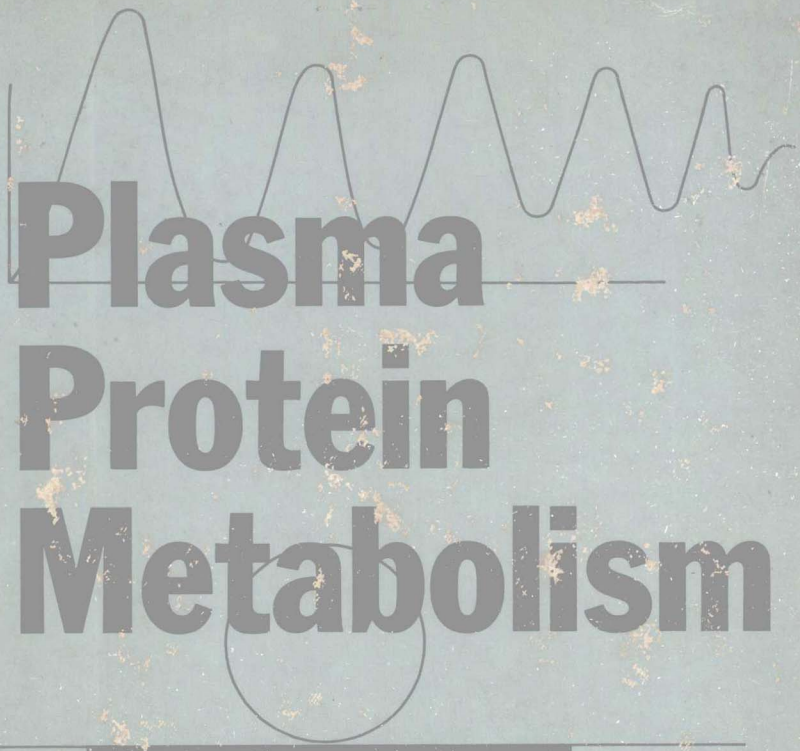

Plasma Protein Metabolism

Regulation of Synthesis, Distribution, and Degradation

Edited by
Marcus A. Rothschild
and
Thomas Waldmann

PLASMA PROTEIN METABOLISM
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1970

ACADEMIC PRESS New York and London

ACADEMIC PRESS, INC.
111 Fifth Avenue, New York, New York 10003

United Kingdom Edition published by
ACADEMIC PRESS, INC. (LONDON) LTD.
Berkeley Square House, London W1X 6BA

LIBRARY OF CONGRESS CATALOG CARD NUMBER: 77-117634

PRINTED IN THE UNITED STATES OF AMERICA

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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;

Dr. Charles Rosenberg, Assistant Director Education Service, Veterans Administration Central Office, who helped throughout the preparation of this text; and Mr. Shamanskin at the Veterans Administration Central Office, Mr. J. V. Sheehan, Hospital Director, and Mr. T. Steele, Fiscal Officer at the Manhattan Veterans Administration Hospital, as well as Miss Judith Rosenblum and Mrs. Sylvia Ser who provided valuable editorial assistance.

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.

We wish to thank the following companies for their generous financial support: Abbott Laboratories, North Chicago, Illinois; Buchler Instruments, Fort Lee, New Jersey; Cambridge Nuclear Corporation, Cambridge, Massachusetts; Hoffman-La Roche, Inc., Nutley, New Jersey; International Chemical & Nuclear Corporation, Pasadena, California; Mallinckrodt Pharmaceuticals, St. Louis, Missouri; Mann Research Laboratories, New York, New York; Melpar, Inc., Biological Products Laboratory, Falls Church, Virginia; Neisler Laboratories, Inc., Union Carbide Corporation, Tuxedo, New York; Nuclear Associates, Inc., Westbury, New York; Nuclear Chicago Corporation, DesPlaines, Illinois; Mr. Bernard Palitz, Commercial Alliance Corporation, New York, New York; Ortho Pharmaceutical Corporation, Raritan, New Jersey; Pel Freeze Biologicals, Inc., Rogers, Arkansas; Pentex Biochemicals, Miles Laboratories, Inc., Kankakee, Illinois; Mr. Seymour Schnell, New York, New York.

CONTENTS

Part V Immunoglobulin Metabolism

16. Genetic Regulation of Immunoglobulin Levels in Man

Edward C. Franklin

17. Physiological Factors Controlling Immunoglobulin Metabolism

T. A. Waldmann, R. M. Blaese, and W. Strober

18. Abnormalities of Immunoglobulin Metabolism

Warren Strober, R. Michael Blaese, and Thomas A. Waldmann