

Autoantibodies and Autoimmunity

Molecular Mechanisms in Health and Disease

Edited by
K. Michael Pollard



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Preface

The basis for this book was a chapter written for the 2nd edition of R. A. Meyers' *Encyclopedia of Molecular Cell Biology and Molecular Medicine*. Entitled *Autoantibodies and Autoimmunity*, that chapter sought to take a different approach in reviewing the broad field that encompasses autoimmunity. This was in part due to my own research experiences, but also due to the realization that autoimmunity, and autoantibodies in particular, have contributed to more than just the medical sciences.

Historically autoantibodies have served as indicators of an autoimmune response and early studies focused on their clinical and diagnostic significance. Today many autoantibody specificities contribute as diagnostic and prognostic indicators in clinical medicine. The burgeoning numbers of known autoantibodies has revolutionized methods of detection leading to development of multiplex assays capable of identifying numerous diagnostically important autoantibodies in a single assay.

It remains unknown why distinct profiles of autoantibodies occur in autoimmune diseases, particularly systemic autoimmune diseases. Experimental studies suggest that both MHC and non-MHC genes contribute to disease specific autoantibody profiles, and that the presence or absence of particular cytokines may also play a role in determining autoantibody profiles. Nonetheless while it is clear that disease specific autoantibodies are acting as "molecular reporters", the message they are relaying is still garbled. Genetic research using animal models will play an increasingly important role in deciphering the messages ingrained in autoantibody responses.

Ironically the movement toward high-throughput assays to detect autoantibodies threatens the clinical usefulness of the immunofluorescence test (IFT) which was instrumental in the original description of many autoantibody specificities. The dramatic visual images of antibodies binding to sub-cellular organelles and substructures that are so readily revealed by this technique can be both stunningly beautiful and biologically significant. Once the purview of the clinical Immunologist/Rheumatologist seeking to diagnose autoimmune diseases, the IFT is increasingly found in the laboratories of cellular and molecular biologists questing for answers at the very frontiers of biology.

This book would not have been possible without the outstanding contributions of a group of highly talented and internationally respected authors. I am very grateful to each author for giving their valuable time and effort toward compilation of this book, and to Janet Hightower, Digital Artist in the BioMedical Graphics Department of The Scripps Research Institute, for the front cover art. I am indebted to Andreas Sendtko at Wiley-VCH for the initial suggestion that the *Encyclopedia* chapter might be the basis for a book. I am also grateful to Andreas Sendtko and his colleagues at Wiley-VCH for bringing the book to life.

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Part 1
Introductory Chapters

