



BLACKWELL COMPANIONS TO ANTHROPOLOGY

A Companion to Anthropological Genetics

A Companion to Anthropological Genetics illustrates the role of genetic analysis in advancing the modern study of human origins, populations, evolution, and diversity. Broad in scope, this essential reference work establishes and explores the relationship between genetic research and the major questions of anthropological study. Through contributions by leading researchers, this collection explores molecular genetics and evolutionary mechanisms in the context of macro- and microevolution, paleontology, phylogeny, diet, and disease, with detailed explanations of quantitative methods, including coalescent and approximate Bayesian computation.

With an emphasis on contextualizing new and developing genetic research within anthropological frameworks, this text offers critical perspective on the conditions of molecular evolution that accompany cultural and social transformation, while also addressing critical disciplinary questions, such as the ethical issues surrounding ancestry testing and community-based genetic research.

Offering thorough coverage on leading questions and developing research, *A Companion to Anthropological Genetics* is a comprehensive resource for students and scholars.

Dennis H. O'Rourke, PhD, is Foundation Distinguished Professor of Anthropology at the University of Kansas, USA, and Professor Emeritus at the University of Utah, USA. He is co-editor of *Human Biology: An Evolutionary and Biocultural Perspective, Second Edition* (Wiley Blackwell, 2012), associate editor of *The International Encyclopedia of Biological Anthropology* (Wiley Blackwell, 2018), and has authored articles and book chapters on topics in biological and genetic anthropology. His current research focuses on the use of genetic data to identify signatures of population migration, colonization, and expansion in the North American high arctic.

Cover Design: Wiley

Cover Images: ©Mina De La O/Getty Images; © Matej Ograjensek/
Alamy Stock Photo; © MarcelClemens/Shutterstock

www.wiley.com/go/anthropology

WILEY Blackwell



Also available
as an e-book

ISBN 978-1-118-76899-0



9

781118

768990

<i>About the Editor</i>	<i>xi</i>
<i>Notes on Contributors</i>	<i>xiii</i>
<i>Preface</i>	<i>xix</i>
Part I Anthropological Genetics in Context	1
1 History and Evolution of Anthropological Genetics <i>Michael H. Crawford</i>	3
2 The Ethics of Genetic Ancestry Testing <i>Nanibaa' A. Garrison and Jessica D. Bardill</i>	17
3 Community-Oriented Research and the Future of Anthropological Genetics <i>Ripan S. Malhi</i>	37
Part II Macroevolution and Phylogenetics	45
4 Calibrating the Clock <i>Murray P. Cox</i>	47
5 Primate Genomics and Phylogenetics <i>Christopher A. Schmitt and Omer Gokcumen</i>	57
6 The Neanderthal and Denisovan Genomes <i>Sloan R. Williams</i>	69
7 Evaluating Correspondence in Phenotypic Variation, Genetic Diversity, Geography, and Environmental Factors <i>Noreen von Cramon-Taubadel</i>	89

- 8 Simulating Human Demographic Processes and Patterns of Genetic Variation
Aida T. Miró-Herrans

Part III Microevolution: Colonization, Dispersal, and Differentiation

- 9 Human Population Structure and History
John H. Relethford
- 10 Regional Patterns of Variation: Concepts and Applications
Graciela S. Cabana
- 11 Genetic Variation and the Colonization of Eurasia
Toomas Kivisild
- 12 *Homo sapiens* Dispersal and the Peopling of the Americas
Rafael Bisso-Machado and Nelson Jurandi Rosa Fagundes
- 13 Ancient DNA and Bioarcheology
Jennifer A. Raff

Part IV Human Adaptation: Natural Selection and Physiological Variation

- 14 Tempo of Recent Human Evolution
Michael D. Weight and Henry C. Harpending
- 15 Natural Selection and Adaptation to Extreme Environments: High Latitudes and Altitudes
Abigail W. Bigham
- 16 Sensory Polymorphisms and Dietary Adaptation
Carrie C. Veilleux
- 17 The Evolution of the Human Pigmentation Phenotype
Heather L. Norton
- 18 Anthropological Genetics and Growth and Development
Bradford Towne, Ellen W. Demerath, and Stefan A. Czerwinski
- 19 Epigenetics and Human Variation
Amy L. Non and Zaneta M. Thayer

Part V	Anthropology, Genetics, and the Evolution of Health and Disease	309
20	The Primate Immune System: A Survey of Innate and Acquired Immune Genes <i>Leslie A. Knapp and Nicole S. Torosin</i>	311
21	Genetics, Evolutionary Medicine, and the Evolution of Human Pathogens <i>Amanda VanSteelandt and Anne C. Stone</i>	327
	<i>References</i>	343
	<i>Index</i>	445