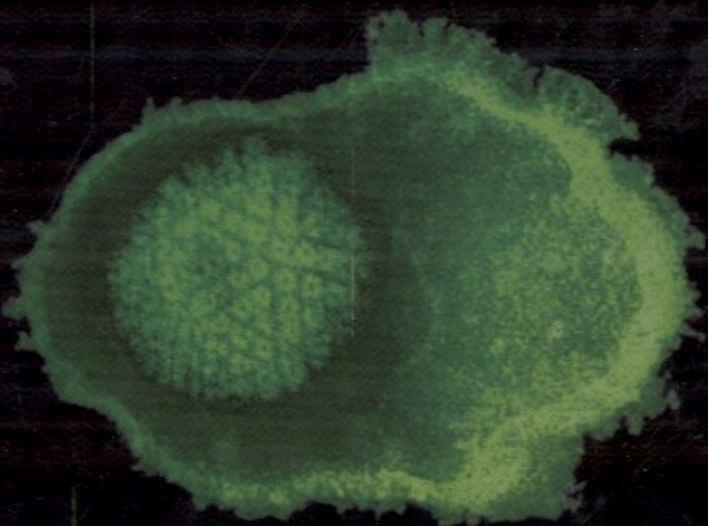


10TH EDITION

TOPLEY
& WILSON'S

MICROBIOLOGY & MICROBIAL INFECTIONS



VIROLOGY

VOLUME 2

EDITED BY

BRIAN W.J. MAHY
& VOLKER TER MEULEN

Contents

	List of contributors	vii
	Preface	xv
	List of abbreviations	xvii
PART I	GENERAL CHARACTERISTICS OF VIRUSES	1
1	A short history of research on viruses Leslie Collier	3
2	The origin and evolution of viruses Esteban Domingo and John J. Holland	11
3	The nature and classification of viruses Marc H.V. Van Regenmortel	24
4	The classification of vertebrate viruses Craig R. Pringle	38
5	The morphology and structure of viruses Rob W.H. Ruigrok, Guy Schoehn, and James F. Conway	57
6	Propagation and identification of viruses Dean D. Erdman	86
7	The replication of viruses David J. Rowlands	105
8	Negative-strand RNA virus replication Richard M. Elliott	127
9	Positive-strand RNA virus replication in vertebrate hosts Jo Ellen Brunner and Bert L. Semler	135
10	DNA virus replication Sandra K. Weller	147
11	Genetics of vertebrate viruses Craig R. Pringle	174
12	Virus–host cell interactions L. Andrew Ball	202
13	Pathogenesis of viral infections Neal Nathanson and Kenneth L. Tyler	236
14	The immune response to viral infections Anthony A. Nash and Bernadette M. Dutia	270
15	The role of cytokines in viral infections Paula M. Pitha and Myriam S. Künzi	292
16	Viral evasion of the host immune response Antonio Alcami	311
17	Viral oncogenicity James C. Neil and John A. Wyke	330
18	The epidemiology of viral infections Arnold S. Monto	353
19	The order <i>Mononegavirales</i> Andrew J. Easton and Craig R. Pringle	378
20	The order <i>Nidovirales</i> Eric J. Snijder, Stuart G. Siddell, and Alexander E. Gorbalenya	390
PART II	SPECIFIC VIRUSES AND VIRAL INFECTION	405
21	Parvoviruses Peter Tattersall and Susan F. Cotmore	407
22	Adenoviruses Willie Russell	439
23	Papillomaviruses Margaret Stanley and Mark Pett	448
24	Polyomaviruses Jessica Otte, Mahmut Safak, and Kamel Khalili	473
25	Herpesviruses: general properties Andrew J. Davison and J. Barklie Clements	488
26	Alphaherpesviruses: herpes simplex and varicella-zoster Anthony C. Minson	506
27	Betaherpesviruses: cytomegalovirus, human herpesviruses 6 and 7 William J. Britt	520
28	Human herpesvirus 8 Bernhard Fleckenstein and Frank Neipel	541
29	Gammaherpesviruses: Epstein–Barr virus M. Anthony Epstein and Dorothy H. Crawford	559
30	Poxviruses Geoffrey L. Smith	578
31	Poxvirus replication Richard C. Condit and Richard W. Moyer	594
32	Orthomyxoviruses: influenza Nancy J. Cox, Gabriele Neumann, Ruben O. Donis, and Yoshihiro Kawaoka	634
33	General properties of the paramyxoviruses Paul A. Rota, Bettina Bankamp, and William J. Bellini	699

34	Morbilliviruses: measles virus	Sibylle Schneider-Schaulies and William J. Bellini	712
35	Rubulavirus: mumps virus	Wendy A. Knowles and Li Jin	744
36	Respiroviruses: parainfluenza virus	Richard W. Peluso and Anne Moscona	763
37	Pneumovirus and Metapneumovirus: respiratory syncytial virus and human metapneumovirus	Ralph A. Tripp	783
38	Paramyxoviruses of animals	Paul A. Rota and Thomas Barrett	807
39	Coronaviruses, toroviruses, and arteriviruses	Stuart G. Siddell, John Ziebuhr, and Eric J. Snijder	823
40	Picornaviruses	Philip Minor	857
41	Human enteric RNA viruses: astroviruses	Michael J. Carter and Margaret M. Willcocks	888
42	Human enteric RNA viruses: Noroviruses and Sapoviruses	Ian N. Clarke and Paul R. Lambden	911
43	Reoviruses, orbiviruses, and coltivirus	Terence S. Dermody and Ulrich Desselberger	932
44	Rotaviruses	Ulrich Desselberger, Jim Gray, and Mary K. Estes	946
45	Rubella	Jennifer M. Best, Samantha Cooray, and Jangu E. Banatvala	959
46	Flaviviruses	John T. Roehrig and Duane J. Gubler	993
47	Togaviruses	Scott C. Weaver and Ilya V. Frolov	1010
48	Bunyaviridae	Alan D.T. Barrett and Robert E. Shope	1025
49	Arenaviruses	Maria S. Salvato and Juan D. Rodas	1059
50	Filoviruses	Heinz Feldmann and Hans-Dieter Klenk	1085
51	Rhabdoviruses: rabies	Noël Tordo, Pierre-Emmanuel Ceccaldi, Yves Gaudin, and Alex I. Wandeler	1102
52	Borna disease virus	Thomas Briese, Mady Hornig, and W. Ian Lipkin	1137
53	Hepatitis A and E	Betty Robertson	1160
54	Hepatitis C virus	Peter Simmonds and David Mutimer	1189
55	Hepatitis B	Wolfram H. Gerlich and Michael Kann	1226
56	Hepatitis delta virus	John M. Taylor	1269
57	TT virus and other anelloviruses	Mauro Bendinelli and Fabrizio Maggi	1276
58	Retroviruses and associated diseases in humans	Charlene S. Dezzutti, Walid Heneine, Roumiana S. Boneva, and Thomas M. Folks	1284
59	Foamy viruses	Axel Rethwilm	1304
60	Human immunodeficiency virus	Ulrich Schubert and Myra McClure	1322
61	Prions of humans and animals	Adriano Aguzzi	1346
PART III SYNDROMES CAUSED BY A RANGE OF VIRUSES			1401
62	Infections of the central nervous system	Jürgen Schneider-Schaulies, Sibylle Schneider-Schaulies, and Volker ter Meulen	1403
63	Viral infections of the fetus and neonate, other than rubella	Gisela Enders	1443
64	Virus infections in immunocompromised patients	Anthony Simmons	1498
PART IV PRINCIPLES OF DIAGNOSIS AND CONTROL			1513
65	Safety in the virology laboratory	Graham Lloyd and Michael P. Kiley	1515
66	The laboratory diagnosis of viral infections	Steven Specter and Mauro Bendinelli	1532
67	Immunoprophylaxis of viral diseases	Stephen C. Hadler and Jane F. Seward	1551
68	Viral vectors for gene therapy	R. Michael Linden and Kenneth I. Berns	1590
69	Antiviral chemotherapy	Hugh J. Field and Richard J. Whitley	1605
70	The emergence and re-emergence of viral diseases	Brian W.J. Mahy and Frederick A. Murphy	1646
Index			1671
Table of contents for all volumes in the series			1759

Please note: Chapter names shown in gray can be found in Virology Volume 1