Rev. Inst. Med. trop. São Paulo
36 (2): 184, março-abril, 1994

BOOK REVIEW - LIVRO*

ANNUAL REVIEW OF IMMUNOLOGY, vol. 11, 1993; edited by William E. Paul, C. Garrison Fathaman & Henry Metzger.
Palo Alto, Annual Reviews Inc., 1993. 843 p. illust.
ISBN: 0-8243-3011-0.

In the field of infectious diseases S. KAUFMANN reviews recent findings relating to the immune response against intracellular bacteria, with emphasis on murine listeriosis and human tuberculosis. Defensis are a group of antimicrobial and cytotoxic homologous peptides that may equip a wide variety of mammalian cells. Their antimicrobial spectrum includes bacteria, mycobacteria, T. pallidum, many fungi, and some enveloped virus. Biochemical features, molecular biology, antimicrobial and cytotoxic activities, and other properties of defensins are discussed by R. I. LEHRER in a very clear article. Finally, E. H. NARDIN and R. S. NUSSENZWEIG review recent advances in the elucidation of cell-mediated immune mechanisms directed against sporozoites and liver stages of *Plasmodium*, their role in protection, and their relation to vaccine development. Recent data on the molecular basis of sporozoite-liver cell interaction are presented, and these may provide new approaches for chemoprophylaxis and immunoprophylaxis.

In autoimmune diseases, autoantibodies may be the actual pathogenic agents of the disease, the secondary consequence of tissue damage, or epiphenomena of another etiopathogenetic agent. Y. NAPARSTEK and P. PLOTZ set out criteria for the pathogenicity of autoantibodies and review various autoantibodies associated with human diseases, as for example pemphigus, myasthenia gravis, insulin-resistant diabetes mellitus, thyroid diseases and systemic lupus erythematosus. As pointed out by D. COURNOYER and C. T. CESKEY, human somatic gene therapy has become a reality. The authors summarize recent progress in gene therapy in the treatment of several forms of imunodeficiences and disorders of phagocytic cells, AIDS, and cancer.

Three chapters in this volume deal with Immunogenetics. In a very interesting article, J. KLEIN et al. focus on the manner of MHC evolution with special emphasis on molecular evolution, genealogy of Mhc alleles, evidence for natural selection, intensity and cause of natural selection, and substitution and mutation rates. H. C. RAMMENSEE et al. discuss the nature of peptides presented by MHC Class I molecules, the rules for peptide presentation, and its significance for immunity as well as for self-tolerance. Finally recent progress in the MHC molecule function are reviewed by R. N. GERMAIN and D. H. MARGULIES.

The area of Transplantation Immunology includes only a chapter by W. M. YOKOYAMA and W. E. SEAMAN covering the NK gene complex (NKC). It is known that NK cells lyse tumor and virally infected cells in a specific manner that has not been molecularly characterized. In other hand, target cell expression of MHC Class I molecule is correlated with targed cell resistance to natural killing. Target cell susceptibility or resistance to natural killing may be dependent upon specific ligand - receptor interaction with activating or inhibitory molecules, respectively. In an excellent monograph, the authors review the genetics, structure, and function of these receptor-like molecules encoded in the NK gene complex.

Much information has been obtained on the field of cytokines. In the 3 years since its dicovery, the cytokine IL-10 has been implicated as an important inhibitor of macrophage, T cells, and NK cells effector function. In addition was observed that the EB virus genome encodes a homolog of IL-10 which shares many of the cellular cytokine's biological activities, and may therefore play a role in the host-virus interaction. K. W. MOORE, T. R. MOSMANN, and others authors review the structure of IL-10, its close relationship to an open reading frame in the EBV, and its currently known spectrum of "in vitro" and "in vivo" activities. Possible role of Il-10 in the regulation of immune and inflammatory responses are also discussed with emphasis in parasite, mycobacterial and retrovirus infection. M. A. FARRAR and R. D. SCHREIBER summarize the new developments in the areas of IFN-gamma biochemistry and biology, with special emphasis to the IFN-gamma receptor. They focus also on 3 aspects of IFN-gamma biology that are of special interest to immunologists: IFN-gamma's role in host defense, inflammation, and immunity.

Three chapters are dedicated to T lymphocyte receptors. The basis for recognition of alloantigens is one of the most important issues in immunology. It is now clear that all T cell recognition, including self-tolerance and allorecognition, involves both the MHC molecule and its associated peptide ligand. L. A. SHERMAN and S. CHATTOPADHYAY review evidence for the role of peptides in allorecognition. J. M. LEIDEN summarizes current understanding of the molecular mechanisms regulating the TCR gene expression during thymocyte ontogeny. Gamma/delta T cells have been the target for recent publications in previous volumes of this series since 1989 (volumes 7, 9, and 10). Previous reviews have emphasized the structure and organization of gamma/delta genes as well as the development and specificity of gamma/delta T cells in mice, human, and other species. In an excellent chapter W. HAAS, P. PEREIRA and S. TONEGAWA focus on the specificity and function of gamma/delta T cells in a very didatic manner.

The field of lymphocyte development, activation and differentiation its examined in 7 chapters. F. W. FITCH et al. define several distinct mechanisms that affect differentially the activities of murine T lymphocyte clones representing various CD8+ and CD4+ (TH1 and TH2) subsets. As pointed out by D. GRAY, "the immune system does not forget an antigenic insult, and its memory maintains the specialist tools it will require to deal efficiently with recurrent infections". The author discusses very important points of immunological memory as selection of virgin B cells for entry into the peripheral pool, expression of markers of memory B cells, markers of memory T cells (in particular CD45R isoforms), and the lifespan of memory cells and factors that influence their long-term survival. P. S. LINSLEY and J. A. LEDBETTER review recent work on the T cell molecule CD28 which is a receptor for costimulatory signals provided by the molecule B7 on APCs. Y. MINAMI et al. describe the molecular nature of IL-2 receptor, provide an overview of the knowledge of IL-2 receptor-mediated signal transduction, and finally discuss the complex signal transduction machinary that connects stimulation of the cell surface receptor and nuclear events. Regulation of lymphocyte function by protein phosphorylation is reviewed by R. M. PERLMUTTER et al., and the origen of murine B cell lineages is focused by A. B. KANTOR and L. A. HERZENBERG. Finally, D. C. PARKER focusses on the important question: how the T cell activate the B cell when it recognizes antigen on the cell surface? The authors first reviews B cells as antigen present cells, and then discusses comprehensively the contact-dependent help, the roles of cytokins, and ligands pairs involved in the T/B interaction with emphasis on CD40 ligands.

M. P. BEVILACQUA reviews the characterization of endothelial-leucocyte adhesion molecules, focusing on their biological and medical significance in processes of inflammation. W. HARRIMAN et al. trie to select a model to explain the events in the genome of a B cell that result in a switch of the immunoglobulin heavy chain class produced by that cell. There are many unresolved questions involving the MHC-TCR-Ag recognition problem. In fact, only a minor fraction of potencial determinants on an antigen are presented in an immunodominant manner, while the remaining peptides are silent (cryptic). E. E. SERCARZ et al. review the immune dominance and cryptocity of potencial determinants on a protein antigen, with emphasis on T cell responses.

Like other publications of the series Annual Review of Immunology, this excellent volume retains the task of focusing recent progress in all fields of Basic and Clinical Immunology with clarity of presentation. It is recommended for posgraduates and researchers in the area of Immunology.

Myrthes Toledo Barros
Disciplina de Alergia e Imunopatologia do Departmento de Clínica Médica - HCFMUSP.

* Este livro encontra-se na Biblioteca do Instituto de Medicina Tropical de São Paulo.