New Books

Basophils and mast cells
Methods and protocols series: methods in molecular biology, Vol. 1192
B.F. Gibbs, F.H. Falcone (Eds.) SPRINGER 2014, XI, 251 p. 39 illus., 28 illus. in color. ISBN 978-1-4939-1173-8. A product of Humana Press

- Includes cutting-edge methods and protocols involving mast cells and basophils
- Provides step-by-step details essential for reproducible results
- Contains key notes and implementation advice from the experts

In Basophils and Mast Cells: Methods and Protocols, experts in this challenging field explore techniques to research these cells from the most practical point of view. Given the tremendous influence of mast cells and blood-borne basophils over immune system function, this volume intends to aid the reader in the development of better tools for the isolation of these cells from primary tissues, peripheral blood, bone marrow, or cord blood. Also covered are protocols for the in vitro and in vivo study of their functions.

Written in the highly successful Methods in Molecular Biology format, chapters in this book contain introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible laboratory protocols, and tips on troubleshooting and avoiding known pitfalls straight from the researchers who use the methods most.

Authoritative and easy to use, Basophils and Mast Cells: Methods and Protocols will provide the necessary tools for future research into mast cells and basophils with the goal of aiding in the quest to shed more light on these fascinating cell types.

Encyclopedia of medical immunology
Allergic Diseases
Mackay, I., Rose, N.R., Ledford, D.K., Lockey, R.F. (Eds.) SPRINGER 2014, XXXVII, 676 p. 88 illus., 74 illus. in color. ISBN 978-1-4614-9193-4

- Contributions by world-renowned scientists
- Explores all aspects of allergic diseases, body systems and vaccines
- Broad appeal to microbiologists, immunologists, and infectious disease specialists

Volume Allergic Diseases is a comprehensive, multi-authored reference work, offering a broad appeal to microbiologists, immunologists, and infectious disease specialists. The volume explores all aspects of allergic diseases, body systems and vaccines. Emphasis is placed on genetics, physiology, metabolism, pathogenesis, and applied microbiology. Under the leadership of some of the most world renowned names in the field, the encyclopedia brings together an outstanding collection of contributions by top scientists in a variety of fields.

The entries are listed alphabetically and provide full references.

The volume covers the following topics:

- Food Allergy and gastrointestinal Allergic Diseases
- Insect Allergy
- Allergy Diagnosis and Testing
- Allergy Treatment: Pharmacotherapy
- Asthma and Other Allergic Lower Respiratory Disease
- Biology of IgE, Mast Cells and Eosinophils
- Specific Allergens Causing Human Disease
- Atopic Dermatitis, Urticaria and Dermatologic Allergy
- Allergy Treatment: Immunotherapy, Immunomodulator Therapy and Allergen Avoidance

The influence of chemistry on new foods and traditional products
Series: SpringerBriefs in Molecular Science
Subseries: Chemistry of Foods
Barbieri, G., Barone, C., Bhagat, A., Caruso, G., Conley, Z., Parisi, S. SPRINGER 2014, VI, 65 p. 15 illus., 11 illus. in color. ISBN 978-3-319-11358-6. Available Formats:

- Written by experts from different disciplines
- Discusses the influence of chemistry in the modern food and beverages industry
- Regards different viewpoints, from food additives management to modern production of traditional products

This Brief concerns the influence of chemistry in the modern food and beverages industry. The world of traditional foods has been soundlessly but increasingly interconnected with the chemical industry in the last century. Different areas are considered in a multidisciplinary approach:

- the production of chemical additives and of non-food components needed in the food industry (e.g. packaging materials)
- the regulatory perspective of the whole food production chain
- commercialisation of food commodities
- the problem of food safety from the viewpoint of official auditors with medical or veterinarian competencies

- new and emerging risks related to food packaging materials
- the assessment of the authenticity of edible products.

This Brief includes different viewpoints, ranging from the management of allergens and food additives in the food plant to the complex matter of the formulation of traditional products with the consequent production of "alternative" versions of the same food.

Chemical skin injury
Mechanisms, Prevention, Decontamination, Treatment
Maibach, Howard I., Hall, Alan (Eds.) SPRINGER 2014, X, 241 p. 259 illus., 219 illus. in color. ISBN 978-3-642-39779-0

- The only comprehensive work specifically on chemical skin injuries
- Differentiates between chemical skin injury and thermal skin burns
- Focuses on particular situations, such as injuries caused by commonly used chemicals
- Describes effective preventive measures
- Explains how to prevent or mitigate the effects of chemical skin exposures in industrial settings

This book provides an up-to-date, compact but comprehensive review of chemical skin injuries, differentiating them from thermal skin burns. After an introductory chapter on the history of chemical skin injuries and the scope of the problem, the anatomy, histology, physiology, and immunology of normal skin are described. Mechanisms involved in chemical penetration of normal skin are explained, and the effects of damaged skin on chemical penetration are analyzed. The remainder of the book discusses a variety of clinically relevant aspects, such as the different forms of chemical skin injury, including injuries that arise during skin peeling or due to hair products; preventive measures; emergency treatment; rinsing therapy; medical and surgical treatment; and the importance of providing relevant information to workers. The role of predictive toxicology is also considered.

Chemical Skin Injury: Mechanisms, Prevention, Decontamination, Treatment is an ideal resource for readers who want to understand chemical skin injury, to put preventive measures in place, and to respond appropriately should a chemical skin injury occur.

Molecular and cellular mechanisms of antibody activity
Nimmerjahn, Falk (Ed.) SPRINGER 2013, X, 294 p. 52 illus., 44 illus. in color. ISBN 978-1-4614-7107-3

- Full-color figures illustrate difficult concepts
- Written by renowned experts in the field
- Incorporates cutting-edge research and new discoveries

This book focuses on the function of antibodies in vivo. Recent years have seen an exponential growth in knowledge about the molecular and cellular mechanisms of antibody activity. These new results dramatically changed our view of how antibodies function in vivo. The importance of this class of molecules is demonstrated by the heightened susceptibility to infections of humans and mice with an altered capacity to generate pathogen specific antibody responses. Thus, the majority of our currently available vaccines, such as vaccines against influenza, measles and hepatitis focus on the generation of long lasting antibody responses. Recent evidence from a variety of in vivo model systems and from human patient cohorts has highlighted the exclusive role of cellular Fc-receptors for certain immunoglobulin isotypes and subclasses. With the recent discovery of a human Fc-receptor for IgM all different human immunoglobulin isotypes now have a cellular receptor, providing a feedback mechanism and link between antibodies and the cellular components of the immune system. Moreover it has become clear the complement and Fc-receptor system are tightly connected and regulate each other to ensure a well balanced immune response. Among the immunoglobulin isotypes IgG plays a very important protective role against microbial infections and also as a therapeutic agent to kill tumor cells or autoantibody producing B cells in autoimmune disease. Transfer of our knowledge about the crucial function of Fc-receptors has led to the production of a second generation of therapeutic antibodies with enhanced binding to this class of receptors. Binding of antibodies to Fc-receptors leads to the recruitment of the potent pro-inflammatory effector functions of cells from the innate immune system. Hence, Fc-receptors link the innate and adaptive immune system, emphasizing the importance of both arms of the immune system and their crosstalk during anti-microbial immune responses. Besides this pro-inflammatory activity immunoglobulin G (IgG) molecules are long known to also have an anti-inflammatory function. This is demonstrated by the use of high dose intravenous immunoglobulins as a therapeutic agent in many human autoimmune diseases. During the past five years several new insights into the molecular and cellular pathways of this anti-inflammatory activity were gained radically changing our view of IgG function in vivo. Several lines of evidence suggest that the sugar moiety attached to the IgG molecule is responsible for these opposing activities and may be seen as a molecular switch enabling the immune system to change IgG function from a pro- to an anti-inflammatory activity. There is convincing evidence in mice and humans that aberrant IgG glycosylation could be an important new pathway for understanding the impaired antibody activity during autoimmune disease. Besides this tremendous increase in basic knowledge about factors influencing immunoglobulin activity the book will also provide insights into how these new insights might help to generate novel therapeutic approaches to enhance IgG activity for tumor therapy on the one hand, and how to block the self-destructive activity of IgG autoantibodies during autoimmune disease on the other hand.