
Contents

<i>Preface</i>	<i>ix</i>
<i>Contributors</i>	<i>xv</i>
PART I MAPPING THE HIV LIFE CYCLE	
1 Virion Attachment and Entry: HIV gp120 Env Biotinylation, gp120 Env, or Integrin Ligand-Binding Assay	3
<i>Claudia Cicala and James Arthos</i>	
2 CryoEM Analysis of Capsid Assembly and Structural Changes Upon Interactions with a Host Restriction Factor, TRIM5 α	13
<i>Gongpu Zhao and Peijun Zhang</i>	
3 The Fate of HIV-1 Capsid: A Biochemical Assay for HIV-1 Uncoating.....	29
<i>Yang Yang, Jeremy Luban, and Felipe Diaz-Griffero</i>	
4 The Cyclosporin A Washout Assay to Detect HIV-1 Uncoating in Infected Cells.....	37
<i>Amy E. Hulme and Thomas J. Hope</i>	
5 Imaging HIV-1 Nuclear Pre-integration Complexes.....	47
<i>Anna Cereseto and Mauro Giacca</i>	
6 HIV-1 Reverse Transcription.....	55
<i>Andrea Cimorelli and Jean-Luc Darlix</i>	
7 RNase H: Specificity, Mechanisms of Action, and Antiviral Target	71
<i>Karin Moelling, Felix Broecker, and John E. Kerrigan</i>	
8 HIV-1 Chromatin, Transcription, and the Regulatory Protein Tat.....	85
<i>Laurence Colin, Eric Verdin, and Carine Van Lint</i>	
9 HIV-1 Rev Function and RNA Nuclear-Cytoplasmic Export	103
<i>Alan Cochrane</i>	
10 HIV-1 Accessory Proteins: Nef	115
<i>Anke Heigele, Daniel Sauter, Jan Münch, and Frank Kirchhoff</i>	
11 HIV-1 Accessory Proteins: VpR.....	125
<i>Richard Y. Zhao and Michael I. Bukrinsky</i>	
12 HIV-1 Accessory Proteins: Vpu and Vif	135
<i>Amy Andrew and Klaus Strebel</i>	
13 SIV _{SM} /HIV-2 Vpx Proteins: Function and Uses in the Infection of Primary Myeloid Cells.....	159
<i>Gregory Berger and Andrea Cimorelli</i>	

14	Imaging of HIV Assembly and Release	167
	<i>Barbara Müller and Jacomine Krijnse-Locker</i>	
PART II ISOLATION, CO-RECEPTOR USE, AND CELL TROPISM OF HIV-1		
15	HIV-1 Isolation from Infected Peripheral Blood Mononuclear Cells.....	187
	<i>Stefania Dispinseri, Elisa Saba, Elisa Vicenzi, Neeltje A. Kootstra, Hanneke Schuitemaker, and Gabriella Scarlatti</i>	
16	Determination of HIV-1 Co-receptor Usage	197
	<i>Mariangela Cavarelli and Gabriella Scarlatti</i>	
17	The Macrophage and HIV: Basic Concepts and Methodologies.....	207
	<i>Suzanne Gartner</i>	
18	HIV Infection of Dendritic Cells.....	221
	<i>Najla Nasr, Andrew Harman, Stuart Turville, and Anthony L. Cunningham</i>	
19	Histocultures (Tissue Explants) in Human Retrovirology.....	233
	<i>Anush Arakelyan, Wendy Fitzgerald, Jean-Charles Grivel, Christophe Vanpouille, and Leonid Margolis</i>	
PART III IN VIVO QUANTIFICATION OF HIV-1		
20	Single-Copy Quantification of HIV-1 in Clinical Samples.	251
	<i>Ann Wiegand and Frank Maldarelli</i>	
21	Quantification of Total HIV1-DNA in Peripheral Blood Mononuclear Cells.....	261
	<i>Christine Rouzioux, Adeline Mélard, and Véronique Avéttand-Fénoël</i>	
PART IV BIOTECHNOLOGICAL ASPECTS OF HIV-1		
22	HIV-1-Based Lentiviral Vectors.....	273
	<i>Ying Poi Liu and Ben Berkhout</i>	
23	Quantification of miRNA by Poly(A)-RT-qPCR Arrays and Verification of Target Sites in HIV-1 Using a One-LTR Infectious Molecular Clone	285
	<i>Zachary A. Klase, Laurent Houzet, and Kuan-Teh Jeang</i>	
PART V HTLVs		
24	Investigating Human T Cell Lymphotropic Retrovirus (HTLV) Tax Function with Molecular and Immunophenotypic Techniques	299
	<i>Greta Forlani, Roberto S. Accolla, and Giovanna Tosi</i>	
25	Proviral Load Determination of HTLV-1 and HTLV-2	

in Patients' Peripheral Blood Mononuclear Cells by Real-Time PCR	315
<i>Claudio Casoli, Elisabetta Pilotti, and Umberto Bertazzoni</i>	
26 Quantitative Analysis of Human T-Lymphotropic Virus Type 1 (HTLV-1) Gene Expression Using Nucleo-Cytoplasmic Fractionation and Splice Junction-Specific Real-Time RT-PCR (qRT-PCR)	325
<i>Ilaria Cavallari, Francesca Rende, and Vincenzo Ciminale</i>	
<i>Index</i>	339

Human Retroviruses

Methods and Protocols

Vicenzi, E.; Poli, G. (Eds.)

2014, XVIII, 345 p. 62 illus., 38 illus. in color., Hardcover

ISBN: 978-1-62703-669-6

A product of Humana Press