

CONTENTS

SECTION I	REVIEWS	
Chapter 1	Relationship Between Repair Processes and Mutation Induction in Bacteria R. F. Kimball	1
Chapter 2	Role of Cellular Systems in Modifying the Response to Chemical Mutagens B. Strauss, K. N. Ayres, K. Bose, P. Moore, R. Sklar, and K. Tatsumi	25
Chapter 3	DNA Repair Pathways R. B. Setlow	45
SECTION II	LOWER EUKARYOTES	
	A. <u>Neurospora crassa</u>	
Chapter 4	Mutagen-Sensitive Mutants in Neurospora Alice L. Schroeder and Loree D. Olson . . .	55
Chapter 5	Nucleases and Their Control in Wild-Type and <u>nuh</u> Mutants of Neurospora M. J. Fraser, T. Y.-K. Chow, and K. Käfer .	63
Chapter 6	Mutation-Induction in Repair-Deficient Strains of Neurospora Frederick J. de Serres	75
	B. <u>Saccharomyces cerevisiae</u>	
Chapter 7	Genetic and Physiological Factors Affecting Repair and Mutagenesis in Yeast Jeffrey F. Lemontt	85

Chapter 8	Molecular Mechanism of Pyrimidine Dimer Excision in <u>Saccharomyces cerevisiae</u> . I. Studies with Intact Cells and Cell-Free Systems Richard J. Reynolds and Errol C. Friedberg	121
Chapter 9	Genetic Analysis of Error Prone Repair Systems in <u>Saccharomyces cerevisiae</u> Louise Prakash and Satya Prakash	141
Chapter 10	DNA Repair and Mutagen Interaction in Saccharomyces: Theoretical Considerations R. C. von Borstel and P. J. Hastings	159
Chapter 11	Repair and Mutagenesis in Lower Eukaryotes: A Summary and Perspective Herman E. Brockman	169
SECTION III DROSOPHILA		
Chapter 12	Isolation and Characterization of Repair- Deficient Mutants of <u>Drosophila melanogaster</u> P. Dennis Smith, Ronald D. Snyder, and Ruth L. Dusenbery	175
Chapter 13	Effects of Recombination-Deficient and Repair- Deficient Loci on Meiotic and Mitotic Chromosomes Behavior in <u>Drosophila melanogaster</u> Bruce S. Baker, Maurizio Gatti, Adelaide T. C. Carpenter, Sergio Pimpinelli, and David A. Smith	189
Chapter 14	Biochemical Characterization of Repair-Deficient Mutants of <u>Drosophila</u> James B. Boyd, Paul V. Harris, Christopher J. Osgood, and Karen E. Smith	209
Chapter 15	Mutation Induction in Repair-Deficient Strains of <u>Drosophila</u> F. E. Würgler and U. Graf	223
Chapter 16	Repair and Mutagenesis in <u>Drosophila</u> : A Summary and Perspective M. M. Green	241
SECTION IV MAMMALIAN SOMATIC CELLS		

Chapter 18	Relationship of DNA Repair and Chromosome Aberrations to Potentially Lethal Damage Repair in X-irradiated Mammalian Cells A. J. Fornace, Jr., H. Nagasawa, and J. B. Little	267
Chapter 19	Chromosome Aberration Formation and Sister Chromatid Exchange in Relation to DNA Repair in Human Cells Masao S. Sasaki	285
Chapter 20	*DNA Repair Process Can Alter the Frequency of Mutations Induced in Diploid Human Cells J. Justin McCormick and Veronica M. Maher .	315
Chapter 21	Ultraviolet Light Induction of Diphtheria Toxin-Resistant Mutations in Normal and DNA Repair-Deficient Human and Chinese Hamster Fibroblasts James E. Trosko, Roger S. Schultz, C. C. Chang, and Tom Glover	323
Chapter 22	Mutation Induction in a Radiation-Sensitive Variant of Mammalian Cells Koki Sato	343
Chapter 23	Repair of Human DNA in Molecules that Replicate or Remain Unreplicated Following Ultraviolet Irradiation Raymond Waters	349
Chapter 24	DNA Repair in Nuclei Isolated from HeLa Cells Umberto Bertazzoni, Carmen Attolini, and Miria Stefanini	357
Chapter 25	Repair and Induction of Chromosome Aberrations and Point Mutations in Mammalian Somatic Cells: A Summary and Perspective Sheldon Wolff	367
SECTION V MOUSE GERM CELLS		
Chapter 26	Relationship Between Unscheduled DNA Synthesis and Mutation Induction in Male Mice Gary A. Sega	373
Chapter 27	Radiation- and Drug-Induced DNA Repair in Mammalian Oocytes and Embryos Roger A. Pedersen and Brigitte Brandriff . .	389

Chapter 28	Repair in Fertilized Eggs of Mice and its Role in the Production of Chromosomal Aberrations Walderico M. Generoso	411
Chapter 29	Repair and Mutation Induction in Mouse Germ Cells: A Summary and Some Thoughts Liane B. Russell	421
SECTION VI	RELEVANCE TO HUMAN HEALTH HAZARD ASSESSMENT	
Chapter 30	The Chromosome-Breakage Syndromes: Different Genes, Different Treatments, Different Cancers James German	429
Chapter 31	Summary and Perspective: Relevance to Human Health Hazard Assessment Charles H. Langley	441
CONTRIBUTORS		445
INDEX		451