

Contents

Part I The Spectrum of Asthma: An Introduction

1 Introduction to Asthma and Phenotyping	5
Regina A. Pillai and William J. Calhoun	
2 Epidemiology of Asthma: Prevalence and Burden of Disease	17
Sharon Croisant	
3 Heterogeneity of Asthma in Society	31
Rohit Divekar and William J. Calhoun	
4 Inhaled Environmental Allergens and Toxicants as Determinants of the Asthma Phenotype.....	43
Kristin Sokol, Sanjiv Sur, and Bill T. Ameredes	
5 Current Clinical Diagnostic Tests for Asthma	75
Shiwan Shah and Gulshan Sharma	
6 Management of Asthma: The Current US and European Guidelines	81
Ashwini P. Reddy and Meera R. Gupta	
7 Community-Based Interventions in Asthma	105
Sharon Croisant and Lauren Scott	
8 Heterogeneity of Response to Therapy	117
William J. Calhoun	

Part II Genetics and Genomics in Asthma

9 Introduction to Genetics and Genomics in Asthma: Genetics of Asthma	125
Rasika Ann Mathias	

10 Gene Expression Profiling in Asthma	157
Joanne Sordillo and Benjamin A. Raby	
11 Asthma Epigenetics.....	183
Muhammad T. Salam	
Part III Proteomics, Metabolomics, and Systems Biology of Asthma	
12 Overview	203
John E. Wiktorowicz	
13 Metabolomics in Asthma.....	207
Bruce A. Luxon	
14 Proteomic Analysis of the Asthmatic Airway.....	221
John E. Wiktorowicz and Mohammad Jamaluddin	
15 Measurement of the Innate Immune Response in the Airway.....	233
Allan R. Brasier and Yingxin Zhao	
16 Functional Proteomics for the Characterization of Impaired Cellular Responses to Glucocorticoids in Asthma.....	255
Konrad Pazdrak and Alexander Kurosky	
Part IV Modeling Complex Data in Asthma	
17 Analysis and Predictive Modeling of Asthma Phenotypes	273
Allan R. Brasier and Hyunsu Ju	
18 The Role of Visual Analytics in Asthma Phenotyping and Biomarker Discovery.....	289
Suresh K. Bhavnani, Justin Drake, and Rohit Divekar	
Part V Biobehavioral Determinants in Asthma	
19 Central Nervous System Influences in Asthma	309
Joel N. Kline and Robert M. Rose	
20 Asthma, Culture, and Cultural Analysis: Continuing Challenges	321
Mike Fortun, Kim Fortun, Brandon Costelloe-Kuehn, Tahereh Saheb, Daniel Price, Alison Kenner, and Jerome Crowder	
Part VI Conclusions and Future Directions	
21 Conclusions and Future Directions	335
William J. Calhoun and Allan R. Brasier	
Index.....	345

Heterogeneity in Asthma

Brasier, A.R. (Ed.)

2014, XIV, 354 p. 33 illus., 25 illus. in color., Hardcover

ISBN: 978-1-4614-8602-2