

M. Rollinghoff, M. Rommel (Eds.): Immunologische und Molekulare Parasitologie. Gustav Fischer, Jena-Stuttgart, Germany, 1994, 240 pp. ISBN 3 334 60506 X.

This small, but useful book, can be summarized numerically: two editors, 21 authors, and 12 parasitosis. This book was written exclusively by German authors working in molecular biology of protozoan and helminth parasites. These specialists have been involved in the program "Molecular and Immune Mechanisms of the Host-Parasite Interaction" (Molekulare und immunologische Mechanismen der Wirt-Parasit-Interaktionen, Deutsche Forschungsgemeinschaft) for last five years.

All chapters in this book briefly describe the morphology,

biological cycle, and epidemiology of the each parasite. Special emphasis is paid to the antigenic structure of parasite and immune reaction of the hosts. The immune evasion of the parasites comprises a special portion art of most chapters. Every chapter includes a note about genom organisation and molecular biology based diagnostic techniques. The authors skilfully added to every chapter a small section named "Ausblick", in which with precision they pose questions remaining to be solved in every area. All chapters are well documented by recent references, within the last 3 to 5 years.

The first seven chapters are dedicated to protozoan parasites. The African Trypanosomiasis chapter (by K. Ziegelbauer), pays special attention to the antigenic variation phenomenon and to the phosphatidylinositol-membrane anchors. The role of antibodies to non-variant surface proteins, and the role of these proteins in relationship to vaccine development is also discussed.

Leishmaniasis (by A. Gesser, Ch. Bogdan and M. Röllinghoff): In this chapter a short note about the pathogenesis and clinic aspects of the disease is included. However, there is an extensive description about parasite genome, the kinetoplast DNA and RNA processing, as well as genetic transfer into *Leishmania* species. Humoral and especially cellular immune response of the host is discussed, paying special attention to the cytokine network and the role of macrophages in the host defense.

The Entamoebiosis chapter (by R. D. Horstmann), includes in the section "New diagnostic methods" a discussion regarding the importance of PCR in diagnosis.

A chapter dedicated to Eimeriosis (by H. Zahner, C. Homrighausen-Riester and H.-J. Burger) compiles information about mostly veterinary important species (*Eimeria tenella*, *E. necatrix*, *E. maxima*, and *E. dispersa*). The chapter also discusses the "Immunity" to known antigens originating from various organelles (i.e. surface, micronemes, rhoptries, granules and refractile corpus). The authors of this chapter devote a considerable effort to review aspects of vaccine development and include a table depicting 5 commercially available vaccines.

The Toxoplasmosis chapter (by U. Gross) provides an overview of the cloned antigens of this most spread zoonosis. There is a very clear and illustrative section about antitoxoplasmic immunity as well as evasive mechanisms of the parasite. There is an adequate section on diagnosis concentrating on the importance of quick and reliable diagnostic tools in medicine.

Malaria (by K. Lingelbach). This chapter includes a well elaborated section on both humoral and cellular immunity. There is a review of anti-sporozoite antibodies as well as to erythrocytal stages paying attention to antibodies directed against the surface of infected erythrocytes. The important malarial antigens (CSP, TRAP, LSA-1, MSA-1, EBA-175, Ag332 and rosette) are depicted and discussed. Particular attention is paid to the immunoevasive mechanisms and their importance on host resistance.

Babesiosis (by R. Bose, Ch. Schelp and T. Friedhoff). There is a short description of the life cycle and biology of the most important species of *Babesia*. There is also a discussion about the nuclear and extranuclear parts of the parasites genome, focusing on antigen expression. There is a small emphasis on host immunity which is briefly mentioned on *B. bovis* as an example, or in a section dedicated to a description of present knowledge of parasite antigens. In regards to diagnosis, the authors compared both the visual microscopic identification and detection of specific antibodies to the effectiveness of PCR.

The next five chapters deal with helminth parasites.

Schistosomiasis (by A. Ruppel). According to the importance of this parasite, the chapter is a little bigger than the others. There is an interesting section dedicated to host immunity,

in which the author discusses the controversial role of the IgE on this disease. A large portion of the chapter is devoted to developments on vaccine development. The author's personal experience in this field is also visible in the immunodiagnostic overview, where the impact of 31/32kDa antigen and CAA are extensively discussed.

In the chapter "Taeniasis" (by E. Geyer), the position of "Taiwan-Taenia" is presented. Noteworthy is the review of *Taenia* antigens, relationships between species, where *Echinococcus* is mentioned. The evasion strategy of all stages of tapeworms is discussed in detail. There is a portion about antigens paying particular attention to coproantigens and their diagnostic role. In a subchapter "Diagnosis" the role of monoclonal antibodies, recombinant antigens, and DNA libraries are discussed. The role of gene engineering on vaccination is presented in last subchapter.

A chapter dedicated to Echinococcosis (by M. Frosch and R. Lucius) includes both *Echinococcus multilocularis*, and *E. granulosus* species. There is a section about parasite genome which includes a table of genes with known role as well as products of expression. There is a subchapter named "Immunity", which is divided in two parts devoted a) to immunity of definitive, and b) intermediate hosts. Special emphasis has been paid to human echinococcosis and its immunopathology. The role of serology and cloned antigens in the serodiagnosis and epidemiology is discussed.

Next, there is a comparatively short "veterinary" chapter entitled "Dictyocaulosis" (by Th. Schnieder) which describes important bovine sheep and deer parasite species. Although living vaccines exist for many years, a lot of aspects remains unsolved as stated in this chapter. Minimum is known about genome, a bit more about antigens – the importance of proteases is discussed.

The last chapter, Filariasis (by P. T. Sobolay, H. Schulz-Key, R. Lucius), includes a review of *Wuchereria*, *Brugia*, *Loa*, and *Onchocerca* species. In comparison to the worms described in previous chapter, much more is known about filarial genome and antigen expression, as well as host humoral and cellular immunity. This information is reviewed accordingly. An important portion of this chapter is a review of animal model systems (which are lacking in other chapters). DNA techniques are extensively reviewed in a section concerned with diagnosis for their role in this area.

All together, the book represents a short and compact reading for both students and scientists, who need a clear orientation on the latest development of the fast-moving field of parasitology. The book includes the necessary index and well arranged illustrations and schemes. The Editors had a good idea in keeping the format of each chapter unified. This simplifies the readers job.

It is a pity that other important parasitoses such as trichinellosis, toxocarosis, fasciolosis or cryptosporidiosis were not included in this very effective format.

This book is a valuable help in the every day work of post-graduate students and teachers, but a vast number of potential readers will not be able to understand this excellent work as it is written in German.

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