PREFACE

DNA is a biological code elegantly composed of only four letters: A, C, G, and T. From this simplicity comes all the complexity of life. The key message of this book is that despite all the tremendous achievements the era of genomics is only starting. We are still seeing just the earliest, fuzziest glimmers of deep insight compared to the richness of life on Earth and the questions we can use it to answer. We stand on the cusp of sequencing the Earth from genome to ecosystem, from our own guts to our oceans.

In the course of eight chapters we attempt to span the breadth of the study of genomics from the discovery of the DNA double helix to the impending promise of planetary-scale genomics. Breakthroughs came in thick and fast during this project and we hope that the breadth of topics helps convey how fast the field is moving. A complete set of endnotes and references provides links to further reading or use in the classroom.

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for doing so from the perspective of being colleagues driving so much of the science that is shaping the emerging field of 'biodiversity genomics'. Hillary Gilbert and Martha Beeman provided outstanding proofing and comments. We are appreciative to many others for engaging with us by reading and discussing, including Lita Procter, Adrienne Minock, C. J. Cramer, Larry Minock, Robert Possee, Gina Crivello, Peter Sterk, Antonio Fernandez-Guerra, the Monterey Writers' Group, and Aidan Hansell.

All omissions or mistakes are solely ours. The scientific passion, excitement, and achievements of this field are the contributions of the scientists who have published pioneering papers in the field of genomics since its inception in 1995. Recognition must also go to those who have funded this work, and Neil would personally like to thank the Gordon and Betty Moore Foundation for their support of research in Moorea. We appreciate the help of all those who helped us improve our portrayals of their science, including Nikos Kyrpides, Ollie Ryder, Martin Blaser, Paul Hebert, Scott Edmunds, Eske Willerslev, Camilo Mora, George Roderick, David Liittschwager, Chris Meyer, George Roderick, Jonathan Coddington, Leslie Lyons, Eric Alm, Lawrence David, Joakim Larsson, Robert May, Rob Dunn, James Ostheimer, Nick Loman, Larry Smarr, Morten Allentoft, Linda Amaral-Zettler, Nick Loman, Noah Fierer, Karen E. Nelson, Hans-Peter Klenk, Jonathan Eisen, Owen White, Stuart Kim, Gary Wolf, Mike Snyder, Heather Dewey-Hagbord, Tim Smyth, and Nick Goldman. We also thank the hundreds of scientists of the Moorea Biocode Project, the Genomic Standards Consortium, the Genomic Observatories Network, Ocean Sampling Day, and the Moorea Avatar Project for working with us over the past years to make these initiatives possible. Combined, you are all de facto leaders of the unannounced Planetary Genome Project.

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