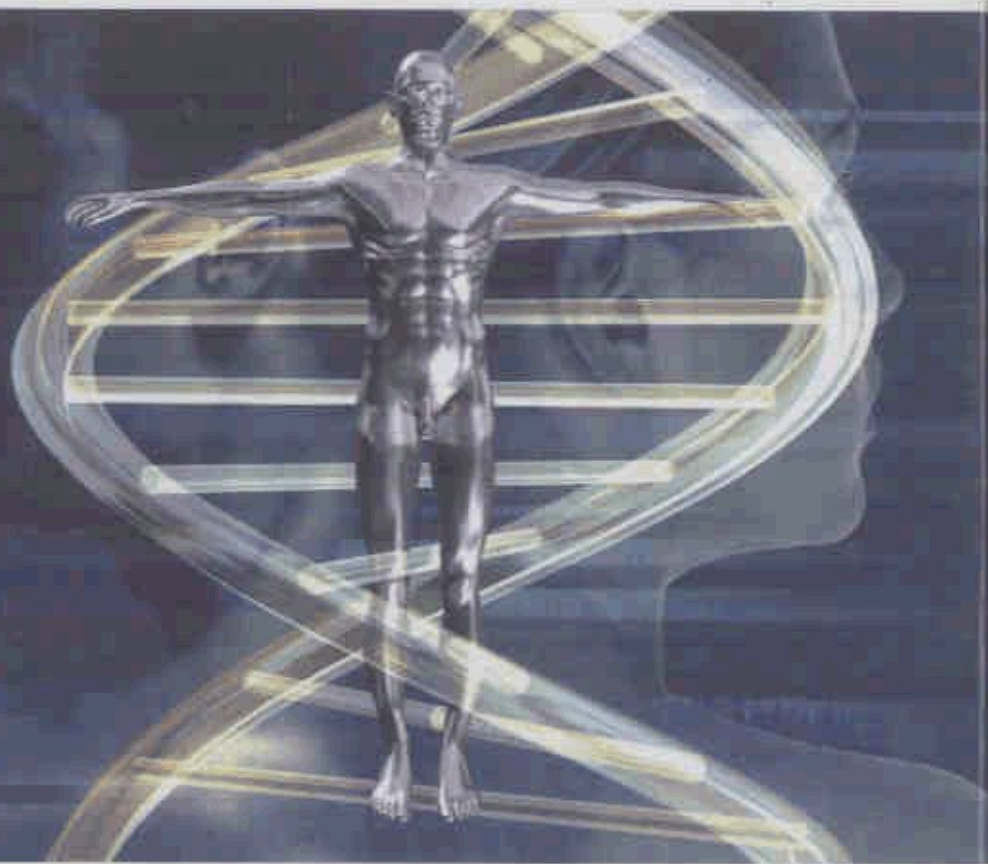


CURRENT TOPICS IN
**HUMAN
GENETICS**

Studies in Complex Diseases



Hong-Wen Deng • Hui Shen

Co-Editors-in-Chief

Yong-Jun Liu • Hai Hu

Associate Editors

Contents

Preface	v
Acknowledgments	vii
1 Regression-based Linkage Analysis Methods	1
<i>Tao Wang and Robert C. Elston</i>	
2 Admixture Mapping: Methods and Applications	21
<i>Xiaofeng Zhu</i>	
3 Survival Analysis Methods in Genetic Epidemiology	37
<i>Hongzhe Li</i>	
4 Genetic Association Studies: Concepts and Applications	65
<i>Jun Li</i>	
5 Tag SNP Selection and Its Applications in Association Studies	95
<i>Kui Zhang and Fengzhu Sun</i>	
6 Haplotype Inference and Association Analysis in Unrelated Samples	123
<i>Zeny Feng, Nianjun Liu and Hongyu Zhao</i>	
7 A Survey on Haplotyping Algorithms for Tightly Linked Markers	161
<i>Jing Li</i>	

- 8 DNA Pooling: Methods and Applications in Association Studies** 179
Jiexun Wang, Guohua Zou and Hongyu Zhao
- 9 Linkage Disequilibrium and Test for Interaction Between Two Loci** 209
Momiao Xiong
- 10 Association Tests for Complex Disease Genes While Controlling Population Stratification** 255
Shuanglin Zhang and Qiuying Sha
- 11 Statistical Methods for Multiple QTL Mapping in Experimental Crosses** 285
Daniel Shriner, Solomon Musani and Nengjun Yi
- 12 Animal Models in the Study of Genetics of Complex Human Diseases** 325
Weikuan Gu, Jian Yan and Yan Jiao
- 13 Acquisition of Accurate Gene Expression Information from Microarray Measurements** 351
Shuang Jia, Shouguo Gao, Martin J. Hessner and Xujing Wang
- 14 Application of DNA Microarray Technology in Genetics** 375
Jian Yan, Weikuan Gu and Yan Jiao
- 15 Expression Quantitative Trait Locus (eQTL) Mapping** 397
Song Huang, David Ballard, Zheyang Wu and Hongyu Zhao

- 16 Bridging Genotype and Phenotype: Causal Pathways from DNA to Complex Traits** **433**
Yan Cui
- 17 Functional Proteomics and Its Application in Biomedical Sciences** **449**
Guishan Xiao and Teri Zhang
- 18 An Introduction to Biomedical Informatics** **499**
Hai Hu and Michael N. Liebman
- 19 Protein-Protein Interactions: Concepts, Databases, Software Tools, and Biomedical Implications** **539**
SudhaRani Mamidipalli and Jake Yue Chen
- 20 Genomic Cloning in the Postgenome Era** **563**
Yan Jiao and Weikuan Gu
- 21 RNA Metabolism and Human Diseases** **581**
Zhongwei Li and Gayatri Kollipara
- 22 Recent Progress in the Genetics of Osteoporosis** **617**
Hui Shen, Yong-Jun Liu, Peng Xiao, Dong-Hai Xiong and Hong-Wen Deng
- 23 Critical Molecules in Bone Development and Genetic Bone Diseases** **655**
Qing Wang, Ming Zhang, Tianhui Zhu and Di Chen
- 24 Genetic Factors for Human Type 1 Diabetes** **693**
Cong-Yi Wang, Junyan Han and Jin-Xiong She

25	Genetic Susceptibility to Human Obesity	729
	<i>Yong-Jun Liu and Hong-Wen Deng</i>	
26	Genes in Estrogen Metabolism Pathway and Breast Cancer	759
	<i>Ji-Rong Long</i>	
27	Hereditary Breast and Ovarian Cancers	773
	<i>Wentao Yang, Daren Shi and Jinsong Liu</i>	
28	Activation of Wnt Signaling in Tumor Development	809
	<i>Zhimin Lu</i>	
29	Genetics of Autoimmune Diseases: MHC and Beyond	833
	<i>Yahuan Lou</i>	
30	Genetics of Substance Dependence	865
	<i>Joel Gelernter and Henry R. Kranzler</i>	
31	Insulin Resistance and Metabolic Syndrome	883
	<i>Wei-Dong Li and R. Arlen Price</i>	
32	Genetics of Intracellular Traffic Jams: Multi-organellar Defects	929
	<i>Wei Li</i>	
	Author Index	945
	Subject Index	947