Introduction

This volume provides an account of the first major international symposium on Genomic Imprinting which was held under the auspices of the British Society of Developmental Biology in April 1990 at Manchester University. Genomic imprinting is the differential expression of homologous chromosomes, chromosome regions or alleles depending on whether they are inherited from the mother or the father. There is at present considerable interest in this research in terms of the molecular mechanisms involved and the range of consequences of differential activity of parental alleles. It is hoped that the contributions presented in this book will be informative and provocative to many people actively engaged in the research and others interested in this subject.

An extraordinary diversity of genetic phenomena are encompassed under the term 'genomic imprinting'. These range from sex determination and germ cell differentiation, position effect variegation, non-reciprocal phenotypes in plants and animals in interspecific hybrids, yeast mating types, human genetic disorders such as Huntington's disease and certain childhood tumours, asexual reproduction, X-chromosome inactivation and control of development in mammals. All these phenomena depend on epigenetic mechanisms for control of gene expression which operate through modification of the DNA. Some of the chapters deal with the potential mechanisms of imprinting, others focus on their consequences in a variety of systems in plants, insects and animals. Some authors discuss the origins of this elaborate system which exists to control differential expression of parental alleles. This symposium enabled scientists working on disparate systems of imprinting to come together for the first time to assess the many implications of genomic imprinting.

Marilyn Monk and Azim Surani