
OMB APPROVAL

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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549

SCHEDULE 13G
(Amendment No. 4)*

INFORMATION TO BE INCLUDED IN STATEMENTS FILED PURSUANT TO
RULES 13d-1 (b), (c) AND (d) AND AMENDMENTS THERETO
FILED PURSUANT TO 13d-2 (b)

RIGEL PHARMACEUTICALS, INC.

(Name of Issuer)

Common Stock

(Title of Class of Securities)

766559108

(CUSIP Number)

April 29, 2003

(Date of Event Which Requires Filing of this Statement)

Check the appropriate box to designate the rule pursuant to which this Schedule is filed:

Rule 13d-1(b)
 Rule 13d-1(c)
 Rule 13d-1(d)

* The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter the disclosures provided in a prior cover page.

The information required in the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 ("Act") or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

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CUSIP No. 766559108

Page 2 of 18 Pages

1 NAMES OF REPORTING PERSONS
I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY)

Alta Partners

2 CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP*

(a)
(b)

3 SEC USE ONLY

4 CITIZENSHIP OR PLACE OF ORGANIZATION

California

5 Please see Attachment A
SOLE VOTING POWER

-0-

NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	6	SHARED VOTING POWER 19,895,423 Please see Attachment A & Footnote 1
	7	SOLE DISPOSITIVE POWER
		-0-
	8	SHARED DISPOSITIVE POWER 19,895,423 Please see Attachment A & Footnote 1

9 AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON
19,895,423

-----Please see Attachment A and Footnote 1-----
10 CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES*

|_ |

11 PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)
16.5%

-----Please see Attachment A-----
12 TYPE OF REPORTING PERSON*

IA

*SEE INSTRUCTION BEFORE FILLING OUT!

Footnote 1: Includes the 5,832,923 shares of Common Stock currently held by the funds affiliated with Alta Partners and Alta Partners II, and the proposed purchase of 11,718,750 shares of Common Stock and the Warrants to purchase 2,343,750 shares of Common Stock to be purchased by the funds affiliated with Alta Partners II, in accordance with the terms of the Common Stock and Warrant Purchase Agreement dated April 29, 2003. See Attachment A.

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1 NAMES OF REPORTING PERSONS
I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY)

Alta Partners II, Inc.

2 CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP*

(a) |_ |
(b) |X |

3 SEC USE ONLY

4 CITIZENSHIP OR PLACE OF ORGANIZATION

California

5 Please see Attachment A
SOLE VOTING POWER

-0-

NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	6	SHARED VOTING POWER 19,895,423 Please see Attachment A and Footnote 2
	7	SOLE DISPOSITIVE POWER
		-0-
	8	SHARED DISPOSITIVE POWER 19,895,423 Please see Attachment A and Footnote 2

9 AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON
19,895,423

-----Please see Attachment A and Footnote 2-----
10 CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES*

|_ |

11 PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)

16.5%

-----Please see Attachment A-----

12 TYPE OF REPORTING PERSON*

IA

-----*SEE INSTRUCTION BEFORE FILLING OUT!-----

Footnote 2: Includes the 5,832,923 shares of Common Stock currently held by the funds affiliated with Alta Partners and Alta Partners II, and the proposed purchase of 11,718,750 shares of Common Stock and the Warrants to purchase 2,343,750 shares of Common Stock to be purchased by the funds affiliated with Alta Partners II, in accordance with the terms of the Common Stock and Warrant Purchase Agreement dated April 29, 2003. See Attachment A.

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1 NAMES OF REPORTING PERSONS
I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY)

Alta California Partners, L. P.

2 CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP*

(a) |_ |
(b) |X |

3 SEC USE ONLY

4 CITIZENSHIP OR PLACE OF ORGANIZATION

Delaware

5 Please see Attachment A
SOLE VOTING POWER

-0-

6 SHARED VOTING POWER
19,895,423
Please see Attachment A & Footnote 3

7 SOLE DISPOSITIVE POWER

-0-

8 SHARED DISPOSITIVE POWER
19,895,423
Please see Attachment A & Footnote 3

9 AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

19,895,423

-----Please see Attachment A and Footnote 3-----

10 CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES*

|_ |

11 PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)

16.5%

-----Please see Attachment A-----

12 TYPE OF REPORTING PERSON*

PN

-----*SEE INSTRUCTION BEFORE FILLING OUT!-----

Footnote 3: Includes the 5,832,923 shares of Common Stock currently held by the funds affiliated with Alta Partners and Alta Partners II, and the proposed purchase of 11,718,750 shares of Common Stock and the Warrants to purchase 2,343,750 shares of Common Stock to be purchased by the funds affiliated with Alta Partners II, in accordance with the terms of the Common Stock and Warrant Purchase Agreement dated April 29, 2003. See Attachment A.

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1 NAMES OF REPORTING PERSONS
I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY)

Alta California Management Partners, L. P.

2 CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP*

(a)
(b)

3 SEC USE ONLY

4 CITIZENSHIP OR PLACE OF ORGANIZATION

California

5 Please see Attachment A
SOLE VOTING POWER

-0-

6 NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH
SHARED VOTING POWER
19,895,423
Please see Attachment A & Footnote 4

7 SOLE DISPOSITIVE POWER

-0-

8 SHARED DISPOSITIVE POWER
19,895,423
Please see Attachment A & Footnote 4

9 AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

19,895,423

10 CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES*

11 PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)

16.5%

12 TYPE OF REPORTING PERSON*

PN

*SEE INSTRUCTION BEFORE FILLING OUT!

Footnote 4: Includes the 5,832,923 shares of Common Stock currently held by the funds affiliated with Alta Partners and Alta Partners II, and the proposed purchase of 11,718,750 shares of Common Stock and the Warrants to purchase 2,343,750 shares of Common Stock to be purchased by the funds affiliated with Alta Partners II, in accordance with the terms of the Common Stock and Warrant Purchase Agreement dated April 29, 2003. See Attachment A.

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1 NAMES OF REPORTING PERSONS
I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY)

Alta Embarcadero Partners, LLC

2 CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP*

(a)
(b)

3 SEC USE ONLY

4 CITIZENSHIP OR PLACE OF ORGANIZATION

California

5 Please see Attachment A
SOLE VOTING POWER

-0-

NUMBER OF 6 SHARED VOTING POWER
SHARES 19,895,423
BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH
Please see Attachment A & footnote 5

7 SOLE DISPOSITIVE POWER

-0-

8 SHARED DISPOSITIVE POWER
19,895,423
Please see Attachment A & footnote 5

9 AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON
19,895,423
-----Please see Attachment A and Footnote 5-----

10 CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES*
_

11 PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)
16.5%
-----Please see Attachment A-----

12 TYPE OF REPORTING PERSON*
CO

*SEE INSTRUCTION BEFORE FILLING OUT!

Footnote 5: Includes the 5,832,923 shares of Common Stock currently held by the funds affiliated with Alta Partners and Alta Partners II, and the proposed purchase of 11,718,750 shares of Common Stock and the Warrants to purchase 2,343,750 shares of Common Stock to be purchased by the funds affiliated with Alta Partners II, in accordance with the terms of the Common Stock and Warrant Purchase Agreement dated April 29, 2003. See Attachment A.

1 NAMES OF REPORTING PERSONS
I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY)
Alta BioPharma Partners II, L.P.

2 CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP*
(a) |_ |
(b) |X |

3 SEC USE ONLY

4 CITIZENSHIP OR PLACE OF ORGANIZATION
Delaware

5 Please see Attachment A
SOLE VOTING POWER

-0-

NUMBER OF 6 SHARED VOTING POWER
SHARES 19,895,423
BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH
Please see Attachment A & Footnote 6

7 SOLE DISPOSITIVE POWER

-0-

8 SHARED DISPOSITIVE POWER
19,895,423
Please see Attachment A & Footnote 6

9 AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON
19,895,423
-----Please see Attachment A and Footnote 6-----

10 CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES*
_

11 PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)

16.5%

-----Please see Attachment A-----

12 TYPE OF REPORTING PERSON*

PN

*SEE INSTRUCTION BEFORE FILLING OUT!

Footnote 6: Includes the 5,832,923 shares of Common Stock currently held by the funds affiliated with Alta Partners and Alta Partners II, and the proposed purchase of 11,718,750 shares of Common Stock and the Warrants to purchase 2,343,750 shares of Common Stock to be purchased by the funds affiliated with Alta Partners II, in accordance with the terms of the Common Stock and Warrant Purchase Agreement dated April 29, 2003. See Attachment A.

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1 NAMES OF REPORTING PERSONS
I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY)

Alta BioPharma Management Partners II, LLC.

2 CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP*

(a) |_
(b) |X|

3 SEC USE ONLY

4 CITIZENSHIP OR PLACE OF ORGANIZATION

Delaware

Please see Attachment A
5 SOLE VOTING POWER

-0-

NUMBER OF 6 SHARED VOTING POWER
SHARES 19,895,423
BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH
Please see Attachment A & footnote 7

7 SOLE DISPOSITIVE POWER

-0-

8 SHARED DISPOSITIVE POWER
19,895,423
Please see Attachment A & footnote 7

9 AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

19,895,423

-----Please see Attachment A and Footnote 7-----

10 CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES*

_

11 PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)

16.5%

-----Please see Attachment A-----

12 TYPE OF REPORTING PERSON*

CO

*SEE INSTRUCTION BEFORE FILLING OUT!

Footnote 7: Includes the 5,832,923 shares of Common Stock currently held by the funds affiliated with Alta Partners and Alta Partners II, and the proposed purchase of 11,718,750 shares of Common Stock and the Warrants to purchase 2,343,750 shares of Common Stock to be purchased by the funds affiliated with Alta Partners, in accordance with the terms of the Common Stock and Warrant Purchase Agreement dated April 29, 2003. See Attachment A.

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1 NAMES OF REPORTING PERSONS
I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY)

Alta Embarcadero BioPharma Partners II, LLC.

2 CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP*
(a)
(b)

3 SEC USE ONLY

4 CITIZENSHIP OR PLACE OF ORGANIZATION

Delaware

5 Please see Attachment A
SOLE VOTING POWER

-0-

6 NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH
SHARED VOTING POWER
19,895,423
Please see Attachment A & footnote 8

7 SOLE DISPOSITIVE POWER

-0-

8 SHARED DISPOSITIVE POWER
19,895,423
Please see Attachment A & footnote 8

9 AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

19,895,423

-----Please see Attachment A and Footnote 8-----

10 CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES*

11 PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)

16.5%

-----Please see Attachment A-----

12 TYPE OF REPORTING PERSON*

CO

*SEE INSTRUCTION BEFORE FILLING OUT!

Footnote 8: Includes the 5,832,923 shares of Common Stock currently held by the funds affiliated with Alta Partners and Alta Partners II, and the proposed purchase of 11,718,750 shares of Common Stock and the Warrants to purchase 2,343,750 shares of Common Stock to be purchased by the funds affiliated with Alta Partners, in accordance with the terms of the Common Stock and Warrant Purchase Agreement dated April 29, 2003. See Attachment A.

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1 NAMES OF REPORTING PERSONS
I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY)

Farah Champsi

2 CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP*
(a)
(b)

3 SEC USE ONLY

4 CITIZENSHIP OR PLACE OF ORGANIZATION

United States

5 Please see Attachment A
SOLE VOTING POWER

-0-

NUMBER OF 6 SHARED VOTING POWER
SHARES 15,212,500
BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH
Please see Attachment A & footnote 9

7 SOLE DISPOSITIVE POWER

-0-

8 SHARED DISPOSITIVE POWER
15,212,500
Please see Attachment A & footnote 9

9 AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON
15,212,500
-----Please see Attachment A and Footnote 9-----

10 CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES*
_

11 PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)
12.7%
-----Please see Attachment A-----

12 TYPE OF REPORTING PERSON*
IN

*SEE INSTRUCTION BEFORE FILLING OUT!

Footnote 9: Includes the 1,150,000 shares of Common Stock currently held by the funds affiliated with Alta Partners II, and the proposed purchase of 11,718,750 shares of Common Stock and the Warrants to purchase 2,343,750 shares of Common Stock to be purchased by the funds affiliated with Alta Partners II, in accordance with the terms of the Common Stock and Warrant Purchase Agreement dated April 29, 2003. See Attachment A.

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1 NAMES OF REPORTING PERSONS
I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY)
Jean Deleage

2 CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP*
(a) |_ |
(b) |X |

3 SEC USE ONLY

4 CITIZENSHIP OR PLACE OF ORGANIZATION
United States

5 Please see Attachment A
SOLE VOTING POWER
10,000

6 SHARED VOTING POWER
19,895,423
BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH
Please see Attachment A & footnote 10

7 SOLE DISPOSITIVE POWER
10,000

8 SHARED DISPOSITIVE POWER
19,895,423
Please see Attachment A & footnote 10

9 AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON
19,905,423
-----Please see Attachment A and Footnote 1-----

10 CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES*
|_ |

11 PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)

16.5%

-----Please see Attachment A-----

12 TYPE OF REPORTING PERSON*

IN

*SEE INSTRUCTION BEFORE FILLING OUT!

Footnote 10: Includes the 5,832,923 shares of Common Stock currently held by the funds affiliated with Alta Partners and Alta Partners II, and the proposed purchase of 11,718,750 shares of Common Stock and the Warrants to purchase 2,343,750 shares of Common Stock to be purchased by the funds affiliated with Alta Partners II, in accordance with the terms of the Common Stock and Warrant Purchase Agreement dated April 29, 2003. In addition Mr. Deleage holds Stock Options for 10,000 shares of Common Stock. Please see Attachment A.

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1 NAMES OF REPORTING PERSONS
I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY)

Garrett Gruener

2 CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP*

(a)
(b)

3 SEC USE ONLY

4 CITIZENSHIP OR PLACE OF ORGANIZATION

United States

5 Please see Attachment A
SOLE VOTING POWER

-0-

NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH

6 SHARED VOTING POWER
4,682,923
Please see Attachment A & footnote 11

7 SOLE DISPOSITIVE POWER

-0-

8 SHARED DISPOSITIVE POWER
4,682,923
Please see Attachment A & footnote 11

9 AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

4,682,923

-----Please see Attachment A and Footnote 11-----
10 CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES*

11 PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)

4.8%

-----Please see Attachment A-----
12 TYPE OF REPORTING PERSON*

IN

*SEE INSTRUCTION BEFORE FILLING OUT!

Footnote 11: Includes the 4,682,923 shares of Common Stock currently held by the funds affiliated with Alta Partners.

CUSIP No. 766559108

Page 13 of 18 Pages

1 NAMES OF REPORTING PERSONS
I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY)

2 CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP*

(a)
(b)

3 SEC USE ONLY

4 CITIZENSHIP OR PLACE OF ORGANIZATION

United States

5 Please see Attachment A
SOLE VOTING POWER

-0-

6 NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH SHARED VOTING POWER
15,212,500
Please see Attachment A & footnote 12

7 SOLE DISPOSITIVE POWER

-0-

8 SHARED DISPOSITIVE POWER
15,212,500
Please see Attachment A & footnote 12

9 AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

15,212,500

-----Please see Attachment A and Footnote 12-----

10 CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES*

11 PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)

12.7%

-----Please see Attachment A-----

12 TYPE OF REPORTING PERSON*

IN

*SEE INSTRUCTION BEFORE FILLING OUT!

Footnote 12: Includes the 1,150,000 shares of Common Stock currently held by the funds affiliated with Alta Partners II, and the proposed purchase of 11,718,750 shares of Common Stock and the Warrants to purchase 2,343,750 shares of Common Stock to be purchased by the funds affiliated with Alta Partners II, in accordance with the terms of the Common Stock and Warrant Purchase Agreement dated April 29, 2003. See Attachment A.

1 NAMES OF REPORTING PERSONS
I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY)

Guy Nohra

2 CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP*

(a)
(b)

3 SEC USE ONLY

4 CITIZENSHIP OR PLACE OF ORGANIZATION

United States

5 Please see Attachment A
SOLE VOTING POWER

-0-

6 NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH SHARED VOTING POWER
4,682,923
Please see Attachment A & footnote 13

OWNED BY
EACH 7 SOLE DISPOSITIVE POWER
REPORTING PERSON WITH -0-
8 SHARED DISPOSITIVE POWER
4,682,923
Please see Attachment A & footnote 13

9 AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON
4,682,923

10 CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES*
|_|

11 PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)
4.8%

12 TYPE OF REPORTING PERSON*
IN

*SEE INSTRUCTION BEFORE FILLING OUT!

Footnote 13: Includes the 4,682,923 shares of Common Stock currently held by the funds affiliated with Alta Partners.

Item 1.

(a) Name of Issuer: Rigel Pharmaceuticals, Inc. ("Issuer")

(b) Address of Issuer's Principal Executive Offices:
1180 Veterans Boulevard
South San Francisco, CA 94080

Item 2.

(a) Name of Person Filing:
Alta Partners ("AP")
Alta Partners II, Inc. ("AP II")
Alta California Partners, L.P. ("ACP")
Alta California Management Partners, L.P. ("ACMP")
Alta Embarcadero Partners, LLC ("AEP")
Alta BioPharma Partners II, L.P. ("ABP II")
Alta BioPharma Management Partners II, LLC ("ABMP II")
Alta Embarcadero BioPharma Partners II, LLC ("AEBP II")
Farah Champsy ("FC")
Jean Deleage ("JD")
Garrett Gruener ("GG")
Alix Marduel ("AM") Guy Nohra ("GN")

(b) Address of Principal Business Office:
One Embarcadero Center, Suite 4050
San Francisco, CA 94111

(c) Citizenship/Place of Organization:

Entities:	AP	California
	AP II	California
	ACP	Delaware
	ACMP	Delaware
	AEP	California
	ABP II	Delaware
	ABMP II	Delaware
	AEBP II	California
Individuals:	FC	United States
	JD	United States
	GG	United States
	AM	United States
	GN	United States

(d) Title of Class of Securities: Common Stock

(e) CUSIP Number: 766559108

Item 3. Not applicable.

Item 4 Ownership.

Please see Attachment A

<TABLE>
<CAPTION>

	AP	AP II	ACP	ACMP	AEP	ABP II	ABMP II
<S>	<C>	<C>	<C>	<C>	<C>	<C>	<C>
(a) Beneficial Ownership	19,895,423	19,895,423	19,895,423	19,895,423	19,895,423	19,895,423	19,895,423
(b) Percentage of Class	16.5%	16.5%	16.5%	16.5%	16.5%	16.5%	16.5%
(c) Sole Voting Power	-0-	-0-	-0-	-0-	-0-	-0-	-0-
Shared Voting Power	19,895,423	19,895,423	19,895,423	19,895,423	19,895,423	19,895,423	19,895,423
Sole Dispositive Power	-0-	-0-	-0-	-0-	-0-	-0-	-0-
Shared Dispositive Power	19,895,423	19,895,423	19,895,423	19,895,423	19,895,423	19,895,423	19,895,423
	AEBP II	FC	JD	GG	AM	GN	
(a) Beneficial Ownership	19,895,423	15,212,500	19,905,423	4,682,923	15,212,500	4,682,923	
(b) Percentage of Class	16.5%	12.7%	16.5%	4.8%	12.7%	4.8%	
(c) Sole Voting Power	-0-	-0-	10,000	-0-	-0-	-0-	
Shared Voting Power	19,895,423	15,212,500	19,895,423	4,682,923	15,212,500	4,682,923	
Sole Dispositive Power	-0-	-0-	10,000	-0-	-0-	-0-	
Shared Dispositive Power	19,895,423	15,212,500	19,895,423	4,682,923	15,212,500	4,682,923	

</TABLE>

Please see Attachment A

Item 5. Ownership of Five Percent or Less of a Class

Not Applicable.

Item 6. Ownership of More than Five Percent on Behalf of Another Person

Not applicable.

Item 7. Identification and Classification of the Subsidiary Which Acquired the Security Being Reported on By the Parent Holding Company.

Not applicable.

Item 8. Identification and Classification of Members of the Group

No reporting person is a member of a group as defined in Section 240.13d-1(b)(1)(ii)(H) of the Act.

Item 9. Notice of Dissolution of Group

Not applicable.

Item 10. Certification

By signing below we certify that, to the best of our knowledge and belief, the securities referred to above were acquired and are held in the ordinary course of business and were not acquired and are not held for the purpose of or with the effect of changing or influencing the control of the issuer of the securities and were not acquired and are not held in connection with or as a participant in any transaction having that purpose or effect.

EXHIBITS

A: Joint Filing Statement

B: Rigel Pharmaceuticals, Inc. Common Stock and Warrant Purchase Agreement

Signature

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

Date: May 9, 2003

<TABLE>
<CAPTION>
<S>

ALTA PARTNERS

<C>

ALTA CALIFORNIA PARTNERS, L.P.

By: Alta California Management Partners, L.P.,

By: /s/ Jean Deleage

Jean Deleage, President

By: /s/ Jean Deleage

Jean Deleage, General Partner

ALTA CALIFORNIA MANAGEMENT PARTNERS, L.P.

ALTA EMBARCADERO PARTNERS, LLC

By: /s/ Jean Deleage

Jean Deleage, General Partner

By: /s/ Jean Deleage

Jean Deleage, Member

ALTA PARTNERS II, INC.

By: /s/ Jean Deleage

Jean Deleage, President

ALTA BIOPHARMA MANAGEMENT PARTNERS II, LLC

ALTA BIOPHARMA PARTNERS II, L.P.

By: Alta BioPharma Management Partners II, LLC

By: /s/ Farah Champsi

Farah Champsi, Managing Director

By: /s/ Farah Champsi

Farah Champsi, Member

ALTA EMBARCADERO BIOPHARMA PARTNERS II, LLC

By: /s/ Farah Champsi

Farah Champsi, Manager

/s/ Alix Marduel

Alix Marduel

/s/ Jean Deleage

Jean Deleage

/s/ Guy Nohra

Guy Nohra

/s/ Garrett Gruener

Garrett Gruener

/s/ Farah Champsi

Farah Champsi

</TABLE>

EXHIBIT A

AGREEMENT OF JOINT FILING

Date: May 9, 2003

Signature

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct. ALTA PARTNERS ALTA CALIFORNIA PARTNERS, L.P.

<TABLE>

<CAPTION>

<S>

<C>

By: Alta California Management Partners, L.P.,

By: /s/ Jean Deleage

Jean Deleage, President

By: /s/ Jean Deleage

Jean Deleage, General Partner

ALTA CALIFORNIA MANAGEMENT PARTNERS, L.P.

ALTA EMBARCADERO PARTNERS, LLC

By: /s/ Jean Deleage

Jean Deleage, General Partner

By: /s/ Jean Deleage

Jean Deleage, Member

ALTA PARTNERS II, INC.

By: /s/ Jean Deleage
Jean Deleage, President

ALTA BIOPHARMA PARTNERS II, L.P.
By: Alta BioPharma Management Partners II, LLC

ALTA BIOPHARMA MANAGEMENT PARTNERS II, LLC

By: /s/ Farah Champs

Farah Champs, Managing Director

By: /s/ Farah Champs

Farah Champs, Member

ALTA EMBARCADERO BIOPHARMA PARTNERS II, LLC

By: /s/ Farah Champs

Farah Champs, Manager

/s/ Alix Marduel

Alix Marduel

/s/ Jean Deleage

Jean Deleage

/s/ Guy Nohra

Guy Nohra

/s/ Garrett Gruener

Garrett Gruener

/s/ Farah Champs

Farah Champs

</TABLE>

Attachment A

On April 29, 2003, the funds affiliated with Alta Partners II, Inc. signed the Rigel Pharmaceuticals, Inc. Common Stock and Warrant Purchase Agreement ("the Agreement"). Alta Partners II, Inc. provides investment advisory services to several venture capital funds including Alta BioPharma Partners II, L.P. and Alta Embarcadero BioPharma Partners II, LLC. In accordance with the terms of the Agreement, the funds affiliated with Alta Partners II agreed to purchase 11,718,750 shares of Common Stock for \$0.64 (sixty-four cents) per share, and Warrants to purchase 2,343,750 shares of Common Stock. The purchase of the stock and warrants is pending approval of the shareholders at the Annual Meeting of Shareholders on June 20, 2003. In accordance with the terms of the Agreement, Alta BioPharma Partners II, L.P. will purchase 11,302,945 shares of Common Stock for the aggregate purchase price of \$7,233,884.80 and warrants to purchase 2,260,589 shares of Common Stock. Alta Embarcadero BioPharma Partners II, LLC will purchase 415,805 shares of Common Stock for the aggregate purchase price of \$266,115.20 and warrants to purchase 83,161 shares of Common Stock.

As of April 29, 2003, Alta BioPharma Partners II, L.P. beneficially owned 1,109,196 shares of Common Stock. Alta Embarcadero BioPharma Partners II, LLC beneficially owned 40,804 shares Common Stock. Pending the shareholders approval of the Agreement followed by the proposed purchase of stock and warrants: Alta BioPharma Partners II, L.P. will beneficially own 12,412,141 shares of Common Stock and warrants to purchase 2,260,589 shares of Common Stock. Alta Embarcadero BioPharma Partners II, LLC will beneficially own 456,609 shares Common Stock and warrants to purchase 83,161 shares of Common Stock.

The managing directors of Alta BioPharma Partners II, L.P. and managers of Alta Embarcadero BioPharma Partners II, LLC exercise sole voting and investment power

in respect to the shares owned by such funds.

Certain principals of Alta Partners II, Inc. are managing directors of Alta BioPharma Management II, LLC (which is the general partner of Alta BioPharma Partners II, L.P.), and managers of Alta Embarcadero BioPharma Partners II, LLC. As managing directors and managers of such entities, they may be deemed to share voting and investment powers over the shares beneficially held by the funds. The principals of Alta Partners II, Inc. disclaim beneficial ownership of all such shares held by the foregoing funds, except to the extent of their proportionate pecuniary interests therein.

Alta Partners provides investment advisory services to several venture capital funds including Alta California Partners, L.P. and Alta Embarcadero Partners, LLC. Alta California Partners, L.P. beneficially owns 4,578,327 shares of Common Stock. Alta Embarcadero Partners, LLC beneficially owns 104,596 shares of Common Stock. The respective general partners and members of Alta California Partners L.P. and Alta Embarcadero Partners, LLC exercise sole voting and investment power with respect to the shares owned by such funds.

Certain principals of Alta Partners are general partners of Alta California Management Partners, L.P. (which is a general partner of Alta California Partners, L.P.), and members of Alta Embarcadero Partners, LLC. As general partners and members of such funds, they may be deemed to share voting and investment powers over the shares held by the funds. The principals of Alta Partners disclaim beneficial ownership of all such shares held by the foregoing funds, except to the extent of their proportionate pecuniary interests therein.

Mr. Jean Deleage, a director of Rigil Pharmaceuticals, Inc., is a managing director of Alta BioPharma Management Partners II, LLC (which is the general partner of Alta BioPharma Partners II, L.P.), a manager of Alta Embarcadero BioPharma Partners II, LLC, a general partner of Alta California Management Partners, L.P. (which is the general partner of Alta California Partners, L.P.) and a member of Alta Embarcadero Partners, LLC. Thus he currently shares voting and dispositive powers over the 1,109,196 shares of Common Stock beneficially owned by Alta BioPharma Partners II, L.P., the 40,804 shares of Common Stock beneficially owned by Alta Embarcadero BioPharma Partners II, LLC, the 4,578,327 shares of Common Stock beneficially owned by Alta California Partners L.P. and the 104,596 shares of Common Stock beneficially owned by Alta Embarcadero Partners, LLC. Pending approval of the Agreement followed by the proposed purchase, he will share voting and dispositive powers

Page 1 of 2 of Attachment A

Attachment A (continued)

over the 12,412,141 shares of Common Stock and Warrants to purchase 2,260,589 shares of Common Stock beneficially owned by Alta BioPharma Partners II, L.P., the 456,609 shares of Common Stock and Warrants to purchase 83,161 shares of Common Stock beneficially owned by Alta Embarcadero BioPharma Partners II, LLC, the 4,578,327 shares of Common Stock beneficially owned by Alta California Partners L.P. and the 104,596 shares of Common Stock beneficially owned by Alta Embarcadero Partners, LLC. He disclaims beneficial ownership of all such shares held by all of the foregoing funds except to the extent of his proportionate pecuniary interests therein. Mr. Deleage holds stock options for 10,000 shares of Common Stock: of which the option for 5,000 shares of Common Stock was granted on June 20, 2002 and the option for 5,000 shares of Common Stock was granted on July 19, 2001. The options vest 1/24th per month over a two-year period commencing on the date of grant.

Ms. Farah Champs is a managing director of Alta BioPharma Management Partners II, LLC (which is the general partner of Alta BioPharma Partners II, L.P.) and a manager of Alta Embarcadero BioPharma Partners II, LLC. Thus she currently shares voting and dispositive powers over the 1,109,196 shares of Common Stock beneficially owned by Alta BioPharma Partners II, L.P. and the 40,804 shares of Common Stock beneficially owned by Alta Embarcadero BioPharma Partners II, LLC. Pending approval of the Agreement followed by the proposed purchase, she will share voting and dispositive powers over the 12,412,141 shares of Common Stock and Warrants to purchase 2,260,589 shares of Common Stock beneficially owned by Alta BioPharma Partners II, L.P., the 456,609 shares of Common Stock and Warrants to purchase 83,161 shares of Common Stock beneficially owned by Alta Embarcadero BioPharma Partners II, LLC. She disclaims beneficial ownership of all such shares held by all of the foregoing funds except to the extent of her proportionate pecuniary interests therein.

Mr. Garrett Gruener is a general partner of Alta California Management Partners, L.P. (which is the general partner of Alta California Partners, L.P.) and a member of Alta Embarcadero Partners, LLC. Thus he shares voting and dispositive powers over the 4,578,327 shares of Common Stock beneficially owned by Alta California Partners L.P. and 104,596 shares of Common stock beneficially owned by Alta Embarcadero Partners LLC. He disclaims beneficial ownership of all such shares held by all of the foregoing funds except to the extent of his proportionate pecuniary interests therein.

Dr. Alix Marduel is a managing director of Alta BioPharma Management Partners II, LLC (which is the general partner of Alta BioPharma Partners II, L.P.) and a manager of Alta Embarcadero BioPharma Partners II, LLC. Thus she currently shares voting and dispositive powers over the 1,109,196 shares of Common Stock beneficially owned by Alta BioPharma Partners II, L.P. and the 40,804 shares of Common Stock beneficially owned by Alta Embarcadero BioPharma Partners II, LLC. Pending approval of the Agreement and the proposed purchase, she will share voting and dispositive powers over the 12,412,141 shares of Common Stock and Warrants to purchase 2,260,589 shares of Common Stock beneficially owned by Alta BioPharma Partners II, L.P., the 456,609 shares of Common Stock and Warrants to purchase 83,161 shares of Common Stock beneficially owned by Alta Embarcadero BioPharma Partners II, LLC. She disclaims beneficial ownership of all such shares held by all of the foregoing funds except to the extent of her proportionate pecuniary interests therein.

Mr. Guy Nohra is a general partner of Alta California Management Partners, L.P. (which is the general partner of Alta California Partners, L.P.). Thus he shares voting and dispositive powers over the 4,578,327 shares of Common Stock beneficially owned by Alta California Partners L.P. He disclaims beneficial ownership of all such shares held by all of the foregoing funds except to the extent of his proportionate pecuniary interests therein.

Alta Partners and Alta Partners II, Inc. are venture capital firms that share an office in San Francisco. Alta Partners is California Corporation. Alta Partners II, Inc. is a California Corporation. Alta California Partners, L.P. is a Delaware Limited Partnership, Alta Embarcadero Partners, LLC is a California Limited Liability Company, Alta BioPharma Partners II, L.P. is a Delaware Limited Partnership, and Alta Embarcadero BioPharma Partners II, LLC is a California Limited Liability Company.

RIGEL PHARMACEUTICALS, INC.

COMMON STOCK AND WARRANT PURCHASE AGREEMENT

April 29, 2003

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- Exhibit C - Amended and Restated Certificate of Incorporation
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- Exhibit E - Form of Second Investor Rights Agreement
- Exhibit F - Officer's Certificate
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- Exhibit H - Form of Voting Agreement

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RIGEL PHARMACEUTICALS, INC.

COMMON STOCK AND WARRANT PURCHASE AGREEMENT

This Common Stock and Warrant Purchase Agreement (the "Agreement") is made as of April 29, 2003 by and among RIGEL PHARMACEUTICALS, INC., a Delaware corporation (the "Company"), and each of the parties set forth on Schedule A attached hereto (each, an "Investor" and, collectively, the "Investors").

RECITALS

A. The Company desires to sell, and the Investors desire to purchase, the Shares and the Warrants (each as defined below) pursuant to the terms set forth in this Agreement.

B. In order to induce the Investors to enter into this Agreement, certain stockholders of the Company are executing voting agreements in favor of the Investors.

AGREEMENT

1. Authorization of Shares and Warrants. Subject to the terms and conditions of this Agreement, the Company, as of the Closing Date (as defined in Section 3.1), will have authorized (a) the sale and issuance of 71,874,999 shares (the "Shares") of the Company's common stock, par value \$0.001 per share (the "Common Stock"), and the Warrants (as defined in Section 2.1(b)) (the "Offering") and (b) the reservation of the shares of Common Stock into which the Warrants are exercisable (the "Warrant Shares").

2. Agreement to Sell and Purchase Shares and Warrants.

2.1 Subject to the terms and conditions of this Agreement, each Investor agrees, severally and not jointly, to purchase at the Closing (as defined in Section 3.1), and the Company agrees to sell and issue to each Investor, severally and not jointly, at the Closing:

(a) that number of Shares determined by dividing (i) the dollar amount set forth opposite such Investor's name on Schedule A hereto (the "Aggregate Purchase Price") by (ii) the per share purchase price of \$0.64 (the "Purchase Price"), rounded down to the nearest whole number of Shares; and

(b) a warrant, in the form attached hereto as Exhibit A, exercisable for that number of Warrant Shares equal to twenty percent (20%) of the Shares purchased by such Investor pursuant to Section 2.1(a) above, at a price per share exercise price equal to the Purchase Price, as set forth opposite such Investor's name on Schedule A hereto (each, a "Warrant" and, collectively, the "Warrants").

2.2 The number of Shares to be purchased by the Investors at the Closing pursuant to Section 2.1(a), the Purchase Price applicable to such Shares and the per

share exercise price and number of underlying shares of Common Stock attributable to the Warrants shall be proportionately adjusted for any subdivision or combination of Common Stock (by stock split, reverse stock split, dividend, reorganization, recapitalization or otherwise, including, but not limited to, the Reverse Stock Split (as defined in Section 4.4)).

3. Closing; Delivery of Shares and Warrants.

3.1 The closing of the purchase and sale of the Shares and the Warrants pursuant to this Agreement (the "Closing") shall take place at 10:00 a.m. at the offices of Cooley Godward LLP, 3175 Hanover Street, Palo Alto, California on the second (2nd) business day (the "Closing Date") after satisfaction in full of the closing conditions set forth in Sections 4 and 5 herein that by their terms are not to occur at the Closing, or waiver of any such closing conditions pursuant to the terms therein, or at such other time and place as may be agreed to by the Company and the Investors representing a majority of the total Aggregate Purchase Prices paid by all Investors (a "Majority in Interest of the Investors"). At the Closing, each Investor shall deliver, in immediately available funds, the Aggregate Purchase Price by wire transfer to an account designated by the Company. As soon as reasonably practicable, but in no event later than five (5) business days after the Closing, the Company shall deliver to each Investor, against payment therefor, one or more stock certificates representing the number of Shares set forth on Schedule A hereto and one or more Warrants to purchase the number of Warrant Shares set forth on Schedule A hereto, each such certificate and Warrant to be dated as of the Closing Date and to be registered in the name of the Investor or, if so indicated on the Stock Certificate and Warrant Questionnaire attached hereto as Exhibit B, in the name of a nominee designated by such Investor.

3.2 All certificates representing the Shares and the Warrant Shares shall bear the following legends:

(a) "THE SHARES REPRESENTED BY THIS CERTIFICATE HAVE BEEN ACQUIRED FOR INVESTMENT AND HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "ACT"). SUCH SHARES MAY NOT BE SOLD OR TRANSFERRED IN THE ABSENCE OF REGISTRATION OR AN EXEMPTION THEREFROM. RIGEL PHARMACEUTICALS, INC. MAY REQUIRE AN OPINION OF COUNSEL REASONABLY ACCEPTABLE TO IT THAT A PROPOSED TRANSFER OR SALE IS IN COMPLIANCE WITH THE ACT."

(b) "THE SALE, TRANSFER OR VOTING OF THE SHARES REPRESENTED BY THIS CERTIFICATE IS RESTRICTED BY THE TERMS OF A SECOND INVESTOR RIGHTS AGREEMENT BY AND AMONG RIGEL PHARMACEUTICALS, INC. AND THE INVESTORS NAMED THEREIN. COPIES OF THE AGREEMENT MAY BE OBTAINED AT NO COST BY WRITTEN REQUEST MADE BY THE HOLDERS OF RECORD OF THIS CERTIFICATE TO THE SECRETARY OF RIGEL PHARMACEUTICALS, INC. AT THE PRINCIPAL EXECUTIVE OFFICES OF RIGEL PHARMACEUTICALS, INC."

2.

(c) The certificates representing the Shares and Warrant Shares will be subject to a stop transfer order with the Company's transfer agent that restricts the transfer of such shares except in compliance with this Agreement.

(d) The Company acknowledges and agrees that an opinion of counsel shall not be required upon the transfer by an Investor of any securities to an "Affiliate" (as defined in Rule 12b-2 of the rules and regulations promulgated under the Securities Exchange Act of 1934, as amended (the "Exchange Act")) of such Investor, including, but not limited to, a member, retired member, partner, retired partner or affiliated venture capital fund of such Investor.

4. Conditions to Company's Obligations. The Company's obligation to issue Shares and Warrants to each Investor at the Closing shall be subject to the fulfillment on or prior to the Closing of the following conditions, any one or more of which may be waived in whole or in part by the written consent of the Company:

4.1 Payment. The Company shall have received the Aggregate Purchase Price.

4.2 Representations and Warranties True and Correct. The representations and warranties made by such Investor in Section 7 hereof shall be true and correct in all material respects as of the date hereof and the Closing Date with the same force and effect as if they had been made as of the Closing Date.

4.3 No Injunction or Regulatory Restraints; Illegality. No temporary restraining order, preliminary or permanent injunction or other order issued by any court of competent jurisdiction or governmental entity or other legal or regulatory restraint or prohibition preventing the consummation of the transactions contemplated hereby shall be in effect; nor shall there be any action taken by any court of competent jurisdiction or governmental entity, or any law or order enacted, entered, enforced or deemed applicable to the transactions contemplated hereby by any court of competent jurisdiction or governmental entity, that would prohibit their consummation.

4.4 Filing of Certificate. The Company shall have filed with the Secretary of State of the State of Delaware the Amended and Restated Certificate of Incorporation, in substantially the form attached hereto as Exhibit C (the "Certificate"), to (a) effect a reverse stock split of the outstanding Common Stock within the range of 1-for-5 to 1-for-15 as mutually agreed upon by the board of directors of the Company (the "Board of Directors") and a Majority in Interest of the Investors (the "Reverse Stock Split") and (b) to effect any other changes to the Company's certificate of incorporation as are necessary to complete the transactions contemplated hereby, including, but not limited to, potentially increasing the number of authorized shares of Common Stock of the Company.

4.5 Required Stockholder Approval. The Company shall have obtained the Required Stockholder Approval (as defined in Section 6.4).

3.

5. Conditions to Investors' Obligations. Each Investor's obligation to purchase Shares and Warrants at the Closing shall be subject to the fulfillment on or prior to the Closing of the following conditions, any one or more of which may be waived in whole or in part, subject to Section 10.2, by the written consent of a Majority in Interest of the Investors:

5.1 Representations and Warranties True and Correct. The representations and warranties made by the Company in Section 6 hereof shall be true and correct as of the date hereof and the Closing Date with the same force and effect as if they had been made as of the Closing Date, except as otherwise contemplated by this Agreement and except (a) in each case, or in the aggregate,

as does not constitute a Material Adverse Effect on the Company (as defined in Section 5.11) and (b) for those representations and warranties that address matters only as of a particular date, which shall be true and correct (subject to the qualification set forth in the preceding clause (a)) as of such date.

5.2 Compliance with Laws. The purchase of the Shares and Warrants by each Investor hereunder shall be legally permitted by all laws and regulations to which the Company is subject (including all applicable federal, state and foreign securities laws).

5.3 No Injunction or Regulatory Constraints; Illegality. No temporary restraining order, preliminary or permanent injunction or other order issued by any court of competent jurisdiction or governmental entity or other legal or regulatory restraint or prohibition preventing the consummation of the transactions contemplated hereby shall be in effect; nor shall there be any action taken by any court of competent jurisdiction or governmental entity, or any law or order enacted, entered, enforced or deemed applicable to the transactions contemplated hereby by any court of competent jurisdiction or governmental entity, that would prohibit their consummation.

5.4 Filing of Certificate. The Company shall have filed with the Secretary of State of the State of Delaware the Certificate to (a) effect the Reverse Stock Split and (b) effect any other changes to the Company's certificate of incorporation as are necessary to complete the transactions contemplated hereby, including, but not limited to, potentially increasing the number of authorized shares of Common Stock of the Company.

5.5 Opinion of Company's Counsel. The Investors shall have received a legal opinion of Cooley Godward LLP, counsel for the Company, in substantially the form attached hereto as Exhibit D.

5.6 Required Stockholder Approval. The Company shall have obtained the Required Stockholder Approval.

5.7 Board of Directors Designees. The Board of Directors (which shall have nine (9) members as of the Closing) shall have appointed, effective as of the Closing, Nick Simon and Dennis Henner (the "MPM Representatives") as designees of MPM BioVentures III, L.P. or its affiliates ("MPM Capital") to serve on the Board of Directors as Class II and Class III directors (as defined in the Company's Certificate). In addition, the Board of Directors shall have appointed, effective as of the Closing, one (1) MPM Representative as a member of the compensation committee of the Board of Directors and one (1) MPM

4.

Representative as a member of the nominating committee of the Board of Directors, and all such appointments shall be in full force and effect.

5.8 Committee Appointment. Kazumi Shiosaki, Ph.D., representing MPM Capital, shall have been appointed to the Company's drug development committee (or similar committee as appropriate) to serve until a senior executive officer in the area of drug development, which individual shall have extensive small molecule experience and expertise, has been appointed by the Board of Directors.

5.9 Investor Rights Agreement. The parties hereto shall have entered into that certain Second Investor Rights Agreement in substantially the form attached hereto as Exhibit E (the "Investor Rights Agreement," and together with this Agreement, the "Agreements").

5.10 Waiver of Registration Rights. The Prior Rights Holders (as defined in the Investor Rights Agreement) shall have waived any applicable registration rights held by them in connection with the filing of any registration statement on behalf of the Investors pursuant to Sections 2.1 and 2.4 of the Investor Rights Agreement.

5.11 No Material Adverse Effect. There shall have been no Material Adverse Effect on the Company between the date of the execution of this Agreement and the Closing Date. For the purposes of this Agreement, a "Material Adverse Effect" on the Company shall mean an event, change or occurrence that individually, or together with any other event, change or occurrence, has had a material adverse impact on the Company's financial position, business, properties, assets, liabilities (absolute, accrued or contingent), prospects or results of operations; provided, however, that none of the direct effects of any of the following (individually or in combination) shall be deemed to constitute, or shall be taken into account in determining whether there has been, a Material Adverse Effect on the Company: (a) changes in generally accepted accounting practices, (b) historically experienced seasonal fluctuations in the Company's performance, (c) changes in worldwide general business or economic conditions affecting the industries in which the Company participates, (d) changes in conditions generally affecting the biotechnology industry, (e) the announcement or pendency of any of the transactions contemplated by this Agreement, (f) the taking of any action required by this Agreement and (g) expenditures by the Company in the ordinary course of business consistent with past practices and reasonable expenditures by the Company in connection with the transactions

contemplated by this Agreement.

5.12 Executive Search. The Company shall have initiated a search for and shall have diligently pursued the hiring of a senior executive officer in the area of drug development, which individual shall have extensive small molecule development experience and expertise and be acceptable to the Board of Directors.

5.13 Covenants. Each covenant and agreement contained in this Agreement to be performed by the Company on or prior to the Closing shall have been performed or complied with in all material respects.

5.

5.14 Nasdaq Listing. The Company shall (a) have filed a listing application with the Nasdaq National Market ("Nasdaq") for the Shares and the Warrant Shares, (b) continue to have its shares of Common Stock listed for trading on Nasdaq and (c) have not been notified by Nasdaq of any action or potential action by Nasdaq or of any violation of any Nasdaq rule that could result in the delisting of the Company's Common Stock from Nasdaq, except as otherwise described in Section 6.13 of the Company's Disclosure Schedule.

5.15 Closing Proceeds. The Company shall have raised at least \$40,000,000 from the Investors pursuant to this Agreement; provided, however, that, notwithstanding Section 10.2, this condition may be waived solely by MPM Capital.

5.16 Officers' Certificates. The Company shall have delivered to the Investors a certificate, dated as of the Closing Date and executed by the chief executive officer of the Company, and a certificate, dated as of the Closing Date and executed by the secretary of the Company, in the forms attached hereto as Exhibits F and G, respectively.

6. Representations and Warranties of the Company. Except as otherwise described in the Company's Disclosure Schedule, and except as expressly contemplated herein or thereby, the Company hereby represents and warrants to each Investor as follows:

6.1 Organization. The Company is duly incorporated and validly existing in good standing under the laws of the State of Delaware. The Company has full power and authority to own, operate and occupy its properties and to conduct its business as presently conducted and is registered or qualified to do business and is in good standing in each jurisdiction in which it owns or leases property or transacts business and where the failure to be so qualified would have a Material Adverse Effect on the Company, and, to the Company's knowledge (as defined below), no proceeding has been instituted in any such jurisdiction revoking, limiting or curtailing, or seeking to revoke, limit or curtail, such power and authority or qualification. For purposes of this Agreement, the term "knowledge" (including any derivation thereof such as "know" or "knowing" and regardless of whether such word starts with an initial capital) in reference to the Company shall mean the actual knowledge of the Company's executive officers.

6.2 Subsidiaries. The Company does not own or control any equity security or other interest of any other corporation, partnership or other business entity. Since its inception, the Company has not consolidated or merged with, acquired all or substantially all of the assets of, or acquired the stock of or any interest in any corporation, partnership or other business entity.

6.3 Due Authorization. The Company has all requisite corporate power and authority to execute, deliver and perform its obligations under the Agreements and Warrants, and the Agreements and Warrants have been duly authorized and validly executed and delivered by the Company and, except for obtaining Stockholder Approval, no other corporate action on the part of the Company or its stockholders is necessary to authorize the execution and delivery by the Company of the Agreements or the Warrants or the consummation by it of the Offering. The Agreements and Warrants, assuming due and valid authorization, execution and delivery hereof and thereof by the Investors, constitute legal, valid and binding agreements of the

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Company, enforceable against the Company in accordance with their terms, except as rights to indemnity and contribution may be limited by state or federal securities laws or the public policy underlying such laws, except as enforceability may be limited by applicable bankruptcy, insolvency, reorganization, moratorium or similar laws affecting creditors' and contracting parties' rights generally, and except as enforceability may be subject to general principles of equity (regardless of whether such enforceability is considered in a proceeding in equity or at law).

6.4 Vote Required. The only votes of the holders of any class or series of the Company's capital stock necessary to approve the Offering and the other transactions contemplated by this Agreement (the "Stockholder Approval")

are (a) the affirmative vote of the majority of shares of Common Stock present in person or represented by proxy at the Stockholders' Meeting (as defined in Section 8.1) and entitled to vote to approve the Offering (the "Required Nasdaq Approval"), (b) the affirmative vote of at least sixty-six and two-thirds percent (66 2/3%) of the outstanding shares of Common Stock entitled to vote to approve the Certificate and resulting Reverse Stock Split and, if necessary to complete the transactions contemplated hereby, an increase in the number of authorized shares of Common Stock (the "Reverse Split Stockholder Approval" and, together with the Required Nasdaq Approval, the "Required Stockholder Approval"), (c) the affirmative vote of the majority of the shares of Common Stock present in person or represented by proxy at the Stockholders' Meeting and entitled to vote to approve the amendments to the Company's 2000 Equity Incentive Plan, 2000 Non-Employee Directors' Stock Option Plan and 2000 Employee Stock Purchase Plan to, among other things, increase the number of shares reserved for issuance under each such plan, as set forth on Schedule B attached hereto (the "Plan Amendments") and (d) the affirmative vote of the majority of the outstanding shares of Common Stock entitled to vote to approve the repricing, in the discretion of the Board of Directors and the reasonable discretion of a Majority in Interest of the Investors, of all options to purchase Common Stock issued pursuant to the Company's 2000 Equity Incentive Plan, 2001 Non-Officer Equity Incentive Plan and 2000 Non-Employee Directors' Stock Option Plan outstanding as of the Closing (the "Repricing").

6.5 Non-Contravention. The execution and delivery of the Agreements, the issuance and sale of the Shares and the Warrants, the issuance of the Warrant Shares and the consummation of the transactions contemplated thereby will not (a) conflict with or constitute a violation of or default (with the passage of time or otherwise) or give rise to any right of termination, material amendment, cancellation or acceleration or loss of any material rights under (i) any material contracts to which the Company is a party and that are filed as exhibits to the Company's annual report on Form 10-K for the year ended December 31, 2002 and any Current Reports on Form 8-K or Quarterly Reports on Form 10-Q filed subsequent thereto with the Securities and Exchange Commission (the "SEC") by the Company (the "SEC Documents") (such contracts, the "Material Contracts"), (ii) the certificate of incorporation or the bylaws of the Company or any similar organizational document of the Company or (iii) any law, administrative regulation ordinance, writ, injunction, decree or order of any court or governmental agency, arbitration panel or authority binding upon the Company or its property, where such conflict, violation or default would result in a Material Adverse Effect on the Company or (b) result in the creation or imposition (or the obligation to create or impose) of any material lien, encumbrance, claim, security interest, pledge, charge or restriction of any kind

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upon any of the properties or assets of the Company or an acceleration of indebtedness pursuant to any obligation, agreement or condition contained in any Material Contract. No consent, approval, authorization or other order of, or registration, qualification or filing with, any regulatory body, administrative agency or other governmental body in the United States is required for the execution and delivery of the Agreements and the Warrants and the valid issuance and sale of the Shares and the Warrants to be sold pursuant to this Agreement, other than such as have been made or obtained or will be made or obtained pursuant to the Nasdaq Marketplace Rules (the "Nasdaq Rules") prior to the Closing and except for any securities filings required to be made under state securities laws.

6.6 Capitalization. As of the date of this Agreement, the authorized capital stock of the Company consists of 100,000,000 shares of Common Stock and 10,000,000 shares of preferred stock, par value \$0.001 per share. As of the date of this Agreement, (a) 46,376,004 shares of Common Stock are issued and outstanding, (b) 45,731 shares of Common Stock are issued and held in the treasury of the Company, (c) no shares of preferred stock are designated as Preferred Stock, (d) 10,327,905 shares of Common Stock are reserved for issuance upon exercise of options to purchase the Common Stock under the Company's stock option plans and employee stock purchase plan and (e) 1,149,615 shares of Common Stock have been reserved for issuance upon the exercise of warrants to purchase Common Stock. The Shares and the Warrants to be sold pursuant to this Agreement and the Warrant Shares have been duly authorized, and when issued and paid for in accordance with the terms of this Agreement and the Warrants, will be duly and validly issued, fully paid and nonassessable. The outstanding shares of capital stock of the Company have been duly and validly issued and are fully paid and nonassessable, have been issued in compliance with all federal, state and foreign securities laws and were not issued in violation of any preemptive rights or similar rights to subscribe for or purchase securities. Except as set forth in or contemplated by the Agreements and the Warrants, there are no outstanding rights (including, without limitation, preemptive rights), warrants or options to acquire, or instruments convertible into or exchangeable for, any unissued shares of capital stock or other equity interest in the Company, or any contract, commitment, agreement, understanding or arrangement of any kind to which the Company is a party and relating to the issuance or sale of any capital stock of the Company, any such convertible or exchangeable securities or any such rights, warrants or options. Without limiting the foregoing, no preemptive right, co-sale right, right of first refusal or other similar right exists with

respect to the issuance and sale of the Shares and the Warrants or the issuance of the Warrant Shares. Other than Voting Agreements substantially in the form attached hereto as Exhibit H, there are no stockholder agreements, voting agreements or other similar agreements with respect to the Common Stock to which the Company is a party.

6.7 Legal Proceedings. There is no material action, suit or governmental proceeding pending or, to the knowledge of the Company, threatened against or involving the Company or any of its properties or other assets or which questions the validity of this Agreement or any action taken or to be taken by the Company pursuant to the Agreements or in connection with the transactions contemplated hereby. There is no fact or circumstance known to the Company that would reasonably be expected to give rise to any material action, suit, proceeding, inquiry or investigation against, relating to or affecting the Company or any of its properties or other assets. The Company is not subject to any judgment, order or decree that

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materially restricts its business practices or its ability to acquire any property or conduct its business in any area.

6.8 No Violations. The Company is not in violation of its certificate of incorporation or its bylaws or, to the knowledge of the Company, in material violation of any law, administrative regulation, ordinance or order of any court or governmental agency, arbitration panel or authority applicable to the Company, and is not in default (and there exists no condition which, with the passage of time or otherwise, would constitute a default) in the performance of any Material Contract. No notice, charge, claim, action or assertion has been received by the Company alleging such a violation or default.

6.9 Governmental Permits, Etc. The Company has all necessary franchises, licenses, certificates and other authorizations from any foreign, federal, state or local government or governmental agency, department or body that are currently necessary for the operation of the business of the Company as currently conducted, except where the failure to currently possess such items would not have a Material Adverse Effect on the Company. The Company has not received any notice of proceedings relating to the revocation or modification of, or non-compliance with, any such certificate, authorization or permit.

6.10 Intellectual Property. The Company owns or possesses and holds valid and sufficient rights to use all patents, patent rights or licenses, inventions, collaborative research agreements, trade secrets, know-how, trademarks, service marks, trade names and copyrights that are necessary to conduct its business as currently conducted and as proposed to be conducted in all material respects. The expiration of any patents, patent rights, trade secrets, trademarks, service marks, trade names or copyrights, or termination or expiration of any exclusive licenses thereto, would not, individually or in the aggregate, result in a Material Adverse Effect on the Company. The Company has not received any notice of, and has no knowledge of, any infringement of or conflict with rights of the Company by others with respect to any patent, patent rights, inventions, trade secrets, know-how, trademarks, service marks, trade names or copyrights; and the Company has not received any notice of, and has no knowledge of, any infringement of or conflict with rights of others with respect to any patent, patent rights, inventions, trade secrets, know-how, trademarks, service marks, trade names or copyrights of or exclusively licensed to the Company. There is no claim being made against the Company regarding patents, patent rights or licenses, inventions, collaborative research, trade secrets, know-how, trademarks, service marks, trade names or copyrights. The Company does not, in the conduct of its business, infringe or conflict with any right or patent of any third party, or any discovery, invention, product or process that is the subject of a patent application filed by any third party, known to the Company. The Company has taken reasonable steps to protect the material intellectual property of the Company. The execution, delivery and performance by the Company of this Agreement, and the consummation of the transactions contemplated hereby, will not result in the loss or impairment of, or give rise to any right of any third party to terminate or materially alter, any of the Company's material rights to own any of its intellectual property or its material rights under any agreements relating to such intellectual property, nor require the consent of any governmental authority or third party in respect of any such intellectual property.

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6.11 Financial Statements. The financial statements of the Company and the related notes contained in the Company's SEC Documents have been prepared from and are in accordance with the books and records of the Company and present fairly, in accordance with United States generally accepted accounting principles ("GAAP"), the financial position of the Company as of the dates indicated, and the results of its operations and cash flows for the periods therein specified. Such financial statements (including the related notes) have been prepared in accordance with GAAP applied on a consistent basis throughout the periods therein specified and have complied, as of their

respective dates, in all material respects with the applicable accounting requirements and rules and regulations of the SEC. The Company has not created any entities or entered into any transactions or created any liabilities or obligations of any nature, whether or not accrued, contingent or otherwise, for the purpose of avoiding disclosure required by GAAP.

6.12 Absence of Changes. Since December 31, 2002, there has not been (a) any Material Adverse Effect on the Company, (b) any material obligation, direct or contingent, incurred by the Company, except obligations incurred in the ordinary course of business, (c) any dividend or distribution of any kind declared, paid or made on the capital stock of the Company, (d) any loss or damage (whether or not insured) to the physical property of the Company which has had a Material Adverse Effect on the Company, (e) any change in any method of tax or GAAP or accounting practice that would or would reasonably be expected to result in any material change in the financial statements, (f) any payment, loan or advance of any amount to, or sale, transfer or lease of any material properties or assets (real, personal or mixed, tangible or intangible) to, or any agreement or arrangement with, any executive officer or directors or employees of the Company, except such amounts or such agreements made in the ordinary course of business, (g) any amendment to the Company's certificate of incorporation, bylaws or similar organizational documents, (h) any issuance, sale, transfer, pledge, disposal of or encumbrance of any shares of any class or series of the Company's capital stock, or securities convertible into or exchangeable for, or options, warrants, calls, commitments or rights of any kind to acquire, any shares of any class or series of its capital stock, other than shares of Common Stock reserved for issuance on the date of this Agreement pursuant to the Company's stock option plans and employee stock purchase plan, the exercise of any options or warrants to purchase Common Stock outstanding on the date of this Agreement or existing agreements that require the Company to issue shares of Common Stock, (i) any redemption, purchase or other acquisition directly or indirectly of any shares of any class or series of the Company's capital stock, or any instrument or security which consists of or includes a right to acquire such shares (other than repurchases of restricted stock at the original purchase price pursuant to agreements outstanding on the date of this Agreement or entered into after the date of this Agreement in compliance with the provisions hereof), (j) except in the ordinary course of business and consistent with past practice or pursuant to the terms of its Material Contracts as in effect on the date hereof, any termination, modification or amendment to any of its Material Contracts or any waiver, release or assignment of any material rights under any Material Contract or material claims, (k) any revaluation in any material respect any of its assets, including any writing down of the value of inventory or writing-off of notes or accounts receivable, other than in the ordinary course of business consistent with past practice or as required by GAAP, (l) any settlement or compromise of any pending or threatened suit, action or claim that relates to the transactions contemplated hereby or is material to the Company, (m) any adoption of a plan of complete or

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partial liquidation, dissolution, merger, consolidation, restructuring, recapitalization or other reorganization of the Company or (n) any agreement, whether in writing or otherwise, to take any action described in this Section 6.12.

6.13 Nasdaq Compliance. The Company's Common Stock is registered pursuant to Section 12(g) of the Exchange Act and is listed on Nasdaq, and the Company has taken no action designed to, or likely to have the effect of, terminating the registration of the Common Stock under the Exchange Act or delisting the Common Stock from Nasdaq. The Company has not been notified by Nasdaq of any action or potential action by Nasdaq or of any violation of any Nasdaq Rules that could result in the delisting of the Company's Common Stock from Nasdaq.

6.14 Reporting Status. The Company has filed in a timely manner all documents that the Company was required to file under the Exchange Act and the Nasdaq Rules during the twelve (12) months preceding the date of this Agreement. The Company has delivered to the Investors a copy of all SEC Documents filed within the ten (10) days preceding the date hereof. The SEC Documents complied in all material respects with the requirements of the Securities Act of 1933, as amended (the "Securities Act"), and the Exchange Act and the rules and regulations of the SEC promulgated thereunder as of their respective filing dates, and none of the SEC Documents, including any financial statements or schedules included or incorporated by reference therein, when filed, contained any untrue statement of a material fact or omitted to state a material fact required to be stated therein or necessary in order to make the statements therein, in light of the circumstances under which they were made, not misleading. The Chief Executive Officer and the Chief Financial Officer of the Company have signed, and the Company has furnished to the SEC, all certifications required by Sections 302 and 906 of the Sarbanes-Oxley Act of 2002 (the "Certifications"). Such Certifications contain no qualifications or exceptions to the matters certified therein and have not been modified or withdrawn, and neither the Company nor any of its officers has received notice from any governmental entity questioning or challenging the accuracy, completeness, content, form or manner of filing or submission of such

Certifications.

6.15 Listing. The Company shall comply with all requirements of the National Association of Securities Dealers, Inc. with respect to the issuance of the Shares and the Warrants and the listing of the underlying Common Stock on Nasdaq.

6.16 No Manipulation of Stock. The Company has not taken and will not take any action outside the ordinary course of business designed to or that might reasonably be expected to cause or result in unlawful manipulation of the price of the Common Stock to facilitate the sale or resale of the Shares and the Warrants.

6.17 Accountants. Ernst & Young LLP, which expressed its opinion with respect to the financial statements included in the Company's Annual Report on Form 10-K for the year ended December 31, 2002, are independent accountants as required by the Securities Act and the rules and regulations promulgated thereunder.

6.18 Contracts.

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(a) Except for the Material Contracts, the Company does not have any agreements, contracts and commitments not made in the ordinary course of business that are material to the Company.

(b) The Company does not have any employment agreements, or any other similar agreements that contain any severance or termination pay liabilities or obligations, that are not filed as exhibits to the SEC Documents.

(c) No purchase contract or commitment of the Company continues for a period of more than twelve (12) months or is in excess of the normal, ordinary and usual requirements of business.

(d) The Company is not in default under or in material violation of, nor to the Company's knowledge, is there any valid basis for any claim of default, under or material violation of, any Material Contract.

(e) The Company does not have any debt obligations for borrowed money, including any guarantee of or agreement to acquire any such debt obligation of others, or any power of attorney outstanding or any obligation or liability (whether absolute, accrued, contingent or otherwise) as guarantor, surety, co-signer, endorser, co-maker, indemnitor or otherwise with respect to the obligation of any corporation, partnership, joint venture, association, organization or other entity.

(f) All agreements, contracts and commitments required to be filed by the Company under the Exchange Act or the Securities Act have been filed in a timely manner with the SEC.

(g) The Company is not materially restricted by agreement from carrying on its business anywhere in the world.

6.19 Taxes. The Company has duly and timely filed all necessary federal, state and foreign income and franchise tax returns and has paid or accrued all taxes shown as due thereon, and the Company has no knowledge of a tax deficiency which has been or might be asserted or threatened against it which would have a Material Adverse Effect on the Company.

6.20 Transfer Taxes. On the Closing Date, all stock transfer or other taxes (other than income taxes) which are required to be paid in connection with the sale and transfer of the Shares and the Warrants to be sold to the Investors hereunder will be, or will have been, fully paid or provided for by the Company and all laws imposing such taxes will be or will have been fully complied with.

6.21 Investment Company. The Company is not an "investment company" or an "affiliated person" of, or "promoter" or "principal underwriter" for, an investment company, within the meaning of the Investment Company Act of 1940, as amended.

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6.22 Insurance. The Company maintains and will continue to maintain insurance of the types and in the amounts that the Company reasonably believes is adequate for its business, including, but not limited to, insurance against theft, damage, destruction, acts of vandalism and all other risks customarily insured against by similarly situated companies, all of which insurance is in full force and effect.

6.23 DGCL 203. Prior to the date of this Agreement, the Board of Directors, at a meeting duly called and held, has (a) determined that the

Agreement and the Offering are fair to, advisable and in the best interests of the Company and the stockholders of the Company, (b) approved the Offering and (c) resolved to recommend that the stockholders of the Company approve the Offering. The action taken by the Board of Directors constitutes approval of the Offering under the provisions of Section 203 of the Delaware General Corporation Law ("DGCL") such that Section 203 of the DGCL does not apply to this Agreement or the Offering, and such approval has not been amended, rescinded or modified. No other state takeover, antitakeover, moratorium, fair price, interested stockholder, business combination or similar statute or rule is applicable to the Offering. If any state takeover statute other than Section 203 of the DGCL becomes or is deemed to become applicable to this Agreement or the Offering, the Company shall take all reasonable action necessary to render such statute inapplicable to all of the foregoing.

6.24 Brokers or Finders. No agent, broker, investment banker, financial advisor or other firm or entity is or will be entitled to any broker's or finder's fee or any other commission or similar fee payable by the Company in connection with the Offering, except for amounts paid or payable to Houlihan Lokey Howard & Zukin (the "Financial Advisor"). The Company has no liabilities or obligations (absolute, accrued, contingent or otherwise) to the Financial Advisor except as set forth in the engagement letter between the Company and the Financial Advisor, which letter has been provided to the Investors.

6.25 Offering Materials. The Company has not distributed and will not distribute prior to the Closing Date any offering material in connection with the offering and sale of the Shares and the Warrants. The Company has not issued, offered or sold any shares of Common Stock (including for this purpose any securities of the same or a similar class as the Shares or the Warrant Shares or any securities convertible into or exchangeable or exercisable for the Shares or the Warrant Shares) within the six (6) month period preceding the date hereof or taken any other action, or failed to take any action, that, in any such case, would (i) eliminate the availability of the exemption from registration under Regulation D under the Securities Act in connection with the offer and sale of the Shares and the Warrants as contemplated hereby or (ii) cause the offering of the Shares and the Warrants pursuant to this Agreement to be integrated with prior offerings by the Company for purposes of the Securities Act. The Company shall not directly or indirectly take, and shall not permit any of its directors, or officers indirectly to take, any action (including any offering or sale to any person or entity of the Shares, the Warrants or any Common Stock) that will make unavailable the exemption from registration under the Securities Act being relied upon by the Company for the offer and sale to the Investors of the Shares and the Warrants as contemplated by this Agreement, including the filing of a registration statement under the Securities Act. No form of general solicitation or advertising within the meaning of Rule 502(c) under the Securities Act has been used or authorized by the Company or

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any of its officers or directors in connection with the offer or sale of the Shares or the Warrants as contemplated by this Agreement or any other agreement to which the Company is a party.

6.26 Registration Rights. There are no registration or other similar rights to have any securities registered under any registration statement to be filed on behalf of the Investors pursuant to Sections 2.1 and 2.4 of the Investor Rights Agreement and no other registration rights exist with respect to the issuance or registration of the Shares and the Warrant Shares by the Company under the Securities Act that have not been satisfied or waived.

6.27 Books and Records. The books of account, minute books, stock record books and other records of the Company are complete and correct in all material respects and have been maintained in accordance with sound business practices and the requirements of Section 13(b)(2) of the Exchange Act, including an adequate system of internal controls. The minute books of the Company contain accurate and complete records of all meetings held of, and corporate action taken by, the stockholders, the Board of Directors and committees of the Board of Directors, and no meeting of any of such stockholders, the Board of Directors or such committees has been held for which minutes have not been prepared and are not contained in such minute books.

6.28 Employee Benefit Plans; Employee Matters. The consummation of the transactions contemplated by this Agreement will not, alone or in conjunction with any other possible event (including termination of employment) (i) entitle any current or former employee or other service provider of the Company to severance benefits or any other payment, compensation or benefit (including forgiveness of indebtedness), except as expressly provided by this Agreement or (ii) accelerate the time of payment or vesting, or increase the amount of compensation or benefit due any such employee or service provider, alone or in conjunction with any other possible event (including termination of employment). The Company is in compliance in all material respects with all currently applicable laws and regulations respecting employment, discrimination in employment, terms and conditions of employment, wages, hours and occupational safety and health and employment practices, and is not engaged in any unfair labor practice. To the Company's knowledge, no employees of the Company are in

violation of any term of any material employment contract, patent disclosure agreement, noncompetition agreement or any restrictive covenant to a former employer relating to the right of any such employee to be employed by the Company because of the nature of the business conducted or presently proposed to be conducted by the Company or to the use of trade secrets or proprietary information of others. No key employee of the Company has given written notice to the Company and, to the Company's knowledge, no key employee intends to terminate his or her employment with the Company.

6.29 Environmental Laws. The Company is not in violation of any applicable statute, law or regulation relating to the environment or occupational health and safety, and no material expenditures are or will be required in order to comply with any such existing statute, law or regulation, which could reasonably be expected to result in a Material Adverse Effect on the Company.

6.30 Regulatory Compliance. As to each of the product candidates of the Company, including, without limitation, product candidates or compounds currently under

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research and/or development by the Company, subject to the jurisdiction of the United States Food and Drug Administration ("FDA") under the Federal Food, Drug and Cosmetic Act and the regulations thereunder ("FDCA") (each such product, a "Life Science Product"), such Life Science Product is being researched, developed, manufactured, tested and studied in compliance in all material respects with all applicable requirements under the FDCA and similar laws and regulations applicable to such Life Science Product, including those relating to investigational use, premarket approval, good manufacturing practices, labeling, advertising, record keeping, filing of reports and security. The Company has not received any notice or other communication from the FDA or any other federal, state or foreign governmental entity (i) contesting the premarket approval of, the uses of or the labeling and promotion of any Life Science Product or (ii) otherwise alleging any violation by the Company of any law, regulation or other legal provision applicable to a Life Science Product. Neither the Company, nor any officer, employee or agent of the Company has made an untrue statement of a material fact or fraudulent statement to the FDA or other federal, state or foreign governmental entity performing similar functions or failed to disclose a material fact required to be disclosed to the FDA or such other federal, state or foreign governmental entity.

6.31 Title to Property and Assets. The Company owns its property and tangible assets free and clear of all mortgages, liens, loans and encumbrances, except such encumbrances and liens that arise in the ordinary course of business and do not materially impair the Company's ownership or use of such property or tangible assets. With respect to the property and tangible assets it leases, the Company is in compliance with such leases and, to the knowledge, holds a valid leasehold interest free of any liens, claims or encumbrances.

6.32 Insider Interests; Related Party Transactions. Except for inventors who have assigned their patent rights to the Company and which assignments have been filed with the United States Patent and Trademark Office, to the Company's knowledge no executive officer or director of the Company has any material interest in any material property, real or personal, tangible or intangible, including any invention, patent, trademark or trade name, used in or pertaining to the business of the Company.

6.33 Real Property Holding Corporation. The Company is not a real property holding corporation within the meaning of Section 897(c)(2) of the Internal Revenue Code of 1986, as amended, and any regulations promulgated thereunder.

7. Representations, Warranties and Covenants of the Investors.

Each Investor, severally and not jointly, hereby represents and warrants to the Company as follows:

7.1 Investment Experience and Interest. Such Investor represents and warrants to, and covenants with, the Company that: (a) the Investor is an "accredited investor" as defined in Regulation D under the Securities Act and the Investor is knowledgeable, sophisticated and experienced in making, and is qualified to make decisions with respect to, investments in shares presenting an investment decision like that involved in the purchase of the Shares and the Warrants, including investments in securities issued by the Company and investments in comparable companies, and has requested, received, reviewed and considered all

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information it deemed relevant in making an informed decision to purchase the Shares and the Warrants, (b) the Investor is acquiring the number of Shares set forth on Schedule A hereto and the Warrants to purchase the number of shares of

Common Stock set forth on Schedule A hereto in the ordinary course of its business and for its own account and with no present intention of distributing any of such Shares or Warrants or any arrangement or understanding with any other persons regarding the distribution of such Shares or Warrants, (c) the Investor will not, directly or indirectly, offer, sell, pledge, transfer or otherwise dispose of (or solicit any offers to buy, purchase or otherwise acquire or take a pledge of) any of the Shares or the Warrants except in compliance with the Securities Act, applicable state securities laws and the respective rules and regulations promulgated thereunder and (d) the Investor has, in connection with its decision to purchase the number of Shares set forth on Schedule A hereto and the Warrants to purchase the number of shares of Common Stock set forth on Schedule A hereto, relied only upon the SEC Documents and the information incorporated by reference therein and the representations and warranties of the Company contained herein.

7.2 Registration or Exemption Requirements. Such Investor acknowledges and understands that the Shares and the Warrants may not be resold or otherwise transferred except in a transaction registered under the Securities Act, or unless an exemption from such registration is available. Such Investor understands that the Warrants and the certificates evidencing the Shares will be imprinted with a legend that prohibits the transfer of such securities unless (a) they are registered or such registration is not required and (b) if the transfer is pursuant to an exemption from registration under the Securities Act and, if the Company shall so request in writing, an opinion of counsel reasonably satisfactory to the Company is obtained to the effect that the transaction is so exempt; provided, however, that notwithstanding the foregoing, Section 3.2(d) hereof shall also apply to such transfers.

7.3 Foreign Jurisdictions. Such Investor acknowledges, represents and agrees that no action has been or will be taken in any jurisdiction outside the United States by the Company, or any agents acting on behalf of the Company, that would permit an offering of the Shares or the Warrants, or possession or distribution of offering materials in connection with the issue of the Shares and the Warrants, in any jurisdiction outside the United States where action for that purpose is required. Each Investor outside the United States will comply with all applicable laws and regulations in each foreign jurisdiction in which it purchases, offers, sells or delivers the Shares or the Warrants or has in its possession or distributes any offering material, in all cases at its own expense.

7.4 Due Authorization. Such Investor has all requisite corporate power and authority to execute, deliver and perform its obligations under the Agreements and Warrants, and the Agreements and Warrants have been duly authorized and validly executed and delivered by the Investor and no other corporate action on the part of the Investor is necessary to authorize the execution and delivery by the Investor of the Agreements or the Warrants. The Agreements and Warrants constitute legal, valid and binding agreements of the Investor, enforceable against the Investor in accordance with their terms, except as rights to indemnity and contribution may be limited by state or federal securities laws or the public policy underlying such laws, except as enforceability may be limited by applicable bankruptcy, insolvency, reorganization, moratorium or similar laws affecting creditors' and contracting parties' rights

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generally, and except as enforceability may be subject to general principles of equity (regardless of whether such enforceability is considered in a proceeding in equity or at law).

7.5 No Legal, Tax or Investment Advice. Such Investor understands that nothing in the Agreements or any other materials presented to the Investor in connection with the purchase and sale of the Shares and Warrants constitutes legal, tax or investment advice. The Investor has consulted such legal, tax and investment advisors as it, in its sole discretion, has deemed necessary or appropriate in connection with its purchase of the Shares and the Warrants. The Investor has not, and will not, rely on the fairness opinion, if any, that the Financial Advisor may deliver to the Board of Directors with respect to the Offering.

8. Covenants.

8.1 Stockholders' Meeting. The Company shall, in accordance with the laws of the State of Delaware, its certificate of incorporation and its bylaws, as each may be amended, use its commercially reasonable best efforts to convene a meeting of holders of the Common Stock (the "Stockholders' Meeting") within thirty (30) days (or such other time period that is mutually agreed to by the Company and a Majority in Interest of Investors) after the date of the Proxy Statement (as defined in Section 8.2), to consider and vote upon giving Stockholder Approval. The Board of Directors shall recommend such approval by the stockholders (the "Company Recommendation") and shall not (i) withdraw, modify or qualify (or propose to withdraw, modify or qualify) in any manner adverse to Investors such recommendation in favor of the Required Stockholder Approval or (ii) take any action or make any statement in connection with the

Stockholders' Meeting inconsistent with such recommendation in favor of the Required Stockholder Approval (collectively, a "Change in the Company Recommendation"); provided, however, that the Board of Directors may make a Change in the Company Recommendation pursuant to Section 8.7 hereof and to effect any action permitted by Section 9 hereof. Notwithstanding any Change in the Company Recommendation, the Company shall nonetheless cause the Stockholders' Meeting to be convened and a vote to be taken, and nothing contained herein shall be deemed to relieve the Company of such obligation unless this Agreement is terminated pursuant to Section 9.

8.2 Filing of Proxy Statement; Amendment of Form 10-K. Not later than May 9, 2003, the Company shall prepare and file with the SEC a proxy statement meeting the requirements of Section 14 of the Exchange Act and the related rules and regulations thereunder promulgated by the SEC (the "Proxy Statement") to solicit Stockholder Approval. The Company shall use its commercially reasonable best efforts to cause the Proxy Statement to be cleared by the SEC as promptly as reasonably practicable after such filing, and shall promptly mail the Proxy Statement to the stockholders of the Company. The Company shall keep the Investors apprised of the status of matters relating to the Proxy Statement and the Stockholders' Meeting, including promptly furnishing the Investors and their counsel with copies of notices or other communications related to the Proxy Statement, the Stockholders' Meeting or the transactions contemplated hereby received by the Company from the SEC or Nasdaq. The Company shall use its commercially reasonable best efforts to prepare and file with the SEC prior to the filing of the Proxy Statement an amendment of its Annual Report on Form 10-K for the year ended December 31, 2002 in order to file certain agreements as identified in Section 6.14 of the Company's Disclosure Schedule.

17.

8.3 Election of Directors. The Company will use its commercially reasonable best efforts to cause, at the Closing, (i) the MPM Representatives to be appointed as members of the Board of Directors, (ii) one (1) of the MPM Representatives to be designated as a member of the compensation committee of the Board of Directors and (iii) one (1) of the MPM Representatives to be designated as a member of the nominating committee of the Board of Directors.

8.4 Nasdaq Listing. The Company shall file a listing application with Nasdaq for the Shares and the Warrant Shares.

8.5 Delivery of Warrant Shares. The Company covenants to each Investor that, upon exercise of the Warrant(s) held by such Investor, it shall use its commercially reasonable efforts to cause the Warrant Shares to be issued and promptly delivered to such Investor in accordance with the Certificate; provided, however, that such issuance and delivery shall occur no later than ten (10) business days after the Company's receipt of the Investor's surrender of the Warrant(s) that such Investor desires to exercise.

8.6 Rights Offering and Option Plan Matters.

(a) The Company and the Investors acknowledge and agree that, promptly after the Closing, the Company intends to offer to its stockholders (excluding the Investors) non-transferable rights to purchase 15,625,000 shares of Common Stock at the Purchase Price, and each Investor hereby agrees to waive any right to participate in such rights offering.

(b) The Company and the Investors acknowledge and agree that the Company shall solicit the approval of its stockholders of, and, if such stockholder approval is obtained, shall effect (i) at the Closing, the Plan Amendments and (ii) after the Closing, the Repricing.

8.7 No Solicitation.

(a) The Company and each of its officers, directors and agents shall not take, cause or permit (and the Company shall use its commercially reasonable efforts to ensure that none of its representatives takes, causes or permits) any person to take, directly or indirectly, any of the following actions with any third party: (i) solicit, knowingly encourage, initiate or participate in any negotiations, inquiries or discussions with respect to any offer or proposal to acquire the business, assets or capital shares of the Company (excluding non-exclusive licenses entered into in the ordinary course of business), whether by merger, consolidation, other business combination, purchase of capital stock, purchase of assets, license, lease, tender or exchange offer or otherwise (each of the foregoing, an "Alternative Proposal"), (ii) disclose, in connection with an Alternative Proposal, any nonpublic information concerning Company's business or properties or afford to any third party access to its properties, books or records, except in the ordinary course of business and as required by law or pursuant to a governmental request for information, (iii) enter into or execute any agreement providing for an Alternative Proposal or (iv) make or authorize any public statement, recommendation or solicitation in support of any Alternative Proposal or any offer or proposal relating to an

Alternative Proposal, other than with respect to the Offering; provided, however, that, in each case, (A) if and to the extent that (1) the Stockholders' Meeting has not yet occurred, (2) the Board of Directors believes in good faith, after consultation with the Company's legal counsel (and, in order for the Company to withhold, withdraw, modify or change in a manner adverse to the Investors or effect a Change in the Company Recommendation, the Company's Financial Advisor), that such Alternative Proposal is, or could reasonably be expected to lead to, a Superior Proposal (as defined hereafter) and (3) the Board of Directors believes in good faith, considering the advice of the Company's counsel, that the failure to participate in such negotiations or discussions, disclose such nonpublic information or provide such access to its properties, books or records would be inconsistent with the fiduciary duties of the Board of Directors under applicable law, then the Company may participate in discussions or negotiations regarding such Alternative Proposal, provide non-public information with respect to the Company (but only to the extent that such information was previously provided to the Investors prior to the execution of this Agreement or is provided to the Investors concurrently therewith) or afford access to the properties, books or records of the Company, as applicable, for no more than five (5) business days from the date of receipt of such Alternative Proposal and (B) if and to the extent that (1) the Stockholders' Meeting has not yet occurred, (2) the Board of Directors believes in good faith, after consultation with the Company's legal counsel (and, in order for the Company to withhold, withdraw, modify or change in a manner adverse to the Investors or effect a Change in the Company Recommendation, the Company's Financial Advisor), that such Alternative Proposal is a Superior Proposal and (3) the Board of Directors believes in good faith, considering the advice of the Company's counsel, that the failure to participate in such negotiations or discussions, disclose such nonpublic information, provide such access to its properties, books or records, enter into any agreement providing for such Superior Proposal or make or authorize any public statement, recommendation or solicitation in support of such Superior Proposal or any offer or proposal relating to such Superior Proposal would be inconsistent with the fiduciary duties of the Board of Directors under applicable law, then the Company may participate in discussions or negotiations regarding such Superior Proposal, provide non-public information with respect to the Company (but only to the extent that such information was previously provided to the Investors prior to the execution of this Agreement or is provided to the Investors concurrently therewith), afford access to the properties, books or records of the Company, enter into any agreement relating to such Superior Proposal (subject to full compliance with Section 8.8 hereof) or make or authorize any public statement, recommendation or solicitation in support of such Superior Proposal or any offer or proposal relating to an Superior Proposal, as applicable (subject to full compliance with Section 8.8 hereof).

(b) In the event that the Company is contacted by any third party expressing an interest in discussing an Alternative Proposal, the Company will promptly, but in no event later than twenty-four (24) hours following the Company's knowledge of such contact, notify the Investors in writing of such contact and the identity of the third party so contacting the Company and shall promptly, but in no event later than twenty-four (24) hours, advise the Investors of any material modification or proposed modification thereto.

(c) Nothing contained in this Agreement shall prohibit the Company or the Board of Directors from taking and disclosing to the Company's stockholders a

position with respect to an unsolicited bona fide tender or exchange offer by a third party pursuant to Rule 14e-2(a) of the Exchange Act or from making any disclosure required by applicable law.

(d) For purposes of this Agreement, a "Superior Proposal" means any unsolicited written bona fide offer or proposal from any party other than the parties hereto and any of their affiliates to acquire all or thirty percent (30%) or more of the business, assets or capital shares of the Company (excluding non-exclusive licenses entered into in the ordinary course of business), whether by merger, consolidation, other business combination, purchase of capital stock, purchase of assets, license, lease, tender or exchange offer or otherwise, (i) on terms (including conditions to consummation of the contemplated transaction) which the Board of Directors in its reasonable good faith judgment (after consultation with and based on the written advice of its Financial Advisor) believes to be more favorable to its stockholders from a financial point of view than the Offering and the transactions contemplated by this Agreement and (ii) that is not attributable to a material breach by the Company of Section 8.7(a) hereof.

(e) Notwithstanding Section 8.7 hereof, the Company may negotiate with respect to the transaction identified in Section 8.7 of the Company's Disclosure Schedule on the conditions identified therein; provided, however, that any such material terms as disclosed in Section 8.7 of the Company's Disclosure Schedule shall not change. The negotiation or consummation

of such transaction (i) shall not affect the obligations of the Company pursuant to the Agreements, including, but not limited to, the obligation of the Company to complete the transactions contemplated hereby, and (ii) shall not be construed as a Superior Proposal.

8.8 Third Party Offer. During the period from the date of this Agreement until the Closing or the effective date of termination of this Agreement pursuant to the termination provisions of Sections 9.1(a), 9.1(b), 9.1(c), 9.1(d), 9.1(f) or 9.1(g), if the Board of Directors determines in good faith to accept a Superior Proposal, prior to accepting such Superior Proposal, the Company shall first (a) disclose to the Investors the terms and conditions of such Superior Proposal and (b) offer the Investors the opportunity to enter into a transaction with the Company on terms no less favorable to the Company and its stockholders from a financial point of view (including conditions to consummation of the contemplated transactions) than those contained in the Superior Proposal (the "Offer"). A Majority in Interest of the Investors shall be entitled to notify the Company within five (5) business days of the terms of a transaction with the Company in response to the Offer (a "Counter Proposal"). If the terms of the Counter Proposal are determined by the Board of Directors (after consultation with its legal and financial advisors) in good faith to be no less favorable to the Company and its stockholders from a financial point of view (including conditions to consummation of the contemplated transaction) than those contained in the Superior Proposal, then the Company shall accept the Counter Proposal. If the Company does not receive a Counter Proposal from a Majority in Interest of the Investors within such five (5) business day period, the Company may accept the Superior Proposal, provided there are no subsequent material changes to the terms of such Superior Proposal. If the terms of such Superior Proposal are materially changed, such Superior Proposal shall be deemed a new proposal and shall be subject to each of the terms of this Section

20.

8.8. This Section 8.8 shall apply to any Superior Proposal made by any person or entity at any time prior to the termination of the Investors' rights under this Section 8.8.

8.9 Operation of Business. Except as contemplated by this Agreement, the Company shall carry on its business in the ordinary course in substantially the same manner as heretofore conducted and, to the extent consistent with such business, use its commercially reasonable efforts consistent with past practice and policies to preserve intact its present business organizations, keep available the services of its present officers, consultants and employees and preserve its relationships with customers, suppliers and others having business dealings with it. The Company shall promptly notify the Investors of any event or occurrence or emergency, which is not in the ordinary course of business of the Company. The Company shall not amend or modify the charter of any committee of the Board of Directors without the consent of a Majority in Interest of the Investors, which consent shall not be unreasonably withheld.

8.10 Reasonable Efforts; Notification; Representations. Subject to the other terms and conditions of this Agreement, each of the parties to this Agreement shall use its commercially reasonable efforts to take promptly, or cause to be taken, all actions, and to do promptly, or cause to be done, all things necessary, proper or advisable under applicable laws and regulations to consummate and make effective the Offering contemplated by this Agreement. Each party to this Agreement shall give prompt notice to each other party to this Agreement upon becoming aware that any representation or warranty made by such party in this Agreement has become untrue or inaccurate or that such party has failed to comply with or satisfy in any material respect any covenant, condition or agreement to be complied with or satisfied by such party under this Agreement, in each case such that the conditions set forth in Section 4 or Section 5, as the case may be, would not be satisfied. No party to this Agreement shall take any action that would cause any representation or warranty made by such party in this Agreement to be untrue if made at the Closing.

8.11 Indemnification Agreements; Charter Documents. Promptly following the date hereof and prior to the time that the MPM Representatives become members of the Board of Directors, the Company shall execute indemnification agreements with each director appointed or elected to the Board of Directors pursuant to Section 8.3.

8.12 HSR Compliance. The Company and each of the Investors shall at all times use commercially reasonable efforts to comply with the provisions of the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended.

8.13 Executive Recruiting Firm. The Company shall retain an executive recruiting firm, reasonably acceptable to a Majority in Interest of the Investors, to conduct a search for and diligently pursue the hire of a senior executive officer in the area of drug development (which individual shall have extensive small molecule development experience and expertise and be acceptable to the Board of Directors) until such time as such senior executive officer in the area of drug development is appointed by the Board of Directors.

9. Termination.

9.1 Termination Events. Without prejudice to other remedies that may be available to the parties by law or this Agreement, this Agreement may be terminated and the transactions contemplated hereby may be abandoned at any time prior to the Closing:

(a) mutually, by the written consent of the Company and a Majority in Interest of the Investors;

(b) by either the Company or a Majority in Interest of the Investors by giving written notice to the other party or parties if the Closing shall not have occurred prior to August 31, 2003, unless extended by written agreement of such parties; provided, however, that the party seeking termination pursuant to this subsection (b) is not in default or material breach hereunder and provided, further, that the right to terminate this Agreement under this subsection (b) shall not be available to any party whose failure to fulfill any obligation under this Agreement has been the cause of, or resulted in, the failure of the Closing to occur on or before such date;

(c) by either the Company or a Majority in Interest of the Investors by giving written notice to the other party or parties if any governmental entity shall have issued an injunction or other ruling prohibiting the consummation of any of the transactions contemplated by this Agreement and such injunction or other ruling shall not be subject to appeal or shall have become final and unappealable;

(d) by either the Company or a Majority in Interest of the Investors in the event that the Required Stockholder Approval is not obtained at the Stockholders' Meeting;

(e) by either the Company or a Majority in Interest of the Investors, if (i) the Company shall have entered into an agreement to consummate a Superior Proposal, (ii) the Board of Directors shall have recommended to the stockholders of the Company a Superior Proposal or (iii) the Board of Directors shall have withdrawn, modified or qualified in any manner adverse to the Investors or made any public statement inconsistent with the Company Recommendation; provided, however, that, in order for the termination of this Agreement by the Company pursuant to this clause (e) to be deemed effective, the Company shall have complied with all provisions of Sections 8.7 and 8.8;

(f) by a Majority in Interest of the Investors, if (i) the Company shall have materially breached any covenant or obligation in this Agreement and such breach is not cured within ten (10) business days of the date of the delivery to the Company by an Investor of a written notice of such breach or (ii) any of the Company's representations and warranties contained in this Agreement shall have become inaccurate as of a date subsequent to the date of this Agreement (as if made on such subsequent date), such that the condition set forth in Section 5.1 would not be satisfied as of such date and such breach is not cured within thirty (30) days of the date of the delivery to the Company by an Investor of a written notice of such breach; or

(g) by a Majority in Interest of the Investors, if there shall have occurred an event or events which, individually or in the aggregate, constitute a Material Adverse Effect on the Company and such Material Adverse Effect on the Company continues for at least thirty (30) days after the date of delivery to the Company by an Investor of a written notice of such Material Adverse Effect on the Company.

9.2 Effect of Termination. In the event of any termination of this Agreement pursuant to Section 9.1, all rights and obligations of the parties hereunder shall terminate without any liability on the part of any party or its Affiliates in respect thereof; provided, however, that such termination shall not relieve the Company or any Investor of any liability for any willful breach of this Agreement. If this Agreement is terminated pursuant to Section 9.1(d) or Section 9.1(f)(i), the Company shall promptly reimburse the Investors for their reasonable and documented legal, financial, due diligence and advisory out-of-pocket fees and expenses incurred directly in connection with this Agreement and the transactions contemplated hereby (subject to the limit on legal expenses set forth in Section 10.4). If this Agreement is terminated pursuant to Section 9.1(e), the Company shall (a) promptly reimburse the Investors for their reasonable and documented legal, financial, due diligence and advisory out-of-pocket fees and expenses incurred directly in connection with this Agreement and the transactions contemplated hereby (subject to the limit on legal expenses set forth in Section 10.4) and (b) upon the consummation of a transaction resulting from the Superior Proposal, shall pay to the Investors an aggregate amount of \$1.5 million. Each Investor's pro rata share of such \$1.5 million payment shall be determined in relation to the proportion that such Investor's Aggregate Purchase Price bears to the total Aggregate Purchase Price committed by all Investors.

10. Miscellaneous.

10.1 Notices. All notices, requests, consents and other communications hereunder shall be in writing; shall be mailed (a) if within the domestic United States, by first-class registered or certified airmail, by nationally recognized overnight express courier, postage prepaid, or by facsimile or (b) if delivered to or from outside the United States, by International Federal Express or facsimile; shall be deemed given: (i) if delivered by first-class registered or certified mail domestic, three business days after so mailed, (ii) if delivered by nationally recognized overnight carrier, one business day after so mailed, (iii) if delivered by International Federal Express, two business days after so mailed or (iv) if delivered by facsimile, upon electric confirmation of receipt; and shall be delivered as addressed as follows:

(a) if to the Company, to:

Rigel Pharmaceuticals, Inc.
1180 Veterans Boulevard
South San Francisco, CA 94080
Attn: James M. Gower
Chairman and Chief Executive Officer
Phone: (650) 624-1100
Telecopy: (650) 624-1133

23.

(b) with a copy mailed to:

Cooley Godward LLP
Five Palo Alto Square
3000 El Camino Real
Palo Alto, CA 94306
Attn: Suzanne Sawochka Hooper
Phone: (650) 843-5000
Telecopy: (650) 849-7400

(c) if to the Investors, at the addresses on the Schedule A hereto, or at such other address or addresses as may have been furnished to the Company in writing.

10.2 Amendment and Waiver. Any provision of this Agreement may be amended, waived or modified only upon the written consent of the Company and a Majority in Interest of the Investors; provided, however, that no amendment, waiver or modification of this Section 10.2, the form of Warrant attached hereto as Exhibit A or any of the conditions to the Investors' obligations set forth in Section 5, and no amendment, waiver or modification of any provision of this Agreement which is detrimental to any Investor in a manner materially different from any other Investor, shall be made without the consent of each affected Investor. Subject to the foregoing, any amendment or waiver effected in accordance with this Section 10.2 shall be binding upon each Investor and the Company.

10.3 Survival of Representations, Warranties and Agreements. Notwithstanding any investigation made by any party to this Agreement, all covenants, agreements, representations and warranties made by the Company and the Investors herein shall survive the execution of this Agreement until the third (3rd) anniversary of the Closing.

10.4 Expenses. The Company shall pay all costs and expenses that it incurs with respect to the negotiation, execution, delivery and performance of the Agreement and the transactions contemplated thereby. The Company shall, at the Closing, reimburse the reasonable and documented fees and expenses of counsel for MPM Capital incurred directly in connection with this Agreement and the transactions contemplated hereby, up to a maximum of \$100,000.00 (the "MPM Fees"); provided, however, that if the SEC informs the Company that the Proxy Statement will be subject to a full review by, and comments from, the SEC, then the Company and MPM Capital shall negotiate in good faith to reach mutual agreement regarding a necessary increase in the maximum amount of the MPM Fees, if any.

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10.5 Attorneys' Fees. In the event that any suit or action is instituted under or in relation to this Agreement, including without limitation to enforce any provision in this Agreement, the prevailing party in such dispute shall be entitled to recover from the losing party all fees, costs and expenses of enforcing any right of such prevailing party under or with respect to this Agreement, including without limitation, such reasonable fees and expenses of attorneys and accountants, which shall include, without limitation, all fees, costs and expenses of appeals.

10.6 Public Announcements. Except as may be required by law or regulation, the Company shall not use the name of, or make reference to, any Investor or any of its affiliates in any press release or in any public manner (including any reports or filings made by the Company under the Exchange Act) without such Investor's prior written consent, which consent shall not be unreasonably withheld. The initial press release with respect to the execution of this Agreement shall be approved by the Company and MPM Capital on behalf of the Investors. Thereafter, so long as this Agreement is in effect, the Company and the Investors shall consult with each other before issuing any press release or otherwise making any public statements with respect to this Agreement or the transactions contemplated hereby without the prior consent of the other party, which consent shall not be unreasonably withheld; provided, however, that the Company, on the one hand, and the Investors, on the other hand, may, without the prior consent of the other party, issue a press release or make such public statement as may, upon the advice of counsel, be required by law if it has used all reasonable efforts to consult with the other party.

10.7 Headings. The headings of the various sections of this Agreement have been inserted for convenience of reference only and shall not be deemed to be part of this Agreement.

10.8 Pronouns. All pronouns contained herein, and any variations thereof, shall be deemed to refer to the masculine, feminine or neutral, singular or plural, as to the identity of the parties hereto may require.

10.9 Severability. In case any provision contained in this Agreement should be invalid, illegal or unenforceable in any respect, the validity, legality and enforceability of the remaining provisions contained herein shall not in any way be affected or impaired thereby.

10.10 Governing Law. This Agreement shall be governed by, and construed in accordance with, the internal laws of the State of California, without giving effect to the principles of conflicts of law. The parties agree that any action brought by either party under or in relation to this Agreement, including without limitation to interpret or enforce any provision of this Agreement, shall be brought in, and each party agrees to and does hereby submit to the jurisdiction and venue of, any state or federal court located in the County of San Francisco, California.

10.11 Entire Agreement. This Agreement, including the Exhibits hereto, constitutes the full and entire understanding and agreement between the parties with regard to the subjects hereof, and no party shall be liable or bound to any other in any manner by any oral or written representations, warranties, covenants and agreements except as specifically set forth herein. Each party expressly represents and warrants that it is not relying on any oral or written representations, warranties, covenants or agreements outside of this Agreement.

10.12 Counterparts. This Agreement may be executed in two (2) or more counterparts, each of which shall constitute an original, but all of which, when taken together, shall constitute but one (1) instrument, and shall become effective when one (1) or more counterparts have been signed by each party hereto and delivered to the other parties.

25.

10.13 Confidential Disclosure Agreement. Notwithstanding any provision of this Agreement to the contrary, any confidential disclosure agreement previously executed by the Company and the Investors in connection with the transactions contemplated by this Agreement shall remain in full force and effect in accordance with its terms following the execution of this Agreement and the consummation of the transactions contemplated hereby.

10.14 Tax Disclosure. Notwithstanding any provision of this Agreement to the contrary, any party to this Agreement (and any employee, representative, shareholder or other agent of any party to this Agreement) may disclose to any and all persons, without limitation of any kind, the tax treatment and tax structure of the transactions contemplated by this Agreement and all materials of any kind (including opinions or other tax analyses) that are provided to it relating to such tax treatment and tax structure; provided however, that such disclosure may not be made to the extent reasonably necessary to comply with any applicable federal or state securities laws; and provided further, that for this purpose, (a) the "tax treatment" of a transaction means the purported or claimed federal income tax treatment of the transaction and (b) the "tax structure" of a transaction means any fact that may be relevant to understanding the purported or claimed federal income tax treatment of the transaction.

26.

IN WITNESS WHEREOF, the parties hereto have executed this COMMON STOCK AND WARRANT PURCHASE AGREEMENT as of the date set forth in the first paragraph hereof.

COMPANY:

INVESTORS:

RIGEL PHARMACEUTICALS, INC.

MPM BIOVENTURES III, L.P.

By: _____

By: MPM BioVentures III GP, L.P.,
its General Partner

Name: _____

By: MPM BioVentures III LLC,
its General Partner

Title: _____

By: _____

Name: _____

Title: Series A Member

MPM BIOVENTURES III-QP, L.P.

By: MPM BioVentures III GP, L.P.,
its General Partner

By: MPM BioVentures III LLC,
its General Partner

By: _____

Name: _____

Title: Series A Member

SIGNATURE PAGE TO
COMMON STOCK AND WARRANT PURCHASE AGREEMENT

MPM BIOVENTURES III GMBH & CO.
PARALLEL-BETEILIGUNGS KG

By: MPM BioVentures III GP, L.P.,
in its capacity as the Managing
Limited Partner

By: MPM BioVentures III LLC,
its General Partner

By: _____

Name: _____

Title: Series A Member

MPM BIOVENTURES III PARALLEL
FUND, L.P.

By: MPM BioVentures III GP, L.P.,
its General Partner

By: MPM BioVentures III LLC,
its General Partner

By: _____

Name: _____

Title: Series A Member

SIGNATURE PAGE TO
COMMON STOCK AND WARRANT PURCHASE AGREEMENT

MPM ASSET MANAGEMENT
INVESTORS 2003 BVIII LLC

By:

Name: -----
Title: Manager
MPM BIOEQUITIES MASTER FUND,
By: MPM BioEquities GP, L.P.,
its General Partner
By: MPM BioEquities GP LLC,
its General Partner
By: -----
Name: -----
Title: General Partner

SIGNATURE PAGE TO
COMMON STOCK AND WARRANT PURCHASE AGREEMENT

ALTA BIOPHARMA PARTNERS II, L.P.
By: Alta BioPharma Management Partners
II, LLC
By: -----
Managing Director
ALTA EMBARCADERO BIOPHARMA
PARTNERS II, LLC
By: -----
V.P. of Finance & Admin.

SIGNATURE PAGE TO
COMMON STOCK AND WARRANT PURCHASE AGREEMENT

FRAZIER HEALTHCARE IV, L.P.
By: FHM IV, LP, its General Partner
By: FHM IV, LLC, its General Partner
By: -----
Nathan Every,
Authorized Representative

FRAZIER AFFILIATES IV, L.P.
By: FHM IV, LP, its General Partner
By: FHM IV, LLC, its General Partner
By: -----
Nathan Every,
Authorized Representative

SIGNATURE PAGE TO
COMMON STOCK AND WARRANT PURCHASE AGREEMENT

HBM BIOVENTURES (CAYMAN) LTD.
By: -----
Name: John Arnold
Title: Chairman and Managing Director

SIGNATURE PAGE TO
COMMON STOCK AND WARRANT PURCHASE AGREEMENT

SCHEDULE A

SCHEDULE OF INVESTORS

Investor	Aggregate Purchase Price	Shares Purchased	Warrant Shares
<hr/>			
<S>	<C>	<C>	<C>
MPM BioVentures III, L.P. 111 Huntington Avenue 31st Floor Boston, MA 02199 (617) 425-9200 (T) (617) 425-9201 (F)	\$1,399,249.92	2,186,328	437,265
MPM BioVentures III-QP, L.P. 111 Huntington Avenue 31st Floor Boston, MA 02199 (617) 425-9200 (T) (617) 425-9201 (F)	\$20,810,575.36	32,516,524	6,503,304
MPM BioVentures III GmbH & Co. Parallel-Beteiligungs KG 111 Huntington Avenue 31st Floor Boston, MA 02199 (617) 425-9200 (T) (617) 425-9201 (F)	\$1,758,750.08	2,748,047	549,609
MPM BioVentures III Parallel Fund, L.P. 111 Huntington Avenue 31st Floor Boston, MA 02199 (617) 425-9200 (T) (617) 425-9201 (F)	\$628,499.84	982,031	196,406
MPM Asset Management Investors 2003 BVIII LLC 111 Huntington Avenue 31st Floor Boston, MA 02199 (617) 425-9200 (T) (617) 425-9201 (F)	\$402,924.80	629,570	125,914
MPM BioEquities Master Fund, L.P. 111 Huntington Avenue 31st Floor Boston, MA 02199 (617) 425-9200 (T) (617) 425-9201 (F)	\$1,000,000.00	1,562,500	312,500

<hr/>			
<S>	<C>	<C>	<C>
Alta BioPharma Partners II, L.P. One Embarcadero Center Suite 4050 San Francisco, CA 94111 (415) 362-4022 (T) (415) 362-6178 (F)	\$7,233,884.80	11,302,945	2,260,589
Alta Embarcadero BioPharma Partners II, LLC One Embarcadero Center Suite 4050 San Francisco, CA 94111 (415) 362-4022 (T) (415) 362-6178 (F)	\$266,115.20	415,805	83,161
Frazier Healthcare IV, L.P. 601 Union Street, Suite 3300 Seattle, WA 98101 (206) 621-7200 (T) (206) 621-1848 (F)	\$7,462,120.35	11,659,563	2,331,912
Frazier Affiliates IV, L.P. 601 Union Street, Suite 3300 Seattle, WA 98101 (206) 621-7200 (T) (206) 621-1848 (F)	\$37,879.65	59,186	11,837
HBM BioVentures (Cayman) Ltd. Unit 10 Eucalyptus Building	\$5,000,000.00	7,812,500	1,562,500

Crewe Road
P.O. Box 30852 SMB
Grand Cayman, Cayman Islands
(345) 946-8002 (T) (345) 946-8003 (F)

TOTALS \$46,000,000.00 71,874,999 14,374,997
</TABLE>

SCHEDULE B

PROPOSED INCENTIVE PLAN AMENDMENTS (1)

<TABLE>
<CAPTION>

	2000 Equity Incentive Plan	2000 Non-Employee Director Plan	2000 Employee Stock Purchase Plan
<S> Proposed Amendments	<C> Increase of 14,400,000 reserved shares and addition of "evergreen" features.(2)	<C> Increase of 600,000 reserved shares and 200% increase in option grants.	<C> Increase of 600,000 reserved shares.

</TABLE>

- (1) All numbers reflected are pre-Reverse Stock Split.
(2) The Company shall not determine the size of the evergreen increase without the consent of a Majority in Interest of the Investors, which consent shall not be unreasonably withheld.

EXHIBIT A

FORM OF WARRANT

Exhibit B

RIGEL PHARMACEUTICALS, INC.

STOCK CERTIFICATE AND WARRANT QUESTIONNAIRE

Pursuant to Section 3.1 of the Agreement, please provide us with the following information:

- The exact name in which your Shares and Warrants are to be registered (i.e., the name that will appear on your stock certificate(s)). You may use a nominee name if appropriate:
- The relationship between the Investor and the registered holder listed in response to item 1 above:
- The mailing address of the registered holder listed in response to item 1 above:
- The Social Security Number or Tax Identification Number of the registered holder listed in the response to item 1 above:

EXHIBIT C

AMENDED AND RESTATED CERTIFICATE OF INCORPORATION

EXHIBIT D

FORM OF LEGAL OPINION OF COMPANY'S COUNSEL

EXHIBIT E

FORM OF SECOND INVESTOR RIGHTS AGREEMENT

EXHIBIT F
OFFICER'S CERTIFICATE

EXHIBIT G
SECRETARY'S CERTIFICATE

EXHIBIT H
VOTING AGREEMENT

I-1.