

— *from* —

ALCHEMY

to

I P O

The Business of Biotechnology

CYNTHIA ROBBINS-ROTH, PH.D.

PERSEUS PUBLISHING

Cambridge, Massachusetts

CONTENTS

<i>Preface</i>	ix
<i>Acknowledgments</i>	xiii

PART ONE: THE ROOTS OF BIOTECHNOLOGY

1 Biotech in the Beginning	3
2 Genentech: The Leader of the Pack	13
3 The Amgen Story	31
4 An Exception to Every Rule: Genzyme	43
5 The Other Biotech: Monoclonal Antibodies	48

PART TWO: BIOTECH'S BUILDING BLOCKS

6 Biotech Star Wars	59
7 The Human Genome Project	67
8 Tools for Genome Studies: BioChips and Microarrays	73
9 Treating Disease at the Gene: Antisense Drugs	82
10 Gene Therapy	85

11	Following the Path of Communication: Signal Transduction	89
12	Brand-New Knees: Tissue Engineering and Cell Replacement	92
13	Building New Drugs: Combinatorial Chemistry	97
14	Agricultural Biotechnology	105

PART THREE:
THE BUSINESS OF BIOTECH:
PRODUCT DEVELOPMENT AND FINANCING

15	The Drug Development Process: From Test Tubes to Patients	111
16	Speed Bumps and Brick Walls: Clinical Trial Design	124
17	Biotech Bankers	131
18	Initial Public Offerings	146
19	Creative Financing	155
20	Corporate Partners and the Urge to Merge	161

PART FOUR:
BIOTECH STOCKS

21	The Biotech Stock Landscape	183
22	Picking the Right Stocks	198
	<i>Appendix A: Biotech Timeline</i>	219
	<i>Appendix B: Biotechnology-Derived Products on the Market</i>	224
	<i>Appendix C: Biotech Web Sites and Resources</i>	230
	<i>Appendix D: BioVenture Consultants' Biotech Stock Report</i>	235
	<i>Index</i>	243