the metabolic syndrome.

Although common basic science strands link the chapters, each chapter stands alone as an authoritative, up-to-date and powerful insight into these important topics of vascular biology. The chapters help the basic scientist understand clinical problems as well as explaining to clinicians the scientific foundations of vascular diseases and allude to possible tracks for future research.

Although we are making progress in understanding some of the basic scientific mechanisms of vascular disease, there is much work to be done. The picture is thus far from complete. We hope that the information and insights contained in this book will be a useful contribution to the literature and help other scientists and clinicians make progress in this exciting field of biomedicine.

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