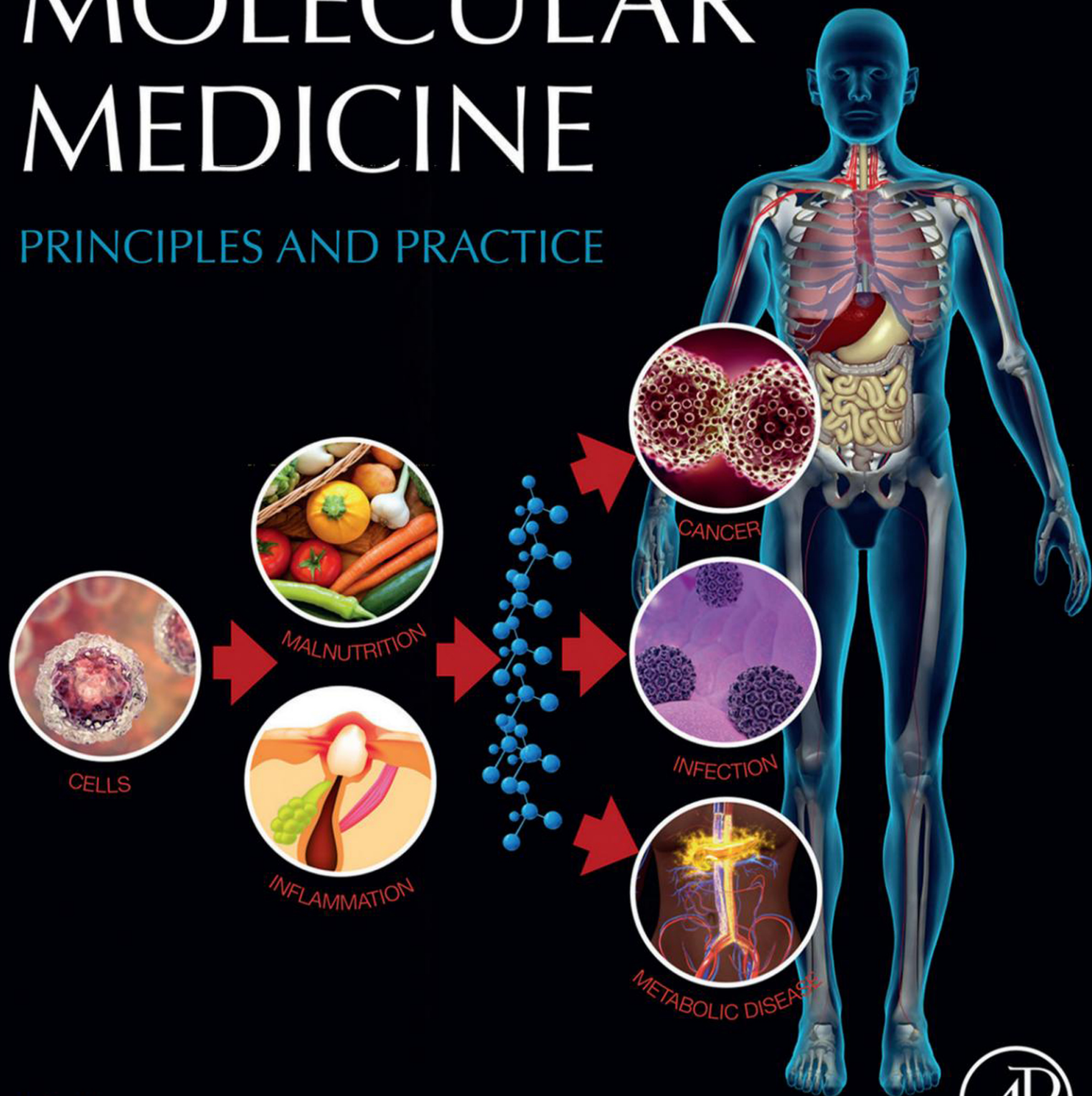


# CLINICAL MOLECULAR MEDICINE

PRINCIPLES AND PRACTICE



Edited by  
Dhavendra Kumar



# CLINICAL MOLECULAR MEDICINE

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# CLINICAL MOLECULAR MEDICINE

## Principles and Practice

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*Edited by*

DHAVENDRA KUMAR

*The William Harvey Research Institute, Barts and The London School of Medicine & Dentistry,  
Queen Mary University of London, London, United Kingdom*



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# Dedication

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Dedicated to The Late Sir David Weatherall (1933–2019) GBE, FRS, DM, FRCP

Emeritus Regius Professor of Medicine, University of Oxford, Oxford,  
United Kingdom

Founder/Director—Weatherall Institute of Molecular Medicine,  
University of Oxford, Oxford, United Kingdom

# Dedication

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To my

Parents showering blessings from the heaven

Wife, Anju, for life-long support, confidence, and sharing my passion for books

Children, Ashish and Jaime, Nikita and Mayank for their goodwill and trusting me

Grand children, Jaya, Arya, Anya, and Krish, for their joyful presence and a reminder of the future

# Contents

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<b>List of contributors</b>	<b>xv</b>		
<b>About the author</b>	<b>xix</b>		
<b>Foreword</b>	<b>xxi</b>		
<b>Preface</b>	<b>xxiii</b>		
<b>Acknowledgement and Disclaimer</b>	<b>xv</b>		
<hr/>			
<b>I</b>			
<b>FUNDAMENTALS OF MOLECULAR MEDICINE</b>			
<b>1. The human genome and molecular medicine</b>	<b>3</b>		
DHA VENDRA KUMAR			
1.1 Introduction	3		
1.2 Hereditary factors: genes, genetics, and genomics	3		
1.3 Human genome variation and human disease	7		
1.4 The mitochondrial genome	10		
1.5 Functional genomics, transcriptomics, and proteomics	12		
1.6 Translational human genomics	14		
1.7 Human genomics for socioeconomic development	14		
1.8 Conclusions	15		
References	15		
<b>2. Cellular structure and molecular cell biology</b>	<b>17</b>		
LUCIANA AMARAL HADDAD			
2.1 Plasma membrane	17		
2.2 Cytoskeleton	21		
2.3 Cell nucleus and gene expression	23		
2.4 Protein synthesis	32		
2.5 Vesicular trafficking: the secretory and endocytic pathways	34		
2.6 Protein turnover and cell size control	38		
2.7 Microtubule-organizing centers and the cell cycle	39		
2.8 Energy production and oxidative stress	42		
2.9 Summary	44		
Bibliography	45		
<b>3. Molecular basis of clinical metabolomics</b>	<b>47</b>		
DIEGO F. GOMEZ-CASATI AND MARÍA V. BUSI			
3.1 Introduction	47		
3.2 Clinical applications of metabolomics	47		
3.3 Techniques used in metabolomics and databases		51	
3.4 Conclusions		52	
Acknowledgments		52	
References		52	
<b>4. Clinical applications of next-generation sequencing</b>		<b>57</b>	
IAN TULLY			
4.1 Introduction		57	
4.2 Next-generation sequencing technologies		58	
4.3 Choice of test		59	
4.4 Whole-genome sequencing		62	
4.5 Summary		62	
4.6 Ethical considerations		62	
4.7 Bioinformatics		65	
4.8 Clinical interpretation of variants		66	
<hr/>			
<b>II</b>			
<b>MOLECULAR MEDICINE IN CLINICAL PRACTICE</b>			
<b>5. Molecular basis of obesity disorders</b>		<b>73</b>	
LOTTE KLEINENDORST AND MIEKE M. VAN HAELST			
5.1 Introduction		73	
5.2 Clinical cases		74	
5.3 Molecular systems underpinning the clinical scenario		77	
5.4 Molecular biology and pathophysiology of obesity		79	
5.5 Targeted molecular diagnosis and therapy		83	
5.6 Summary		86	
References		86	
Guide to further reading: articles		87	
<b>6. Molecular dysmorphology</b>		<b>89</b>	
KOUMUDI GODBOLE			
6.1 Introduction		89	
6.2 Clinical cases and molecular basis		91	
6.3 Molecular diagnosis and therapy		98	
6.4 Conclusion/summary		103	
References		104	

<b>7. Disorders of sex development</b>	<b>107</b>	<b>11. Molecular pathophysiology of systemic hypertension</b>	<b>169</b>
PIERRE SINAJON, SALEH ALBANYAN AND DAVID CHITAYAT		TATIANA GAROFALIDOU AND PATRICIA B. MUNROE	
7.1 Introduction	107	11.1 Introduction	169
7.2 Sex chromosome disorder of sex development	108	11.2 Blood pressure regulation—key systems	169
7.3 46, XY disorders of sexual differentiation	110	11.3 Genetics of hypertension	170
7.4 46, XX disorders of sex development	113	11.4 Monogenic forms of systemic hypertension	171
7.5 Investigations	115	11.5 Familial hyperaldosteronism; type 1—glucocorticoid remediable aldosteronism	181
7.6 Gender assignment	116	11.6 Genetic overlap of monogenic and essential hypertension	183
7.7 Gonadal cancer risk	117	11.7 Clinical implications from genetic studies of hypertension	184
7.8 Conclusion	117	11.8 Future perspectives	184
7.9 Resources Web-based resources	117	Acknowledgments	185
References	117	References	185
<b>8. Molecular systems in cardiovascular developmental disorders</b>	<b>121</b>	<b>12. Molecular basis of stroke</b>	<b>189</b>
ALAN GRAHAM STUART		YOSHIJI YAMADA	
8.1 Introduction	121	12.1 Introduction	189
8.2 Historical overview	121	12.2 Genetics of stroke	189
8.3 Normal development of the heart	121	12.3 Single-gene disorders associated with stroke	189
8.4 Advances in technology	122	12.4 Genetics of common forms of stroke	191
8.5 Chromosomal aneuploidy and structural heart disease	123	12.5 Clinical implication	207
8.6 Single-gene (Mendelian) disorders	124	12.6 Conclusion	207
8.7 The noncoding regulatory genome in congenital heart disease: microRNAs and circular RNAs	126	References	208
8.8 Noncardiac congenital anomalies in congenital heart disease	128	Further reading	216
8.9 The epigenome and congenital heart disease	128	<b>13. Clinical molecular endocrinology</b>	<b>217</b>
8.10 Future considerations	129	ATUL KALHAN	
References	129	13.1 Introduction	217
<b>9. Channelopathies in clinical medicine—cardiac arrhythmias</b>	<b>133</b>	13.2 Congenital hypopituitarism, congenital hypogonadotropic hypogonadism, and pituitary adenoma	217
JULIAN O.M. ORMEROD AND ELIJAH R. BEHR		13.3 Primary hyperparathyroidism and multiple endocrine neoplasia syndromes	222
9.1 Introduction	133	13.4 Chronic hypocalcemia and hypophosphatemia	227
9.2 Clinical cases	133	13.5 Primary hyperaldosteronism	230
9.3 Molecular systems underpinning the clinical scenario	135	13.6 Congenital adrenal hyperplasia, apparent mineralocorticoid excess, and renal tubular defects	233
9.4 Overview of molecular biology and pathophysiology	137	13.7 Pheochromocytoma and paraganglioma	236
9.5 Short QT syndrome	144	13.8 Primary gonadal failure and androgen resistance/insensitivity syndrome	240
9.6 Catecholaminergic polymorphic ventricular tachycardia	145	References	242
9.7 Brugada syndrome	146	<b>14. Genetic disorders of lipoprotein metabolism</b>	<b>245</b>
9.8 Targeted molecular diagnosis and therapy	147	DEEPAK BHATNAGAR, JONATHAN SCHOFIELD AND HANDREAN SORAN	
9.9 Summary	150	14.1 Introduction	245
References	150	14.2 An outline of lipoprotein metabolism	245
<b>10. Chronic heart failure</b>	<b>153</b>	14.3 The environmental and genetic factors affecting lipid metabolism	247
ABBAS ZAIDI AND PARIN SHAH		14.4 Screening for lipoprotein disorders	249
10.1 Introduction	153		
10.2 Epidemiology	153		
10.3 Etiology of heart failure	154		
10.4 Clinical assessment	155		
10.5 Genetic testing	161		
10.6 Management	164		
References	166		



14.5 Diagnosing genetic disorders of lipoprotein metabolism	249	17.6 Human leukocyte antigen—antibody-detection techniques	319
14.6 Common (polygenic) hypercholesterolemia	249	17.7 Human leukocyte antigen and blood transfusion	322
14.7 Familial hypercholesterolemia	252	17.8 Conclusions	323
14.8 Characteristic clinical features of familial hypercholesterolemia	252	References	323
14.9 Screening strategies for familial hypercholesterolemia	255	Further reading	325
14.10 Genetic disorders resulting in hypertriglyceridemia	255	<b>18. Disorders of abnormal hemoglobin</b>	<b>327</b>
14.11 Type 3 hyperlipoproteinemia	256	REENA DAS AND PRASHANT SHARMA	
14.12 Treatment of primary lipoprotein disorders	256	18.1 Introduction	327
14.13 Management of hypercholesterolemia	256	18.2 The hemoglobin molecule: normal structure and function	327
14.14 Agents in development	260	18.3 The classification and genetics of the thalassemias	328
14.15 Management of hypertriglyceridemia	260	18.4 Gene deletions in $\beta$ thalassemia	330
References	260	18.5 Other less common, specific molecular causes of $\beta$ thalassemia	330
Further reading	265	18.6 Laboratory diagnosis of $\beta$ thalassemia	331
<b>15. Molecular medicine of diabetes mellitus</b>	<b>267</b>	18.7 Prevention of $\beta$ thalassemia	331
DHAVENDRA KUMAR		18.8 $\alpha$ Thalassemia	332
15.1 Introduction	267	18.9 Qualitative defects (structural hemoglobin variants and other abnormalities)	334
15.2 Molecular basis of glycemic homeostasis	267	18.10 Summary	337
15.3 Disorders of the glycemic regulation	270	References	337
15.4 Diagnosis of diabetes mellitus	274	Further reading	339
15.5 Overweight, obesity, and diabetes mellitus	276	<b>19. Coagulation and bleeding disorders</b>	<b>341</b>
15.6 Vitamin D and diabetes mellitus	281	INDU SINGH AND RAGHU INDER SINGH	
15.7 Inherited monogenic diabetes mellitus	283	19.1 Introduction	341
15.8 Management of diabetes mellitus	285	19.2 Genetic basis of thrombosis	343
15.9 Summary	286	19.3 Genetic basis of the bleeding disorders	345
References	287	19.4 Structural defects of the vascular system	348
Further reading	288	19.5 Inherited defects of platelets	349
<b>16. Molecular genetic management of epilepsy</b>	<b>289</b>	19.6 Conclusion	349
DAVID LEWIS-SMITH, DONALD P. CRAIG, NAOMI J.P. THOMAS, KHALID HAMANDI AND RHYS H. THOMAS		Conflict of interest	350
16.1 Introduction	289	Author's roles	350
16.2 What are seizures?	289	References	350
16.3 What is epilepsy?	290	<b>20. Molecular and genomic basis of bronchial asthma</b>	<b>353</b>
16.4 Evidence for the genetic basis of epilepsies	291	ANUBHUTI GUPTA, SAMARPANA CHAKRABORTY AND ANURAG AGRAWAL	
16.5 The genetic architecture of epilepsies	292	20.1 Introduction	353
16.6 Mitochondrial epilepsies	298	20.2 Genomics of bronchial asthma	353
16.7 Progressive myoclonic epilepsies	299	20.3 Genetic and genomic studies in bronchial asthma	354
16.8 Pharmacogenetics of epilepsy	299	20.4 Management and treatment of bronchial asthma	363
16.9 Molecular genetic testing strategies for epilepsy	300	20.5 Conclusion	363
16.10 Summary	304	References	364
References	304	<b>21. Molecular systems in inflammatory bowel disease</b>	<b>367</b>
<b>17. The human leukocyte antigen system in human disease and transplantation medicine</b>	<b>309</b>	SAAD PATHAN	
GAURAV SHARMA, AJAY KUMAR BARANWAL AND NARINDER KUMAR MEHRA		21.1 Introduction	367
17.1 Introduction	309	21.2 Complex clinical predisposition with complex complications	367
17.2 Human leukocyte antigen system	310		
17.3 Human leukocyte antigen and disease	312		
17.4 Human leukocyte antigen expression: an explanation for disease development	314		
17.5 Human leukocyte antigen and organ transplantation	317		

21.3 The identification of the <i>NOD2</i> gene	374	24. Molecular mechanisms in cancer	
21.4 <i>NOD2</i> and innate immunity	375	susceptibility—lessons from inherited cancers	423
21.5 Major histocompatibility complex (6p21)	377	SHIRLEY V. HODGSON	
21.6 The causative genome variants and functional implications	378	24.1 Introduction	423
21.7 Autophagy	379	24.2 Inherited and familial cancer	423
21.8 Adaptive immune system	379	24.3 Oncogenes and tumor suppressor genes	424
21.9 Mucosal barrier function	379	24.4 DNA repair genes	424
21.10 The parallels and paradoxes with other diseases	380	24.5 Cancer family syndromes	425
21.11 Clinical implications and translation	380	24.6 Genetic imprinting and cancer	426
21.12 Conclusion	381	24.7 Complex cancer genomics	427
References	381	24.8 Inherited susceptibility to leukemia	427
Further reading	388	24.9 Tumor markers in circulating blood	430
		24.10 Genetic counseling for inherited cancer susceptibility	430
22. Molecular biology of acute and chronic inflammation	389	24.11 Diagnostic and predictive genetic testing for cancer	431
DHAVENDRA KUMAR		References	434
22.1 Introduction	389	Further reading	436
22.2 Molecular pathology of acute inflammation (sepsis and trauma)	390	25. Clinical molecular nephrology—acute kidney injury and chronic kidney disease	437
22.3 Molecular pathology of chronic inflammation	391	SHIVARAM HEGDE	
22.4 Age-associated chronic inflammation	392	25.1 Introduction	437
22.5 Molecular diagnosis and treatment of chronic inflammatory diseases	394	25.2 Acute kidney injury	437
22.6 Summary	400	25.3 Chronic kidney disease	438
Acknowledgments and disclaimer	401	25.4 Clinical renal genomic medicine	440
References	401	25.5 Molecular basis of kidney transplantation	442
		25.6 Conclusion	442
23. Molecular basis of susceptibility and protection from microbial infections	403	References	443
RASHID MERCHANT, PEZAD DOCTOR AND AMI VARAIYA		26. Molecular basis of chronic neurodegeneration	447
23.1 Introduction	403	MEGHA AGRAWAL	
23.2 Understanding host genetic variation of susceptibility to infectious disease	404	26.1 Introduction	447
23.3 Clinical relevance of human leukocyte antigen gene variants in HBV infection	405	26.2 Neurodegenerative disease clinical case studies and molecular systems underpinning the clinical scenario	448
23.4 Human leukocyte antigen gene variants and susceptibility and persistence of HBV infection	406	26.3 Molecular pathology of neurodegenerative diseases	453
23.5 Immunogenetics and microbial infection	407	26.4 Application of molecular diagnostics in neurodegeneration	456
23.6 Host genetic susceptibility to human papillomavirus infection and development of cervical cancer	408	26.5 Summary	458
23.7 Host genetics of Epstein–Barr infection	409	References	459
23.8 Dengue viral infection	410	27. Molecular basis of movement disorders	461
23.9 Genetic susceptibility of humans to hantavirus infection	411	CLAIRE MacIVER, DAFYDD MORGAN AND KATHRYN J. PEALL	
23.10 Host factors and genetic susceptibility to intracellular bacteria	412	27.1 Introduction	461
23.11 Host genetic susceptibility and protection from fungal infections	415	27.2 Parkinson's disease	461
23.12 Malaria	417	27.3 Dystonia	464
23.13 Genetics of susceptibility to enteral pathogens	419	27.4 Ataxia	472
23.14 Conclusion	420	27.5 Ataxia: key learning points	480
References	420	27.6 Other movement disorders	480
		27.7 Conclusion	483
		References	483

28. Molecular pathology in neuropsychiatric disorders	487	31. Personalizing medicine with pharmacogenetics and pharmacogenomics	521
GEORGE KIROV AND ELLIOTT REES		N.J. GOGTAY, U.M. THATTE, R. RAVI AND D. BOSE	
28.1 Introduction	487	31.1 Introduction and historical perspective	521
28.2 Copy number variation in psychiatric disorders	487	31.2 The Human Genome Project	522
28.3 Cognitive function among copy number variation carriers	489	31.3 The introduction of the field of personalized medicine/precision medicine	523
28.4 Penetrance of copy number variations	489	31.4 Genetic and molecular basis of the individual drug-response variation	523
28.5 Results from genome-wide association studies	490	31.5 Tailoring or individualizing drug therapy—select examples of application of pharmacogenomics in clinical practice	526
28.6 High-throughput sequencing studies	492	31.6 Validation of genetic/genomic information for drug response	528
28.7 Pathway analysis	493	31.7 Clinical implementation of pharmacogenetics and pharmacogenomic information	528
28.8 Conclusions	493	31.8 Clinical pharmacogenetics implementation consortium—helping clinicians understand and apply pharmacogenetic information in practice	530
References	494	31.9 Pharmacogenomics and drug development—novel study designs in precision medicine	531
29. Targeted molecular therapy: the cancer paradigm	497	31.10 Ethical issues in genomic medicine	532
DYFUD MARK DAVIES		31.11 Resources to collect and curate pharmacogenetic variants	532
29.1 Introduction	497	31.12 The future of pharmacogenetics, pharmacogenomics, and personalized medicine	533
29.2 Oncogene addiction	497	References	533
29.3 Synthetic lethality	499	Further reading	534
29.4 Histology agnostic treatment	499		
29.5 Limitations of molecularly targeted therapy in cancer	500		
29.6 Making common cancer rare	501		
29.7 Conclusion	501		
References	502		
30. Gene, genome, and molecular therapeutics	505	32. Integrated genomic and molecular medicine	535
DHAVENDRA KUMAR		DHAVENDRA KUMAR	
30.1 Introduction	505	32.1 Introduction	535
30.2 Recombinant protein drugs and vaccines	505	32.2 Genetic, genomic, and molecular revolutions in medicine	535
30.3 Stem-cell therapy	509	32.3 Evidence-based, precision, and personalized medicine	537
30.4 Gene therapy	510	32.4 The stratified medicine	539
30.5 Antisense oligonucleotides	512	32.5 Integrated genomic and molecular medicine	541
30.6 Ribozymes	513	32.6 Summary	541
30.7 RNA interference	514	References	543
30.8 Aptamers	515		
30.9 Gene and genome editing	516	<b>Glossary—molecular medicine</b>	<b>545</b>
30.10 Summary	519	<b>Index</b>	<b>555</b>
Disclaimer and acknowledgments	519		
References	520		

# List of contributors

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- Anurag Agrawal** CSIR Institute of Genomics and Integrative Biology, Delhi, India; Academy of Scientific and Innovative Research, Delhi, India; Baylor College of Medicine, Houston, Texas, United States
- Megha Agrawal** Department of Bioengineering, University of Illinois at Chicago, Chicago, IL, United States; USA Prime Biotech LLC & Biotechnology, Kiosk Florida, United States
- Saleh AlBanyan** Division of Clinical and Metabolic Genetics, Department of Pediatrics, The Hospital for Sick Children, University of Toronto, Toronto, ON, Canada
- Ajay Kumar Baranwal** Command Hospital - Armed Forces Medical College, Pune, India
- Elijah R. Behr** Department of Cardiovascular Medicine, St. George's Hospital Medical School, London, United Kingdom
- Deepak Bhatnagar** Cardiovascular Research Group, Division of Diabetes, Endocrinology & Gastroenterology, School of Medical Sciences, Faculty of Biology, Medicine and Health, University of Manchester, Manchester Academic Health Science Centre, Manchester, United Kingdom
- D. Bose** Department of Clinical Pharmacology, Seth GS Medical College and KEM Hospital, Mumbai, India
- María V. Busi** Centre for Photosynthetic and Biochemical Studies (CEFOBI-CONICET), National University of Rosario, Argentina
- Samarpana Chakraborty** CSIR Institute of Genomics and Integrative Biology, Delhi, India
- David Chitayat** The Prenatal Diagnosis and Medical Genetics Program, Department of Obstetrics and Gynecology, Mount Sinai Hospital, University of Toronto, Toronto, ON, Canada; Division of Clinical and Metabolic Genetics, Department of Pediatrics, The Hospital for Sick Children, University of Toronto, Toronto, ON, Canada
- Donald P. Craig** Department of Neurology, Royal Victoria Infirmary, Newcastle University, Newcastle-Upon-Tyne, United Kingdom
- Reena Das** Department of Hematology, Postgraduate Institute of Medical Education and Research, Chandigarh, India
- Dyfed Mark Davies** Department of Oncology, Singleton Hospital, Swansea, Wales, United Kingdom; Division of Cancer & Genetics, Institute of Medical Genetics, Cardiff University, Cardiff, United Kingdom
- Pezad Doctor** Department of Pediatrics, Nanavati Super Speciality Hospital, Mumbai, India
- Tatiana Garofalidou** William Harvey Research Institute, Barts and The London School of Medicine and Dentistry, Queen Mary University of London, London, United Kingdom
- Koumudi Godbole** Clinical Geneticist, Department of Genetics, Deenanath Mangeshkar Hospital and Research Center, Pune, India
- N.J. Gogtay** Department of Clinical Pharmacology, Seth GS Medical College and KEM Hospital, Mumbai, India
- Diego F. Gomez-Casati** Centre for Photosynthetic and Biochemical Studies (CEFOBI-CONICET), National University of Rosario, Argentina
- Anubhuti Gupta** CSIR Institute of Genomics and Integrative Biology, Delhi, India
- Luciana Amaral Haddad** Department of Genetics and Evolutionary Biology, Institute of Biosciences, University of São Paulo, São Paulo, Brazil
- Khalid Hamandi** Cardiff University Brain Research Imaging Centre, Cardiff University, Cardiff, United Kingdom; Department of Neurology, University Hospital of Wales, Cardiff, United Kingdom
- Shivaram Hegde** Children Kidney Centre, University Hospital of Wales, Cardiff, United Kingdom
- Shirley V. Hodgson** Cancer Genetics, Department of Clinical Genetics, St. George's University of London, London, United Kingdom; Cancer Genetics Consultant, Leicester Royal Infirmary, Leicester, United Kingdom

- Atul Kalhan** Diabetes & Endocrinology, Royal Glamorgan Hospital, Llantrisant, United Kingdom
- George Kirov** Neuropsychiatric Genetics and Genomics, Cardiff University, Cardiff, United Kingdom
- Lotte Kleinendorst** Department of Clinical Genetics, Amsterdam University Medical Centers, Amsterdam, The Netherlands
- Dhavendra Kumar** Institute of Medical Genetics, University Hospital of Wales, Cardiff, United Kingdom; Genomic Policy Unit, University of South Wales, Pontypridd, United Kingdom; William Harvey Research Institute, Queen Mary University of London, London, United Kingdom
- David Lewis-Smith** Department of Neurology, Royal Victoria Infirmary, Newcastle University, Newcastle-Upon-Tyne, United Kingdom; Institute of Neuroscience, Newcastle University, Newcastle-Upon-Tyne, United Kingdom
- Claire MacIver** MRC Neuropsychiatric Genomics Institute, Cardiff University, Cardiff, United Kingdom
- Narinder Kumar Mehra** National Chair and Former Dean (Research), All India Institute of Medical Sciences, New Delhi, India
- Rashid Merchant** Department of Pediatrics, Nanavati Super Speciality Hospital, Mumbai, India
- Dafydd Morgan** MRC Neuropsychiatric Genomics Institute, Cardiff University, Cardiff, United Kingdom
- Patricia B. Munroe** William Harvey Research Institute, Barts and The London School of Medicine and Dentistry, Queen Mary University of London, London, United Kingdom; National Institutes for Health Research, Barts Cardiovascular Biomedical Research Centre, Queen Mary University of London, London, United Kingdom
- Julian O.M. Ormerod** Department of Cardiology, Milton Keynes General Hospital, Milton Keynes, United Kingdom; Department of Cardiovascular Medicine, University of Oxford, United Kingdom
- Saad Pathan** University of Cambridge Metabolic Research Laboratories/NIHR Cambridge Biomedical Research Centre, Wellcome Trust-MRC Institute of Metabolic Science, Addenbrooke's Hospital, Cambridge, United Kingdom
- Kathryn J. Peall** MRC Neuropsychiatric Genomics Institute, Cardiff University, Cardiff, United Kingdom
- R. Ravi** Department of Clinical Pharmacology, Seth GS Medical College and KEM Hospital, Mumbai, India
- Elliott Rees** Neuropsychiatric Genetics and Genomics, Cardiff University, Cardiff, United Kingdom
- Jonathan Schofield** Cardiovascular Research Group, Division of Diabetes, Endocrinology & Gastroenterology, School of Medical Sciences, Faculty of Biology, Medicine and Health, University of Manchester, Manchester Academic Health Science Centre, Manchester, United Kingdom; Manchester Diabetes Centre, Manchester Royal Infirmary, Manchester University Hospitals NHS Foundation Trust, Manchester, United Kingdom
- Parin Shah** Department of Cardiology, University Hospital of Wales, Cardiff, United Kingdom
- Gaurav Sharma** Department of Translational and Regenerative Medicine, Postgraduate Institute of Medical Education and Research, Chandigarh, India
- Prashant Sharma** Department of Hematology, Postgraduate Institute of Medical Education and Research, Chandigarh, India
- Pierre Sinajon** The Prenatal Diagnosis and Medical Genetics Program, Department of Obstetrics and Gynecology, Mount Sinai Hospital, University of Toronto, Toronto, ON, Canada; Department of Pediatrics, Division of Genetics, University of Rochester Medical Center, NY, United States; Division of Clinical and Metabolic Genetics, Department of Pediatrics, The Hospital for Sick Children, University of Toronto, Toronto, ON, Canada
- Indu Singh** School of Medical Science, Griffith University, Southport, QLD, Australia
- Raghu Inder Singh** RP WELLTAR Hospital, Bastara, Karnal, India
- Handrean Soran** Cardiovascular Research Group, Division of Diabetes, Endocrinology & Gastroenterology, School of Medical Sciences, Faculty of Biology, Medicine and Health, University of Manchester, Manchester Academic Health Science Centre, Manchester, United Kingdom
- Alan Graham Stuart** Honorary Associate Professor of Sports and exercise Cardiology, University of Bristol, Bristol, United Kingdom; Consultant Cardiologist, Bristol Heart Institute, Bristol, United Kingdom
- U.M. Thatte** Department of Clinical Pharmacology, Seth GS Medical College and KEM Hospital, Mumbai, India
- Naomi J.P. Thomas** Wellcome Trust Centre for Mitochondrial Research, Newcastle University, Newcastle-Upon-Tyne, United Kingdom
- Rhys H. Thomas** Department of Neurology, Royal Victoria Infirmary, Newcastle University, Newcastle-Upon-Tyne, United Kingdom; Institute of Neuroscience, Newcastle University, Newcastle-Upon-Tyne, United Kingdom; Wellcome Trust Centre for Mitochondrial Research, Newcastle University, Newcastle-Upon-Tyne, United Kingdom

- IAN Tully** Institute of Medical Genetics, Division of Cancer & Genetics, University Hospital of Wales, Cardiff, United Kingdom
- Mieke M. van Haelst** Department of Clinical Genetics, Amsterdam University Medical Centers, Amsterdam, The Netherlands
- Ami Varaiya** Department of Microbiology, Nanavati Super Speciality Hospital, Mumbai, India
- Yoshiji Yamada** Department of Human Functional Genomics, Advanced Science Research Promotion Center, Mie University, Tsu, Mie, Japan
- Abbas Zaidi** Department of Cardiology, University Hospital of Wales, Cardiff, United Kingdom

# About the author

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Professor Dhavendra Kumar is an accredited clinical geneticist (United States and United Kingdom) with special interests in clinical dysmorphology (congenital malformation syndromes), clinical cardiovascular genetics (inherited conditions of heart and blood vessels), genomic and molecular medicine (precision and personalized medicine), and genomic applications in integrated health care.



He has coauthored/edited “Genetic disorders of the Indian Subcontinent,” 2004; “Genomics and Clinical Medicine,” Oxford, 2008; “Principles and Practice of Clinical Cardiovascular Genetics,” Oxford, 2010; “Oxford Specialist Handbook on Inherited Cardiac Disease,” Oxford, 2011; “Genomics and Health in the Developing World,” Oxford, 2012; “Genomic Medicine: Principles and Practice,” Oxford, 2014; “Genomics and Society,” Elsevier Cambridge (USA), 2015; “Medical Health Genomics,” Elsevier Cambridge (USA), 2016; and “Cardiovascular Genetics and Genomics: Principles and Clinical Practice,” Springer Nature, 2018. In addition, he founded and served as the Serial Editor for “Genomic and Molecular Medicine” monographs series, Morgan Claypool, 2011–18, and currently leads the multivolume series “Clinical Genomic and Precision Medicine” of Springer Nature. He is the founding Editor-in-Chief for the new genomics biomedical publications—*Genomic Medicine* (Springer-Kluwer), *Applied and Translational Genomics* (Elsevier), *Current Trends in Genomic Medicine* (Genomic Medicine Foundation, UK), and *Genomic and Molecular Cardiology* (Genomic Medicine Foundation, UK).

He founded and leads the “Genomic Medicine Foundation UK” for promoting fellowship and scholarship in genomic medicine and health care. The key initiatives of the foundation include the “Global Familial Heart Challenge (GFHC),” “Global Consortium for Genomic Education (GC4GE),” the “UK India Genomic Medicine Alliance (UKIGMA),” and the *Indo-UK Genetic Education Forum*.

**Professor Dhavendra Kumar, MBBS, MD, DCH, M.Med.Sci.,  
FRCPI, FRCP, FRCPCH, FACMG, D.Sc**

*Honorary Clinical Professor, William Harvey Research Institute, Barts and London School of Medicine and Dentistry, Queen Mary University of London, London, United Kingdom; Honorary Consultant in Cardiovascular Genetics, Inherited Heart Diseases Unit, Bart’s Heart Centre, St. Bartholomew Hospital, London, United Kingdom; Visiting Professor, The Genomic Policy Unit, Faculty of Life Sciences and Education, The University of South Wales, Pontypridd, Wales, United Kingdom*