

The Elusive Malaria Vaccine: Miracle or Mirage?

By Irwin W. Sherman

Washington, DC: ASM Press, 2009.
402 pp \$39.95 (hardcover).

The Elusive Malaria Vaccine: Miracle or Mirage? is a historical account of attempts to develop a vaccine against malaria, an infection with a tremendous disease burden that affects as many as half a billion people globally each year. The author, Irwin Sherman, has studied malaria for half a century and brings his personal perspective in describing the progress and failures that have occurred during the past 100-plus years of research into combating malaria. A recurring theme of the book is that each generation of scientists has felt that an effective vaccine was within grasp only to be disappointed by this cunning parasite. An unanswered question is whether the current candidate vaccines under evaluation will meet a similar fate.

The book is divided into 13 chapters. The first several chapters describe the discovery of microbes, including *Plasmodium* species, as causes of disease during the late 1800s and the growing understanding of the components of immunity in the early 1900s. During this period, vaccines against a number of viral and bacterial diseases were successfully developed using a variety of strategies, including pathogen attenuation or inactivation and addition of adjuvant to the immunogen. The discoveries in other fields provide a contextual matrix to better understand progress made in elucidating malaria biology and attempts to

discover methods for disease prevention and treatment.

The next several chapters describe the development of animal models of malaria and other techniques, such as in vitro cultivation methods, that fueled hopes that an effective malaria vaccine could be developed. Early animal studies showed partial protection with different vaccine preparations, but protection was usually dependent on coadministration of Freund adjuvant, an adjuvant that is too toxic for use in humans. Sherman describes how some of the partial successes led to the dubious allocation of research funding to proposals of questionable scientific merit and ultimately to the misappropriation of these funds. Another theme that is particularly highlighted in these chapters is the adverse influence that human shortcomings had during the performance of malaria research. The author pulls few punches in describing the personal failings of many of the scientists involved.

The final third of the book provides a description of efforts at vaccine development during the past 30 years. Chapters describe efforts to target different stages of the malaria life cycle, including targeting blood-stage antigens (eg, merozoite surface protein and apical membrane antigen), transmission-blocking antigens on gametocytes and zygote, and pre-erythrocytic antigens (eg, circumsporozoite protein derivatives). The application of modern methods, such as attenuation by irradiation or gene knockout, the expression of antigens by means of recombinant technologies, and the evaluation of DNA vaccine constructs, is also presented. Although many of these approaches appear to require at least another 10–15 years of development, the success of a *Plasmodium falciparum*-specific, pre-erythrocytic vaccine candidate (RTS,S) in phase II clinical trials is noted, as is the fact that the vaccine is currently in phase III trials.

The Elusive Malaria Vaccine: Miracle or Mirage? summarizes the past century of progress in understanding malaria and the attempts of scientists around the world to decrease the impact that malaria has on the human population. The book is accessible to readers of all backgrounds, although the simplification of some concepts for the lay reader can be a bit tedious. The book is organized as a historical text rather than a scientific reference, but information presented is well documented, including the citation of >500 references. This book is recommended reading for those interested in learning more about malaria and the elusiveness of a vaccine to prevent this dreaded illness.

Robert L. Atmar

Department of Medicine, Baylor College
of Medicine, Houston, Texas

Practical Guide to Diagnostic Parasitology, 2nd Edition

By Lynne S. Garcia

Washington, DC: ASM Press, 2009.
486 pp \$89.95 (softcover).

Practical Guide to Diagnostic Parasitology, 2nd edition is a valuable text that presents updated and user-friendly information; it brings to the forefront issues important for diagnosing parasitic diseases in an era of competing demands on medical resources and rapidly evolving, newly recognized pathogens. This guide was not designed to serve as a diagnostic parasitology text or to contain all possible test options but to assist the user in navigating a field for which training has become almost nonexistent. The speed with which new diagnostic methods are developed and the unpredictable nature of microbial pathogens require that the clinical and health-

Clinical Infectious Diseases 2010;50:941

© 2010 by the Infectious Diseases Society of America. All rights reserved. For permission to reuse, please contact journalpermissions@press.uchicago.edu.

1058-4838/2010/5006-0030\$15.00
DOI: 10.1086/650734