

analysed in this volume with particular reference to the development of appropriate vaccines. Monte S. Meltzer and his colleagues in fact present the unusual role of macrophages in the regulation of the pathogenesis of the HIV infection. Hitherto, the CD4⁺-receptor-bearing T cells were thought to be the only major target of the HIV.

Antonio Lanzavecchia elaborates on 'Receptor-mediated uptake of antigens and its relevance to immune recognition through class II MHC complex'. Exciting findings are the role of membrane-bound immunoglobulin and Fc receptors in antigen capture and their influence on subsequent intracellular antigen processing. The perplexing presence of high levels of antibodies which do not have any protective immunity in some diseases like tuberculosis could perhaps be explained by ascribing them a role in capture and intracellular processing of antigens.

In a related review, Ian A. Wilson and Nancy J. Cox present detailed analysis of the structural basis of immune recognition of the influenza virus haemagglutinin (HA), which is one of the extensively studied viral adhesion molecules. Analysis of the conserved and variable amino-acid sequences in its structure has shown that the virus evades immune recognition through mutational changes in the HA molecule. Similar antigenic variation of coat proteins of many microbes has prevented development of rational vaccines, as exemplified by this review and another on 'Cellular and genetic aspects of antigenic variation in trypanosomes' by George A. M. Cross. Wilson and Cox discuss the importance of studying adhesion molecules for the development of drugs that prevent microbial entry and pathogenesis.

Antigenic peptides are intracellularly synthesized or processed prior to expression in conjunction with MHC class I and class II proteins on the cell surface. Although specific classes of T cells recognize these peptides and then initiate effector immune responses, peptide-MHC expression remains a seminal event in immune recognition.

The evolution, genetics and biology of the MHC proteins have been updated in four reviews by David A. Lawlor and colleagues, Warner C. Greene, Iwona Stroynowsky, and Christophe Benoist and Diane Mathis.

The recognition of MHC-bound peptides by T-cell receptors is a multitudinous process which in turn results in the initiation of an effector immune response. The developmental biology of T cells has been updated by Harald Von Boehmer in his review on the expression of TCR in transgenic mice. The genetics and mutational analysis of TCR has been further elucidated by J. D. Ashwell and Richard Klausner. The molecular basis of T-cell specificity has been highlighted by Louis Matis. Finally, the intracellular events following the binding between TCR and the MHC-bound peptides have been covered by Katherine Ullman and her colleagues.

These reviews have elegantly tried to answer how the structures of the TCR and of the TCR-antigen-MHC trimolecular complex determine the initiation of the biochemical events that lead to effector immune responses. It is, however, implied that there are some critical lacunae, like the crystallographic structure of TCR, the link between the membrane activation and the nucleus in the T cell, and the mechanism of interaction between TCR and superantigens. The latter are expected to be of major clinical importance.

In recent years, there has been considerable interest in the immune response to stress proteins, which show a remarkable degree of conservation of structure across prokaryotic and eukaryotic organisms. Although they perform essential cellular functions in protein assembly, transport and disposal, particular attention has been focused on their being responsible for autoimmune diseases. Richard Young details the mechanisms by which they may be involved in autoimmune pathogenesis. Related reviews by Scott S. Zamvil, Lawrence Steinman, Luis Castano and George Eisenbarth focus on the role of T cells in generating allergic encephalomyelitis and induction of autoimmune diabetes.

The pre-eminent immunoglobulin molecule has certainly not been left behind in this volume. Charlotte Esser and Andreas Radbruch present the latest data on the enigmatic immunoglobulin class switching, although the nature of the recombinase and the molecular connection between transcription and recombination remain elusive.

Lymphocyte control of immunoglobulin isotype selection has also been

described by Fred D. Finkelman. The exciting field of catalytic antibodies has been covered by K. M. Shokat and P. G. Schultz, and there appears to be a promising use for new 'tailorable catalysts' in biology, chemistry and medicine.

Finally, the mechanism of action of CTL has been elaborated by a detailed study of perforins by Jurg Tschopp and Markus Nabholz. There is also an interesting chapter on the leukocyte integrin receptor family by Martin E. Hemler.

C. JAGANNATH

Astra Research Centre India

P. B. No. 359

Bangalore 560 003

Brief notes

Studies of High-temperature Superconductors. A series in 10 volumes. A. V. Narlikar, ed. Nova Science Publishers, Inc., 283 Commack Road, Suite 3000, Commack, NY 11725-3401, USA. 1989-.

With Bednorz and Muller's pioneering discovery of high-temperature superconductors in 1986, superconductivity has ceased to remain an area of mere academic curiosity and a preserve of a small community of low-temperature physicists and cryogenicists. Renouncing their cold confines and freed from the grip of liquid helium, superconductors have stepped into the realm of high temperatures. The area has been transformed into a rich field of intensive and highly competitive research, encompassing diverse disciplines such as structural chemistry, ceramic engineering, metallurgy, solid state electronics, and experimental and theoretical condensed matter physics.

Each chapter in these volumes comprises a detailed review or an extended paper focusing on one or more of the frontal aspects of research and applications, including state-of-the-art technology pertaining to HTSCs. The contributors are recognized authorities in the field. The editor, A. V. Narlikar, is deputy director of the National Physical

Laboratory in New Delhi. A broad range of topics is covered in the series, including theories of high-temperature superconductivity, structural chemistry, superconducting- and normal-state properties, crystal structures and microstructural effects, experimental techniques of characterizing materials, thin-film processing, device fabrication, production of wires and tapes for superconducting magnets and related applications.

Indian Science—Era of Stabilization. J. K. Nigam, ed. Shriram Institute for Industrial Research and Wiley Eastern, New Delhi. 1990. 408 pp

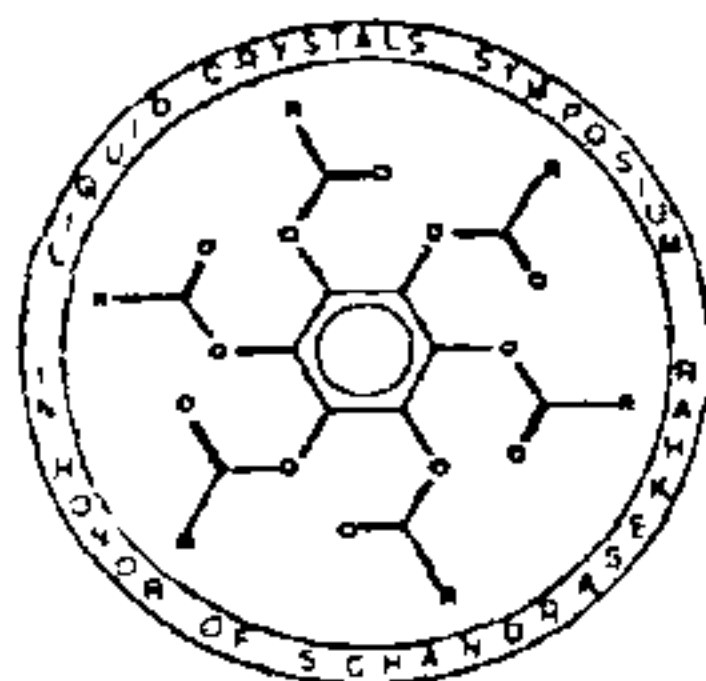
The Shriram Institute for Industrial Research is the creation of Lala Shri Ram, a pioneering industrialist and educationist who was convinced that India could and must catch up with the most advanced countries. This publication contains 26 lectures delivered by eminent Indian and foreign scientists on the occasion of Founder Memorial Day

of the Shriram Institute for Industrial Research, organized since 1965.

The book includes lectures on: Standardization in India, by Lal C. Verman; India's mineral and metal potential, by D. N. Wadia; Education, science and development, by D. S. Kothari; Research and Indian industry, by G. P. Kane; Value of scientific research, by T. R. Seshadri; Science and India's future, by S. Bhagavantham; Astrophysics frontiers, by M. G. K. Menon; Converting a scientific breakthrough in agriculture into a production advance, by M. S. Swaminathan; Developing patterns of industrial R&D culture, by Y. Nayudamma; Science and technology in relation to Indian needs and resources, by S. Varadarajan; New possibilities for peaceful uses of atomic energy, by R. Ramanna; Research, development and engineering associated with renewable energy sources, by A. Ramachandran; Nutrition and public health, by C. Gopalan; Science, technology and society, by Atma Ram; Nuclear research and the future technology of nuclear power, by P. K. Iyengar; Alcohols as

fuels and chemical feedstocks, by Donald F. Othmer; Environmental imperatives of development, by B. P. Pal; Learning to live with science and technology, by Jayant V. Narlikar; Immuno-biotechnology, by G. P. Talwar; Man, materials and civilization, by V. S. Arunachalam; Solid and surface investigating techniques, by C. N. R. Rao; Genes, genes and public health, by V. Ramalingaswami; Polymers, by S. Ganguly; Parallel processing, by Sam Pitroda; Lasers, by C. K. N. Patel; and Liquid crystals, by S. Chandrasekhar.

In the words of M. G. K. Menon, 'The Shriram Founder Memorial Lectures is an important contribution and initiative by SRI to capture the thinking and insights of various leaders of Indian science over the years.' This publication, ably edited by J. K. Nigam (Director, Shriram Institute for Industrial Research, Delhi), attempts to cover, through the lectures, the period from the mid-sixties through the seventies and eighties—the era of stabilization of Indian science. A book worth reading—by scientist and non-scientist alike.



Liquid crystals symposium in honour of Professor S. Chandrasekhar

The department of physics of the Massachusetts Institute of Technology (MIT) will hold a two-day symposium (**14 and 15 June**) on liquid crystals to honour Professor S. Chandrasekhar (Raman Research Institute, Bangalore, India) on his sixtieth birthday. Prof. Chandrasekhar has made pioneering contributions to the understanding of liquid crystals.

The symposium will consist entirely of invited lectures. Some of those who have already agreed to speak are: Prof. Noel Clark, Prof. Heppke, Prof. R. B. Meyer, Prof. P. S. Pershan, Dr. R. Pindak, Dr. J. Prost, Prof. H. Ringsdorf, Dr. C. Safinya, Prof. A. Saupe, Prof. J. Thoen, Prof. T. C. Lubensky, Dr. J. Toner.

There is no registration fee for the symposium. Participants will be housed in the dormitories of MIT, lodging as well as food expenses are to be borne by the participants. The lectures will be held in one of the main auditoriums in the campus. Although the auditorium can seat about 150 persons, the dorms can accommodate only 100. Persons who wish to participate should therefore contact one of the organizers below **immediately**.

Prof. J. D. Litster
Dept of Physics
MIT
Cambridge, MA 02139, USA
Phone (617) 253 6801
Fax (617) 253 8388

Prof. R. Shashidhar
Center for Bio/Molecular
Science and Engineering
Code 6090, Naval Research
Laboratory
Washington, DC 20375-5000, USA
Phone (202) 767 1681
Fax (202) 767 1295