

PREFACE

FOREWORD

Although the science of genetics has a short history of development as compared to other fundamental sciences, it offers a lot of scope for the betterment of mankind through the application of principles and techniques developed as a result of the patient and arduous work of scores of scientists all over the world. In this book, I have attempted to provide a statement of the contemporary state of knowledge in the field of genetics, in a manner that can best be assimilated by students of the subject.

I became aware of the omissions in genetics textbooks during my teaching of the subject to University of Delhi students. To produce a book which could meet all the needs of students of genetics in Indian universities, thus, became the motivating force behind the writing of this book. The contents of this book cover the courses offered by various science departments at various Indian universities, at both undergraduate and postgraduate levels.

This book covers all areas of genetics, emphasizing current trends of thought and techniques. The subject matter has been treated in the sequence in which discoveries in the science of genetics were made, commencing with Mendelian genetics, covering modern and molecular genetics, and culminating with applied genetics. The subject matter is arranged in 10 parts and 31 chapters. Written in a simple and lucid language, the book contains more than 150 illustrations. A unique feature is the inclusion of about 100 solved numerical problems to make the concepts and principles clear to the reader. More than 500 thought-provoking questions and 200 unsolved problems have been provided at the end of various chapters to enable the reader to review his grasp of the subject and to serve as an aid for a deeper understanding of the subject. The book also includes a comprehensive glossary on the subject, besides containing a list of references and a detailed index.

Much of the contents of this book are the outcome of numerous discussions I have had with my colleagues and students, too numerous to name individually. The participation of some was very definite. Valuable suggestions and comments by Dr R B Mehra, Dr Umrao Singh and Dr Rehana Majid, all of Genetics Division, I.A.R.I., New Delhi, Dr N Prasad of Sri Venkateswara College, University of Delhi, and Dr M S Grewal, Associate Professor, Department of Anatomy, AIIMS, New Delhi, were of positive help and I very much appreciate their contributions. I am highly indebted to my students Harjeet Kaur and Rashmi who took extreme pains to solve, check and recheck all the unsolved problems given in this book. Thanks are also due to Kavita Pavate, Rekha Deshmukh, and Dr Charanjit Guron, all work-

ing in the Human Genetics Laboratory, Department of Anatomy, AIIMS, New Delhi, for rechecking the proofs of numerical problems.

In the task of writing this book, I have freely drawn from the works of many authors and research workers listed in the book, with the trust that no injustice has been done to them through the utilization and interpretation of their work. I acknowledge all of them with gratitude. I have freely consulted the library of I.A.R.I., New Delhi, and I am thankful to its librarians, especially Mrs Asha Bajaj, who were ever so helpful in locating the specific references I needed from time to time. During the extensive reading, study and contacts that preceded this effort, many ideas and expressions were undoubtedly acquired that I unwittingly might have assumed as my own. For any such lapses, I hope to receive understanding pardon.

I cannot express in words the help rendered by my husband Dr S M Sarin, at various stages of preparation of this book. His critical nature, which I do not appreciate most of the time, proved to be extremely valuable in vastly improving the quality and format of the original manuscript of the book, particularly the chapters 'Genetic Code' and 'Genetic Counselling and Genetic Engineering' and the Glossary. In fact, I could not have completed the work but for his assistance, patience and understanding. I also owe my gratitude to my children, Madhur and Badal, who displayed tremendous patience by not disturbing me while I was working on the manuscript.

My final acknowledgement is to my esteemed teacher Dr M S Swaminathan, world renowned geneticist, presently occupying the Chair of Director-General, International Rice Research Institute, Manila, for having agreed to write a foreword to the book. I am extremely grateful to him for the honour.

I completely accept responsibility for any errors and ambiguities that remain after publication. I would appreciate and welcome correspondence in this regard.

C SARIN