

PREFACE

The intent of this book is to put genetics in the middle of people's lives, specifically your life. Thus, we will eschew lengthy discussions of the genetics of fruit flies in favor of considerations of issues such as how we become boys and girls and men and women. Indeed, a discussion of the development of human sexual differentiation and sexuality will form the major thread throughout this book. We have chosen to use sexual development as our major emphasis both because of the depth and elegance of our understanding of this process and because of the obvious interest we all share in this topic.

Perhaps most crucially, a focus on sexual development allows us to follow a set of interrelated genetic pathways toward many ends at many levels. We will focus in some detail on the role of the Y chromosome in initiating one pathway of development. We will also spend a good deal of time discussing the role of hormone-controlled differential gene expression in terms of the development of somatic sex. Finally, we will discuss the role of genetics in sexual orientation and sex-role development. These last issues will provide us with a real opportunity to discuss the interface between science and society. Along the way we will endeavor to cover the basic intellectual processes that underlie genetic analysis and to cover a number of other relevant topics such as the genetics of cancer, AIDS, and mental illness.

Our objective is to tell you what we know about the genetics of our species and how we feel about the ways in which genetics does, could, and should impact our lives. Because of that point of view, we will do things you will not normally find in a textbook, much less a science textbook. We

will intermingle real and fictional stories to make our points and we will speak to you, when appropriate, in the first person. In doing so we will endeavor to tell you who we are, how we came to write this book, and how deeply we feel about the issues we discuss. We may even argue with each other in print. Such nontraditional communication is enclosed in parentheses and we will always sign our initials to such contributions.

It is not our intention to turn any of you into a geneticist (*although that wouldn't be so awful—RSH*). Our real hope is to impart enough knowledge so that you will be able to bring this subject into your own lives. It is hoped that when you put this book into mothballs you will know when and why you might seek the counsel of a human geneticist or genetic counselor, should you ever need one. It is also hoped that you will have become sophisticated enough to sort out the myths and misconceptions about human heredity that pass for simple truths in the folklore and the press. To the extent that we achieve even a small measure of success with either of these goals, this book will have been well worth the effort.

P.S. We can't begin without thanking some very special people, especially our editors at Academic Press, David Phanco, Garrett Brown, and Dr. Anne Chen, and especially their predecessor, Dr. Jasna Markovac. The fact this book was ever finished is a testament to their tenacity. The real animus for this book began as a series of lecture notes for a course titled Human Genetics that RSH teaches at U.C. Davis. The purpose of that course is to initiate nonscience majors in the beauty and complexity of human genetics and the way in which it has an impact on their lives. We also owe a very real debt to the students of MCB 162 at U.C. Davis, since their intellectual curiosity really drove much of our efforts. We are grateful to Kathy Bayer for so many of the illustrations. RSH especially thanks Dr. Julia Richards (an additional voice in Sections IV–VI) for coming to his aid in time of crisis and for vastly improving Section IV and much of the rest of the book as well. Many thanks are also due to Dr. Cheryl Crumpler for being the conscience of several chapters of this book and for her unflagging support, pinch-hitting, and assistance through much of the writing. RSH is also grateful to Joan Esnayra for many helpful comments. Thanks are also due to Dr. Kenneth Burtis for assistance and for convincing RSH to keep going when stopping seemed like a much better plan; to Kara (the wonder student) Koehler, Heather (it's only good if it's RIGHT!) Collins, Soni (it's a small w, not a capital W) Lacefield, Christina ("how can I help?") Boulton, and Sharon ("try to imagine how YOU would feel if YOUR child was affected with . . .") Murphy for reading large portions of the book and helping to improve it; and to Linda Pike, Alison Kirschner, Cheri Harrington, and Louisa West, who were essential during the early stages of composition. I thank them very much. But most of the burden fell upon Ms. Amy Ring. Amy, thank you for collating, correcting, making

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