

1. Record Nr.	UNINA9910452904403321
Titolo	Methodologies for metabolomics : experimental strategies and techniques // edited by Norbert W. Lutz, Jonathan V. Sweedler, Ron A. Wevers [[electronic resource]]
Pubbl/distr/stampa	Cambridge : , : Cambridge University Press, , 2013
ISBN	1-107-23332-1 1-139-60975-0 1-139-61161-5 1-139-62463-6 1-139-61533-5 1-139-60832-0 0-511-99663-2 1-283-87037-1 1-139-62091-6
Descrizione fisica	1 online resource (xii, 627 pages) : digital, PDF file(s)
Disciplina	543/.65
Soggetti	Metabolism Metabolites - Research - Methodology Metabolism - Research - Methodology
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Title from publisher's bibliographic system (viewed on 05 Oct 2015).
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Machine generated contents note: 1. Exploring the human metabolome by NMR spectroscopy and mass spectroscopy David S. Wishart; 2. Methodological requirements for lipidomics research Kui Yang, Michael A. Kiebish, Richard W. Gross; 3. Biological methods for metabolic research Arancha Cebrian, Laura Menchen, Elsa Sanchez-Lopez, Juan Casado-Vela, Santiago Diaz-Moralli, Marta Casceante, Teresa Gomez del Pulgar, and Juan Carlos Lacal; 4. Considerations in sample preparation, collection, and extraction approaches applied in microbial, plant, and mammalian metabolic profiling J. William Allwood, Catherine L. Winder, Warwick B. Dunn, and Royston Goodacre; 5. MS-based methodologies for single-cell metabolite detection and identification

Ann M. Knolhoff, Peter Nemes, Stanislav S. Rubakhin; 6. Direct metabolomics from tissues and cells: laser ablation electrospray ionization for small molecule and lipid characterization Akos Vertes, Bindesh Shrestha, Peter Nemes; 7. Bioinformatic approaches to process and annotate high-resolution mass spectrometry data Ralf Weber and Mark Viant; 8. Approaches for natural product detection and structural elucidation using mass spectrometry with high mass accuracy Ioanna Ntai and Neil L. Kelleher; 9. Metabolomics using ion mobility mass spectrometry Kimberly A. Kaplan and Herbert Hill; 10. Metabolomics via biomedical mass spectrometry: from sampling to clinical applications Bong Chul Chung and Man Ho Choi; 11. Analytical techniques in metabolomics integrating NMR and chromatography with MS U. Braumann and M. Godejohann; 12. NMR of CSF: the neurometabolome Fanny Mochel; 13. NMR analysis and genetic metabolic disease Udo F.H. Engelke, Angelina Goudswaard, Eva Morava, and Ron Weevers; 14. NMR methods for metabolomic investigation of amniotic fluid Ana M. Gil and Goncalo Graca; 15. Chemometric methods in NMR-based body fluid analysis Ron Wehrens and Udo Engelke; 16. Lipid profiling in health and disease Christina E. Kostara and Eleni T. Bairaktari; 17. NMR-based saliva metabolomics Hanne Christine Bertram and Morten Rahr Clausen; 18. Reproducible sample preparation and spectrum acquisition techniques for metabolic profiling of human tissues by H HR-MAS NMR Marital Pitto, F.M. Moussallieh, A. Imperiale, M.A. Benahmed, J. Detour, J.P. Bellocq, I.J. Namer, K. Elbayed; 19. MR spectroscopy in investigating the cancer metabolome in preclinical model systems Marie-France Penet, Zaver M. Bhujwalla, and Kristine Glunde; 20. Metabolomic magnetic resonance spectroscopy of human tissue: a comparison of in vivo and HR-MAS ex vivo techniques Geoffery S. Payne, Yuen-Li Chung, and Martin O. Leach; 21. Phospholipidomics by P NMR spectroscopy of tissue extracts Norbert W. Lutz and Patrick J. Cozzone; 22. C NMR for analysis of metabolic pathways Craig R. Malloy, Elizabeth Maher, Issac Marin-Valencia, Bruce Mickey, Ralph J. DeBerardinis, and A. Dean Sherry; 23. Hyperpolarized NMR spectroscopy -- a new method for metabolomic research Ralph E. Hurd, Yi-Fen Yen, and Albert Chen; 24. Assignment strategies for NMR resonances in metabolomics research Teresa W.M. Fan and Andrew N. Lane.

Sommario/riassunto

Metabolomics, the global characterisation of the small molecule complement involved in metabolism, has evolved into a powerful suite of approaches for understanding the global physiological and pathological processes occurring in biological organisms. The diversity of metabolites, the wide range of metabolic pathways and their divergent biological contexts require a range of methodological strategies and techniques. Methodologies for Metabolomics provides a comprehensive description of the newest methodological approaches in metabolomic research. The most important technologies used to identify and quantify metabolites, including nuclear magnetic resonance and mass spectrometry, are highlighted. The integration of these techniques with classical biological methods is also addressed. Furthermore, the book presents statistical and chemometric methods for evaluation of the resultant data. The broad spectrum of topics includes a vast variety of organisms, samples and diseases, ranging from in vivo metabolomics in humans and animals to in vitro analysis of tissue samples, cultured cells and biofluids.
