



# **Plasma Protein Metabolism**

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**Regulation  
of Synthesis,  
Distribution,  
and  
Degradation**

**Edited by  
Marcus A. Rothschild  
and  
Thomas Waldmann**

*PLASMA PROTEIN  
METABOLISM  
Regulation of  
Synthesis,  
Distribution, and  
Degradation*

*Edited by*

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## PREFACE

In 1839, Professor Magendie devoted a series of lectures to the physiological aspects of blood. He stated "I propose devoting a considerable number of lectures to the study of the blood for I am acquainted with no subject more deserving of attention." These comments are indeed true today with multidisciplinary investigations of the blood, including the plasma proteins, being carried out in centers throughout the world. Over the past few years, one area of many exciting advances has been the study of control mechanisms affecting serum proteins. The object of this volume is to present the current concepts concerning the physiological and pathophysiological factors regulating the distribution, degradation, and synthesis of plasma proteins. The first sections of the book present the assumptions and methodology involved in the various *in vivo* and *in vitro* techniques that have led to our understanding of protein metabolism. Techniques of protein isolation, characterization, labeling, and mathematical analysis of the data are included. In addition, the recently described methods for directly quantitating protein synthetic rates in nonsteady state conditions are considered.

The remainder of the text concerns the factors involved in regulating the serum levels of albumin, acute phase reactants, immunoglobulins, clotting factors, complement and hormone-binding proteins. The controlling factors include such general and specific physiological regulators of protein synthesis and catabolism as levels of specific serum proteins, hormonal regulators, variations of temperature and oncotic pressure, antigenic stimulation, and nutritional factors. It also contains an analysis of the pathophysiological factors including disorders of protein synthesis, distribution, exogenous catabolism, and external loss and stress that produce abnormal levels of serum proteins.

As editors we should like to say how fortunate we have been in securing as authors many of the leading investigators in the field of protein metabolism and to express our appreciation for their participation in writing this work. We also wish to thank the Veterans Administration Department of Medicine and Surgery for their support; Dr. Thomas Chalmers, Assistant Chief Medical Director for Research and Education, who was instrumental in providing this support and who gave us invaluable advice and encouragement;

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Most of all, we wish to thank Bobby. She has helped from the first moment when this text was only an idea. Her encouragement and planning are gratefully and sincerely appreciated.

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