

TABLE OF CONTENTS



Preface.....	VII
Chapter 1 The organization of metabolic genotype space facilitates adaptive evolution in nitrogen metabolism..... Andreas Wagner, Vardan Andriasyan and Aditya Barve	1
Chapter 2 MicroRNA-365 is a negative regulator of endothelial cell proliferation..... Xiao Wu and Fan Jiang	13
Chapter 3 A series of Notch3 mutations in CADASIL: insights from 3D molecular modelling and evolutionary analyses..... Dimitrios Vlachakis, Spyridon Champeris Tsaririas, Katerina Ioannidou, Louis Papageorgiou, Marc Baumann and Sophia Kossida	22
Chapter 4 Antimicrobial activities of caffeic acid phenethyl ester..... Sivan Meyuhas, Morad Assali, Mahmoud Huleihil and Mahmoud Huleihil	31
Chapter 5 Crystal structure and molecular docking studies of benzo[8]annulenes as potential inhibitors against <i>Mycobacterium tuberculosis</i> RA Nagalakshmi, J Suresh, S Maharanani and R Ranjith Kumar	42
Chapter 6 Molecular dynamics simulations through GPU video games technologies..... Styliani Loukatou, Louis Papageorgiou, Paraskevas Fakourelis, Arianna Filintisi, Eleftheria Polychronidou, Ioannis Bassis, Vasileios Megalocikonomou, Wojciech Makalowski, Dimitrios Vlachakis and Sophia Kossida	49
Chapter 7 Cloning and functional characterization of a vertebrate low-density lipoprotein receptor homolog from eri silkworm, <i>Samia ricini</i> Rajni Bala, Ulfath Saba, Meenakshi Varma, Dyna Susan Thomas, Deepak Kumar Sinha, Guruprasad Rao, Kanika Trivedy, Vijayan Kunjupillai and Ravikumar Gopilapillai	57
Chapter 8 Biochemical and cytogenetic changes in postovulatory and in vitro aged mammalian oocytes..... John B. Mailhes	65
Chapter 9 The Role of S-Palmitoylation of the Human Glucocorticoid Receptor (hGR) in Mediating the Nongenomic Glucocorticoid Actions..... Nicolas C. Nicolaidis, Tomoshige Kino, Michael L. Roberts, Eleni Katsantoni, Amalia Sertedaki, Paraskevi Moutsatsou, Anna-Maria G. Psarra, George P. Chrousos and Evangelia Charmandari	97
Chapter 10 Protein kinase CKI interacts with and phosphorylates RanBPM <i>in vitro</i> Sonja Wolff, Balbina Garcia-Reyes, Doris Henne-Bruns, Joachim Bischof and Uwe Knippschild	107

- Chapter 11 The Niemann-Pick C1 and caveolin-1 proteins interact to modulate efflux of low density lipoprotein-derived cholesterol from late endocytic compartments
David Jelinek, Randy A. Heidenreich, Robert A. Orlando and William S. Garver
- Chapter 12 Zika virus infection: a review of available techniques towards early detection
Kathleen KM Glover and Kevin M Coombs
- Chapter 13 Human hair follicle biomagnetism: potential biochemical correlates.....
Abraham A. Embi and Benjamin J. Scherlag
- Chapter 14 Crystal structure and molecular docking studies of octahydrocycloocta[b]pyridine-3-carbonitriles as potential inhibitors against *Mycobacterium tuberculosis*
RA Nagalakshmi, J Suresh, S Maharani and R Ranjith Kumar
- Chapter 15 Study on the internalization mechanism of the ZEBRA cell penetrating peptide.....
Roberta Marchione, Lavinia Liguori, David Laurin and Jean-Luc Lenormand
- Chapter 16 SOCS, inflammation and metabolism.....
Kyoko Inagaki-Ohara and Akihiko Yoshimura
- Chapter 17 HCMV activation of ERK-MAPK drives a multi-factorial response promoting the survival of infected myeloid progenitors
Verity Kew, Mark Wills and Matthew Reeves
- Chapter 18 Introducing Thetis: a comprehensive suite for event detection in molecular dynamics
Eleri Picasi, Athanasios Tziaris, Vasileios Megalooikonomou and Dimitrios Vlachakis
- Chapter 19 Retroviral proteases: correlating substrate recognition with both selected and native inhibitor resistance
Gary S Lato

Permissions

List of Contributors

Index

F.N.L.S.LIBRARY

جامعة أحمد زبانة غليزان

PREFACE

Biochemistry is the study of chemical process in Living organisms. Biochemistry governs all living organisms and living processes. By controlling information flow through biochemical signalling and the flow of chemical energy through metabolism, biochemical processes give rise to the seemingly magical phenomenon of life. Much of biochemistry deals with the structures and functions of cellular components such as proteins, carbohydrates, lipids, nucleic acids and other biomolecules although increasingly processes rather than individual molecules are the main focus. Over the last 40 years biochemistry has become so successful at explaining living processes that now almost all areas of the life sciences from botany to medicine are engaged in biochemical research. Today the main focus of pure biochemistry is in understanding how biological molecules give rise to the processes that occur within living cells which in turn relates greatly to the study and understanding of whole organisms. Biochemistry, within the clinical analysis laboratory, is one of the areas of greatest complexity for the professional. The quantity and speed of advances in this area demand a permanent effort to keep up-to-date and at the forefront in this area of work. In this complete course we offer you the possibility to achieve your qualification in a simple and very efficient way. Through the most developed teaching techniques, you will learn the theory and practice of all the advances needed to work in a clinical analysis laboratory at a high level. With a structure and plan that is totally compatible with your personal and professional life. In the era of multidisciplinary approach, the basic techniques in Biochemistry and Molecular Biology are much needed by the students of Botany, Zoology, Microbiology, Biotechnology, Fisheries, Veterinary, Pharmacology, Physiology, Medicine, Genetics, Agriculture and allied subjects both at undergraduate and postgraduate levels.

— Editor

جامعة أحمد زبانة غليزان