

Contents

1 Principles of Gene Therapy	1
Injection of Naked DNA	2
Nonviral Gene Transfer (Transfection) Methods	3
Viral Gene Transfer (Transduction) Methods	4
Retroviruses	5
Other Viruses	7
2 History of Gene Therapy	9
3 Principles of HIV Gene Therapy	17
4 Gene Therapy Vectors	27
Lentiviral Vectors	28
Other Modifications and Additions	30
Anti-HIV Genes	30
RNA Strategies	32
Vector Production	32
5 Stem Cells for HIV Gene Therapy	35
Pluripotent Stem Cells	38
6 Animal Models Used in HIV Gene Therapy	41
Murine Models	41
HIV Infections in Humanized Mice	44
Nonhuman Primates	46
7 Manufacturing of a GMP Grade Product for HIV Gene Therapy	49

8 Clinical Applications of HIV Gene Therapy..... 55
Clinical Trials of T Cell Gene Therapy..... 56
Stem Cell Gene Therapy Clinical Trials for HIV..... 58

9 Is a Cure for HIV Possible?..... 63

References 67

Gene Therapy for HIV

From Inception to a Possible Cure

Bauer, G.; Anderson, J.S.

2014, VIII, 72 p. 3 illus. in color., Softcover

ISBN: 978-1-4939-0433-4