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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 10-Q

☑ **QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the quarterly period ended June 30, 2008,

or

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For transition period from_____.

Commission File Number: 001-31918

IDERA PHARMACEUTICALS, INC.

(Exact name of registrant as specified in its charter)

Delaware	**04-3072298**
(State or other jurisdiction of incorporation or organization)	*(I.R.S. Employer Identification No.)*

167 Sidney Street
Cambridge, Massachusetts 02139
(Address of principal executive offices)

(617) 679-5500
(Registrant's telephone number, including area code)

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☑ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer ☐ Accelerated filer ☑ Non-accelerated filer ☐ (Do not check if a smaller reporting company) Smaller reporting company ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act.) Yes ☐ No ☑

Indicate the number of shares outstanding of each of the issuer's classes of common stock, as of the latest practicable date.

Common Stock, par value $.001 per share	**22,949,289**
Class	Outstanding as of July 31, 2008

IDERA PHARMACEUTICALS, INC.
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IMO™, Idera® and GEM® are our trademarks. All other trademarks and service marks appearing in this quarterly report are the property of their respective owners.

FORWARD-LOOKING STATEMENTS

This Quarterly Report on Form 10-Q contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. All statements, other than statements of historical fact, included or incorporated in this report regarding our strategy, future operations, collaborations, intellectual property, financial position, future revenues, projected costs, prospects, plans, and objectives of management are forward-looking statements. The words "believes," "anticipates," "estimates," "plans," "expects," "intends," "may," "could," "should," "potential," 'likely," "projects," "continue," "will," and "would" and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. We cannot guarantee that we actually will achieve the plans, intentions or expectations disclosed in our forward-looking statements and you should not place undue reliance on our forward-looking statements. There are a number of important factors that could cause our actual results to differ materially from those indicated or implied by forward-looking statements. These important factors include those set forth below under Part II, Item 1A "Risk Factors." These factors and the other cautionary statements made in this Quarterly Report on Form 10-Q should be read as being applicable to all related forward-looking statements whenever they appear in this Quarterly Report on Form 10-Q. In addition, any forward-looking statements represent our estimates only as of the date that this Quarterly Report on Form 10-Q is filed with the SEC and should not be relied upon as representing our estimates as of any subsequent date. We do not assume any obligation to update any forward-looking statements. We disclaim any intention or obligation to update or revise any forward-looking statement, whether as a result of new information, future events or otherwise.

PART I — FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS.

IDERA PHARMACEUTICALS, INC.
CONDENSED BALANCE SHEETS
(UNAUDITED)

(in thousands, except per share amounts)	June 30, 2008	December 31, 2007
ASSETS		
Current assets:		
Cash and cash equivalents	$ 48,534	$ 12,588
Short-term investments	8,726	11,155
Receivables	801	628
Prepaid expenses and other current assets	722	656
Total current assets	58,783	25,027
Long-term investments	2,245	—
Property and equipment, net	1,962	1,964
Non-current portion of prepaid expenses	104	104
Restricted cash	619	619
Total assets	$ 63,713	$ 27,714
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 903	$ 1,177
Accrued expenses	2,052	1,745
Current portion of capital lease	18	20
Current portion of note payable	—	266
Current portion of deferred revenue	22,398	5,911
Total current liabilities	25,371	9,119
Capital lease obligation, net of current portion	41	50
Note payable, net of current portion	—	877
Deferred revenue, net of current portion	23,258	9,874
Other liabilities	136	75
Total liabilities	48,806	19,995
Commitments and contingencies		
Stockholders' equity:		
Preferred stock, $0.01 par value,		
Authorized — 5,000 shares		
Series A convertible preferred stock,		
Designated — 1,500 shares,		
Issued and outstanding — 1 share at June 30, 2008 and December 31, 2007	—	—
Common stock, $0.001 par value,		
Authorized — 40,000 shares		
Issued and outstanding — 22,729 and 21,569 shares at June 30, 2008 and December 31, 2007, respectively	23	22
Additional paid-in capital	358,595	350,423
Accumulated deficit	(343,569)	(342,734)
Accumulated other comprehensive (loss) income	(47)	8
	15,002	7,719
Treasury shares, at cost - 7 shares at June 30, 2008	(95)	—
Total stockholders' equity	14,907	7,719
Total liabilities and stockholders' equity	$ 63,713	$ 27,714

The accompanying notes are an integral part of these financial statements.

IDERA PHARMACEUTICALS, INC.
CONDENSED STATEMENTS OF OPERATIONS
(UNAUDITED)

(in thousands, except per share amounts)	Three Months Ended June 30, 2008	Three Months Ended June 30, 2007	Six Months Ended June 30, 2008	Six Months Ended June 30, 2007
Alliance revenue	$ 7,865	$ 1,949	$ 12,637	$ 3,778
Operating expenses:				
Research and development	3,752	2,990	8,286	5,809
General and administrative	3,232	2,383	5,648	4,336
Total operating expenses	6,984	5,373	13,934	10,145
Income (loss) from operations	881	(3,424)	(1,297)	(6,367)
Other income (expense):				
Investment income, net	410	429	816	906
Interest expense	(5)	(13)	(87)	(74)
Foreign currency exchange loss	—	—	(267)	—
Income (loss) before income taxes	1,286	(3,008)	(835)	(5,535)
Income tax benefit	50	—	—	—
Net income (loss)	$ 1,336	$ (3,008)	$ (835)	$ (5,535)
Income (loss) per share (Note 14):				
Basic	$ 0.06	$ (0.14)	$ (0.04)	$ (0.26)
Diluted	$ 0.05	$ (0.14)	$ (0.04)	$ (0.26)
Shares used in computing basic income (loss) per common share	22,481	21,254	22,190	21,023
Shares used in computing diluted income (loss) per common share	25,507	21,254	22,190	21,023

The accompanying notes are an integral part of these financial statements.

IDERA PHARMACEUTICALS, INC.
CONDENSED STATEMENTS OF CASH FLOWS
(UNAUDITED)

(in thousands)	Six Months Ended June 30, 2008	2007
Cash Flows From Operating Activities:		
Net loss	$ (835)	$ (5,535)
Adjustments to reconcile net loss to net cash provided by (used in) operating activities -		
Stock-based compensation	1,302	753
Non-employee stock options	470	165
Depreciation and amortization	302	142
Issuance of common stock for services rendered	12	24
Changes in operating assets and liabilities -		
Accounts receivable	(223)	(12)
Prepaid expenses and other current assets	(16)	9
Accounts payable and accrued expenses	94	220
Deferred revenue	29,871	(2,350)
Net cash provided by (used in) operating activities	30,977	(6,584)
Cash Flows From Investing Activities:		
Purchase of available-for-sale securities	(11,062)	(39,257)
Proceeds from sale of available-for-sale securities	—	18,435
Proceeds from maturity of available-for-sale securities	11,145	8,680
Purchase of property and equipment	(254)	(1,185)
Net cash used in investing activities	(171)	(13,327)
Cash Flow From Financing Activities:		
Proceeds from exercise of common stock options and warrants and employee stock purchases	6,389	328
Net proceeds from issuance of note payable	—	1,278
Payments on note payable	(1,143)	—
Purchase of treasury stock	(95)	—
Payments on capital lease	(11)	(5)
Net cash provided by financing activities	5,140	1,601
Net increase (decrease) in cash and cash equivalents	35,946	(18,310)
Cash and cash equivalents, beginning of period	12,588	24,596
Cash and cash equivalents, end of period	$ 48,534	$ 6,286
Supplemental disclosure of cash flow information:		
Cash paid for interest	$ 87	$ 74
Cash paid for income taxes	$ 50	$ —
Supplemental disclosure of non-cash financing and investing activities:		
Conversion of 4% convertible subordinated notes into common stock	$ —	$ 5,033

The accompanying notes are an integral part of these financial statements.

IDERA PHARMACEUTICALS, INC.
NOTES TO CONDENSED FINANCIAL STATEMENTS
JUNE 30, 2008
(UNAUDITED)

(1) (a) Organization

Idera Pharmaceuticals, Inc. ("Idera" or the "Company") is a biotechnology company engaged in the discovery and development of DNA- and RNA-based drug candidates targeted to Toll-Like Receptors, or TLRs, to treat infectious diseases, autoimmune diseases, cancer, and asthma and allergies, and for use as vaccine adjuvants. Drug candidates are compounds that the Company is developing and have not been approved for any commercial use. TLRs are specific receptors present in immune system cells that recognize the DNA or RNA of pathogens such as bacteria or viruses and initiate an immune response. Relying on its expertise in DNA and RNA chemistry, the Company has designed and created proprietary TLR agonists and antagonists to modulate immune responses. A TLR agonist is a compound that stimulates an immune response through the targeted TLR. A TLR antagonist is a compound that blocks activation of an immune response through the targeted TLR.

The Company is focused on developing TLR-targeted compounds for the potential treatment of infectious diseases, autoimmune diseases, and cancer. IMO-2125, a TLR9 agonist, is the Company's lead drug candidate for infectious diseases. At present, a Phase 1 clinical trial of IMO-2125 is underway in patients with chronic hepatitis C virus infection who have not responded to current standard of care therapy. The Company's infectious disease program also includes evaluation of RNA-based compounds that act as agonists of TLR7 and TLR8. The Company has evaluated these compounds in preclinical studies in human cell-based assays and *in vivo* in non-human primates and intends to further evaluate these compounds in preclinical models of infectious disease. In the Company's autoimmune disease program, it has identified DNA-based compounds that act as antagonists of TLR7 and TLR9. The Company has evaluated these compounds in various preclinical studies, including in mouse models of lupus, rheumatoid arthritis, multiple sclerosis, and psoriasis, and selected IMO-3100, a TLR antagonist, as a lead compound for preclinical development in its autoimmune disease program. The Company's cancer treatment research program is focused on potential applications of TLR7 and TLR8 agonists. The Company intends to further evaluate these compounds in preclinical models of cancer.

In addition, Idera is collaborating with three pharmaceutical companies to advance the Company's TLR-targeted compounds in multiple disease areas. The Company is collaborating with Merck KGaA for cancer treatment excluding cancer vaccines, with Merck & Co. Inc., for vaccine adjuvants, and with Novartis International Pharmaceutical, Ltd., or Novartis, for treatment of asthma and allergies. Merck KGaA and Merck & Co. are not related.

The Company has incurred operating losses in all fiscal years except 2002 and in the three months ended June 30, 2008 and had an accumulated deficit of $343.6 million at June 30, 2008. The Company may incur substantial operating losses in future periods. The Company does not expect to generate significant funds internally until it successfully completes development and obtains marketing approval for products, either alone or in collaborations with third parties, which the Company expects will take a number of years. In order to commercialize its therapeutic products, the Company needs to address a number of technological challenges and to comply with comprehensive regulatory requirements.

(b) Recently Adopted Accounting Pronouncements

In July 2007, the Emerging Issues Task Force ("EITF") issued EITF 07-3, "*Accounting for Nonrefundable Advance Payments for Goods or Services to be Used in Future Research and Development Activities*" ("EITF 07-3"). EITF 07-3 clarifies the accounting for nonrefundable advance payments for goods or services that will be used or rendered for research and development activities. EITF 07-3 states that such payments should be capitalized and recognized as an expense as the goods are delivered or the related services are performed. If an entity does not expect the goods to be delivered or the services rendered, the capitalized advance payment should be charged to expense. The Company adopted EITF 07-3 on January 1, 2008. The adoption of EITF 07-3 did not have a material effect on the Company's financial statements.

In December 2007, the EITF issued EITF 07-1, "*Accounting for Collaborative Arrangements Related to the Development and Commercialization of Intellectual Property*" ("EITF 07-1"). EITF 07-1 defines collaborative arrangements and establishes reporting and disclosure requirements for transactions between participants in a collaborative arrangement and between participants in the arrangement and third parties. EITF 07-1 is effective for fiscal years beginning after December 15, 2008. The Company is currently evaluating the effect of EITF 07-1 on its financial statements.

(2) Unaudited Interim Financial Statements

The accompanying unaudited financial statements included herein have been prepared by the Company in accordance with generally accepted accounting principles for interim financial information and pursuant to the rules and regulations of the Securities and Exchange Commission. Accordingly, certain information and footnote disclosures normally included in financial statements prepared in accordance with United States generally accepted accounting principles have been condensed or omitted pursuant to such rules and regulations. In the opinion of management, all adjustments, consisting of normal recurring adjustments, considered necessary for a fair presentation of interim period results have been included. The Company believes that its disclosures are adequate to make the information presented not misleading. Interim results for the three and six months ended June 30, 2008 are not necessarily indicative of results that may be expected for the year ended December 31, 2008. For further information, refer to the financial statements and footnotes thereto included in the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2007, which was filed with the Securities and Exchange Commission on March 11, 2008.

(3) (a) Cash Equivalents and Investments

The Company considers all highly liquid investments with maturities of 90 days or less when purchased to be cash equivalents. Cash and cash equivalents at June 30, 2008 and December 31, 2007 consisted of cash and money market funds.

The Company accounts for investments in accordance with Statement of Financial Accounting Standards (SFAS) No. 115, "*Accounting for Certain Investments in Debt and Equity Securities"* (SFAS No. 115). Management determines the appropriate classification of marketable securities at the time of purchase. In accordance with SFAS No. 115, investments that the Company does not have the positive intent to hold to maturity are classified as "available-for-sale" and reported at fair market value. Unrealized gains and losses associated with available-for-sale investments are recorded in "Accumulated other comprehensive (loss) income" on the accompanying balance sheets. The amortization of premiums and accretion of discounts, and any realized gains and losses and declines in value judged to be other than temporary, and interest and dividends for all available-for-sale securities are included in "Investment income, net" on the accompanying statements of operations. The Company had no "held-to-maturity" investments, as defined by SFAS No. 115, at June 30, 2008 and December 31, 2007. The cost of securities sold is based on the specific identification method.

The Company had no realized gains or losses from available-for-sale securities for the three and six months ended June 30, 2008 and 2007. There were no losses or permanent declines in value included in "investment income, net" for any securities in the three and six months ended June 30, 2008 and 2007.

The Company's available-for-sale investments at market value consisted of the following at June 30, 2008 and December 31, 2007:

(in thousands)	June 30, 2008	December 31, 2007
Certificates of deposit	$ —	$ 2,801
Corporate bonds due in one year or less	8,726	1,653
Corporate bonds due in more than one year	2,245	—
Government bonds due in one year or less	—	6,701
Total	$ 10,971	$ 11,155

(3) (b) Fair Values of Assets and Liabilities

In September 2006, the Financial Accounting Standards Board (FASB) issued Statement of Financial Accounting Standards (SFAS) No. 157, "*Fair Value Measurements*," effective for financial statements issued for fiscal years beginning after November 15, 2007. SFAS No. 157 replaces multiple existing definitions of fair value with a single definition, establishes a consistent framework for measuring fair value and expands financial statement disclosures regarding fair value measurements. This Statement applies only to fair value measurements that already are required or permitted by other accounting standards and does not require any new fair value measurements. The Company's adoption of SFAS No. 157 in the first quarter of 2008 did not have a material impact on the Company's financial position or results of operations.

In accordance with the provisions of SFAS No. 157, the Company measures fair value at the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The Statement prioritizes the assumptions that market participants would use in pricing the asset or liability (the "inputs") into a three-tier fair value

hierarchy. This fair value hierarchy gives the highest priority (Level 1) to quoted prices in active markets for identical assets or liabilities and the lowest priority (Level 3) to unobservable inputs in which little or no market data exists, requiring companies to develop their own assumptions. Observable inputs that do not meet the criteria of Level 1, and include quoted prices for similar assets or liabilities in active markets or quoted prices for identical assets and liabilities in markets that are not active, are categorized as Level 2. Level 3 inputs are those that reflect the Company's estimates about the assumptions market participants would use in pricing the asset or liability, based on the best information available in the circumstances. Valuation techniques for assets and liabilities measured using Level 3 inputs may include unobservable inputs such as projections, estimates and management's interpretation of current market data. These unobservable Level 3 inputs are only utilized to the extent that observable inputs are not available or cost-effective to obtain.

The table below presents the assets and liabilities measured at fair value on a recurring basis at June 30, 2008 categorized by the level of inputs used in the valuation of each asset and liability.

(in thousands)	Total	Quoted Prices in Active Markets for Identical Assets or Liabilities (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets				
Money market funds	$ 48,383	$ 48,383	$ —	$ —
Short-term investments	10,971	—	10,971	—
Total	$ 59,354	$ 48,383	$ 10,971	$ —
Liabilities	$ —	$ —	$ —	$ —

The money market funds are classified as Level 1 since they are actively traded daily at $1.00 per share.

The fair value of short-term investments is generally determined from quoted market prices received from pricing services based upon quoted prices from active markets and/or other significant observable market transactions at fair value. Since these prices may not represent actual transactions of identical securities, they are classified as Level 2. Since all short-term investments are classified as available-for-sale securities, any gains or losses are recorded in other comprehensive gains or losses in the equity section of the balance sheet.

The Company also adopted the provisions of SFAS No. 159 "*The Fair Value Option for Financial Assets and Financial Liabilities — Including an Amendment of FASB Statement No. 115*" in the first quarter of 2008. This Statement allows companies to choose to measure eligible assets and liabilities at fair value with changes in value recognized in earnings. Fair value treatment may be elected either upon initial recognition of an eligible asset or liability or, for an existing asset or liability, if an event triggers a new basis of accounting. The Company did not elect to re-measure any of its existing financial assets or liabilities under the provisions of this Statement.

(4) Property and Equipment

At June 30, 2008 and December 31, 2007, net property and equipment at cost consists of the following:

(in thousands)	June 30, 2008	December 31, 2007
Leasehold improvements	$ 432	$ 430
Laboratory equipment and other	2,837	2,585
Total property and equipment, at cost	3,269	3,015
Less: Accumulated depreciation and amortization	1,307	1,051
Property and equipment, net	$ 1,962	$ 1,964

Laboratory equipment and other includes approximately $98,000 of office equipment financed under a capital lease with accumulated depreciation of approximately $29,000 and $19,000, as of June 30, 2008 and December 31, 2007, respectively. Depreciation expense, which includes amortization of assets recorded under capital leases, was approximately $134,000 and $61,000 for the three months ended June 30, 2008 and 2007, respectively, and $256,000 and $127,000 for the six months ended June 30, 2008 and 2007, respectively.

(5) Restricted Cash

As part of the operating lease entered into by the Company in October 2006, the Company was required to restrict $619,000 of cash for a security deposit. These funds are held in certificates of deposit securing a line of credit for the lessor. The restricted cash is expected to be reduced by approximately $103,000 upon each of the second, third and fourth anniversaries of the lease commencement date of June 2007, subject to certain conditions.

(6) Note Payable

In June 2007, the Company executed a promissory note in the aggregate principal amount of $1.3 million (the "Note") in favor of General Electric Capital Corporation ("GE"). The Note was fully secured by specific laboratory, manufacturing, office and computer equipment and was subject to the terms of a master security agreement dated April 23, 2007 by and between the Company and GE. The Note bore interest at a fixed rate of 11% per annum, and was payable in 48 consecutive monthly installments of principal and accrued interest, with the first installment having been paid out of the proceeds of the borrowing.

In March 2008, the Company paid approximately $1,189,000 to GE as payment in full of all obligations outstanding under the Company's Note. The payment represented approximately $1,121,000 of principal plus accrued interest through the date of payment of approximately $12,000 and a prepayment premium of approximately $56,000. The Note was cancelled in March 2008.

(7) 4% Convertible Notes Payable

In May 2005, the Company sold approximately $5,033,000 in aggregate principal amount of 4% convertible subordinated notes that were due April 30, 2008 (the "4% Notes"). In February 2007, the Company automatically converted these 4% Notes into 706,844 shares of the Company's common stock. In accordance with the terms of the 4% Notes and an agreement dated May 20, 2005, among the Company and the holders of the 4% Notes, the Company was entitled to exercise this right of automatic conversion because the volume-weighted average of the closing prices of the Company's common stock, for a period of ten consecutive trading days, exceeded $8.90 per share, which represented 125% of the conversion price of the 4% Notes. As of February 20, 2007, the 4% Notes were no longer considered outstanding and interest ceased to accrue. Holders of the 4% Notes were paid cash in lieu of any fractional shares and $61,000 in accrued interest through February 19, 2007.

The Company capitalized its financing costs associated with the sale of the 4% Notes and amortized them as interest expense through February 19, 2007. The unamortized balance of the deferred financing costs of $266,000 was reclassified to additional paid-in-capital in connection with the automatic conversion of the 4% Notes in the six months ended June 30, 2007.

(8) Comprehensive Income (Loss)

The following table includes the components of comprehensive income (loss) for the three and six months ended June 30, 2008 and 2007.

	Three months ended June 30,		Six months ended June 30,	
(in thousands)	2008	2007	2008	2007
Net income (loss)	$ 1,336	$ (3,008)	$ (835)	$ (5,535)
Other comprehensive loss	(45)	(13)	(55)	(21)
Total comprehensive income (loss)	$ 1,291	$ (3,021)	$ (890)	$ (5,556)

Other comprehensive loss represents the net unrealized losses on available-for-sale investments.

(9) License Agreement with Merck KGaA

In December 2007, the Company entered into an exclusive, worldwide license agreement with Merck KGaA to research, develop and commercialize products containing the Company's TLR9 agonists for the treatment of cancer, excluding cancer vaccines, which agreement became effective February 4, 2008. Under the terms of the agreement, Idera granted Merck KGaA worldwide exclusive rights to its lead TLR9 agonists, IMO-2055 and IMO-2125, and to a specified number of novel, follow-on TLR9 agonists to be identified by Merck KGaA and the Company under a research collaboration, for use in the treatment, cure and/or delay of the onset or progression of cancer in humans. Under the terms of the agreement, in February 2008 Merck KGaA paid the Company a

$40.0 million upfront license fee in Euros of which $39.7 million was received due to foreign currency exchange rates in effect at that time. The Company is recognizing the $40.0 million upfront payment paid under the collaboration as revenue over the expected period of the Company's continuing involvement. Under the Agreement, Merck KGaA is reimbursing the Company for development costs for certain on-going IMO-2055 clinical trials, which are continuing to be conducted by the Company. Merck KGaA also agreed to reimburse future development costs for certain of the Company's planned IMO-2055 clinical trials, which will be conducted by the Company, to pay up to EUR 264 million in development, regulatory approval, and commercial success milestone payments if products containing the Company's TLR9 agonist compounds are successfully developed and marketed for treatment, cure and/or delay of the onset or progression of cancer in humans, and to pay royalties on net sales of products containing the Company's TLR9 agonists that are marketed.

(10) Collaboration and License Agreement with Merck & Co., Inc.

In December 2006, the Company entered into an exclusive license and research collaboration agreement with Merck & Co. to research, develop, and commercialize vaccine products containing the Company's TLR7, 8 and 9 agonists in the fields of cancer, infectious diseases, and Alzheimer's disease. Under the terms of the agreement, the Company granted Merck & Co. worldwide exclusive rights to a number of the Company's TLR7, 8 and 9 agonists for use in combination with Merck & Co.'s therapeutic and prophylactic vaccines under development in the fields of cancer, infectious diseases, and Alzheimer's disease. The Company also agreed with Merck & Co. to engage in a two-year research collaboration to generate novel agonists targeting TLR7 and TLR8 and incorporating both Merck & Co. and Idera chemistry for use in vaccines in the defined fields, which may be extended by Merck & Co. for two additional one-year periods. Under the terms of the agreement: Merck & Co. paid the Company a $20.0 million upfront license fee; Merck & Co. purchased $10.0 million of the Company's common stock at $5.50 per share; and Merck & Co. agreed to fund the research and development collaboration. Merck & Co. also agreed to pay the Company milestone payments as follows: up to $165.0 million if vaccines containing the Company's TLR9 agonist compounds are successfully developed and marketed in each of the oncology, infectious disease and Alzheimer's disease fields; up to $260.0 million if vaccines containing the Company's TLR9 agonist compounds are successfully developed and marketed for follow-on indications in the oncology field and if vaccines containing the Company's TLR7 or TLR8 agonists are successfully developed and marketed in each of the oncology, infectious disease, and Alzheimer's disease fields; and if Merck & Co. develops and commercializes additional vaccines using the Company's agonists, it would be entitled to receive additional milestone payments. In addition, Merck & Co. agreed to pay the Company royalties on net product sales of vaccines using the Company's TLR agonist technology that are developed and marketed.

The Company is recognizing the $20.0 million upfront payment as revenue over the two-year initial research term and the additional two-year-period over which the research term could be extended. The Company has estimated that this is its period of continuing involvement under the research arrangement.

In December 2006, in connection with the execution of the license and collaboration agreement, the Company entered into a stock purchase agreement with Merck & Co. Pursuant to the purchase agreement, the Company issued and sold to Merck & Co. 1,818,182 shares of the Company's common stock for a price of $5.50 per share resulting in an aggregate gross proceeds of $10.0 million. Merck & Co. agreed, subject to certain exceptions, that prior to December 8, 2007, it would not sell any of the shares of the Company's common stock acquired by it and that, for the duration of the research term, its ability to sell such shares will be subject to specified volume limitations.

In April 2008, the Company, under its collaboration agreement with Merck & Co., achieved a preclinical milestone with one of its novel TLR9 agonists used as an adjuvant in cancer vaccines. As a result, the Company received a $1.0 million milestone payment from Merck & Co.

(11) Collaboration and License Agreement with Novartis International Pharmaceutical, Ltd.

In May 2005, the Company entered into a research collaboration and option agreement and a separate license, development and commercialization agreement with Novartis to discover, develop and potentially commercialize TLR9 agonists that are identified as potential treatments for asthma and allergies. The Company and Novartis agreed that the term of the research and collaboration phase would be two years commencing in May 2005. The Company initially was recognizing the $4.0 million upfront payment paid under the collaboration as revenue over the two-year term of the research collaboration. In February 2007, Novartis elected to extend the research collaboration by an additional year. As a result of such extension, Novartis paid the Company an additional $1.0 million in May 2007. In March 2008, the Company agreed to extend the research collaboration until December 31, 2008. The extension is anticipated to allow for the advancement of QAX935, a novel agonist of TLR9, into human clinical trials prior to the end of the research collaboration term. The Company amortizes the upfront payment and the extension payment over the expected research term.

(12) Stock-Based Compensation

The Company accounts for share-based payments to employees under SFAS No. 123R, *"Share-Based Payment*," (SFAS No. 123R). This statement requires the Company to recognize all share-based payments to employees in the financial statements based on their fair values. Under SFAS No. 123R, the Company is required to record compensation expense over an award's vesting period based on the award's fair value at the date of grant. The Company's policy is to charge the fair value of stock options as an expense on a straight-line basis over the vesting period. The Company included charges of $644,000 and $409,000 for the three months ended June 30, 2008 and 2007, respectively, and $1,302,000 and $753,000 for the six months ended June 30, 2008 and 2007, respectively, in its statements of operations representing the stock compensation expense computed in accordance with SFAS No. 123R.

The Company's stock compensation plans include the 1995 Stock Option Plan, the 1995 Director Stock Option Plan, the 1995 Employee Stock Purchase Plan, the 1997 Stock Incentive Plan, the 2005 Stock Incentive Plan and the 2008 Stock Incentive Plan, all of which have been approved by the Company's stockholders. No additional options are being granted under the 1995 Stock Option Plan, the 1995 Director Stock Option Plan, the 1997 Stock Incentive Plan and the 2005 Stock Incentive Plan. In 2001, the Company also granted options to purchase shares of Common Stock pursuant to agreements that were not approved by stockholders.

The fair value of each option award is estimated on the date of grant using the Black-Scholes option-pricing model and expensed over the requisite service period on a straight-line basis. The following assumptions apply to the options granted during the six months ended June 30, 2008 and 2007:

	Six Months Ended June 30,	
	2008	2007
Average risk free interest rate	3.3%	4.8%
Expected dividend yield	—	—
Expected lives	5 years	6 years
Expected volatility	65.3%	70.5%
Weighted average grant date fair value of options granted during the period (per share)	$ 7.62	$ 4.87

The Company also awarded non-employee stock options to purchase 60,000 shares of common stock during the first quarter of 2008. These options had a Black-Scholes fair value of $710,000 at the time of grant based on a risk free interest rate of 3.9%, an expected life of 10 years, and an expected volatility of 95%. In addition, the Company awarded non-employee stock options to purchase 26,000 shares of common stock during the second quarter of 2008. These options had a Black-Scholes fair value of $330,000 at the time of grant based on a risk free interest rate of 4.0%, an expected life of 10 years, and an expected volatility of 91%. The fair value of the nonvested portion of the non-employee options will be remeasured each quarter in accordance with EITF No. 96-18, "*Accounting for Equity Instruments That Are Issued to Other than Employees for Acquiring, or in Conjunction with Selling, Goods or Services*" (EITF No. 96-18). Expense for non-employee stock options was $368,000 and $75,000 in the three months ended June 30, 2008 and 2007, respectively, and $470,000 and $165,000, in the six months ended June 30, 2008 and 2007, respectively.

(13) Alternative Minimum Tax

Merck KGaA paid the Company in February 2008 a $40.0 million upfront license fee in Euros of which $39.7 million was received due to foreign currency exchange rates in effect at that time. In the three months ended March 31, 2008, the Company made an estimated quarterly tax payment and recorded income tax expense of $50,000 as a result of the payment from Merck KGaA generating income that the Company believed would be subject to the alternative minimum tax, or AMT. In the three months ended June 30, 2008, the Company reversed the $50,000 recorded as income tax expense as the Company no longer expects to have income subject to AMT. The Company did not have income subject to AMT for the three or six months ended June 30, 2007.

(14) Net Income (Loss) per Common Share

The following table sets forth the computation of basic and diluted income (loss) per share:

(in thousands, except per share amounts)	Three Months Ended June 30, 2008	Three Months Ended June 30, 2007	Six Months Ended June 30, 2008	Six Months Ended June 30, 2007
Numerator for basic and dilutive net income (loss) per share:				
Net income (loss)	$ 1,336	$ (3,008)	$ (835)	$ (5,535)
Denominator for basic income (loss) per share:				
Weighted average common shares outstanding	22,481	21,254	22,190	21,023
Effect of dilutive securities:				
Common stock options and warrants	3,026	—	—	—
Denominator for diluted income (loss) per share	25,507	21,254	22,190	21,023
Basic income (loss) per share	$ 0.06	$ (0.14)	$ (0.04)	$ (0.26)
Diluted income (loss) per share	$ 0.05	$ (0.14)	$ (0.04)	$ (0.26)

For the three months ended June 30, 2008, 100,426 shares were not included in the computation of diluted net income per share as the effects of certain stock options and convertible preferred stock are antidilutive. For the six months ended June 30, 2008 and the three and six months ended June 30, 2007, diluted net loss per share of common stock is the same as basic net loss per share of common stock, as the effects of the Company's potential common stock equivalents are antidilutive. Total antidilutive securities were 6,388,313 and 7,407,978 for the six months ended June 30, 2008 and 2007, respectively, and consist of shares underlying stock options, warrants and convertible preferred stock. Net income (loss) applicable to common stockholders is the same as net income (loss) for all periods presented.

(15) Stockholders' Equity

In January 2008, the Company sent notice to holders of the Company's warrants to purchase common stock that were issued in August 2004 with an expiration date of August 27, 2009 (the "August 2004 Warrants") that under the terms of the warrant agreement, it intended to redeem on March 31, 2008 any August 2004 Warrants not exercised as of that date for a redemption price of $0.08 per share of common stock underlying the August 2004 Warrants. The Company was entitled to exercise this redemption right because the closing price of the Company's common stock for twenty consecutive trading days ending December 20, 2007 was greater than $10.72 or 200% of the exercise price of the warrant. The August 2004 Warrants were exercisable by cash payment only and had an exercise price of $5.36 per share of common stock. Following such notice and through March 31, 2008, the Company received approximately $1,472,000 in proceeds from the exercise of August 2004 Warrants to purchase 274,650 shares of common stock. As of March 31, 2008, all August 2004 Warrants had been exercised.

In June 2008, the Company sent notice to the holder of a warrant to purchase 70,084 shares of the Company's common stock that was issued in May 2005 with an expiration date of May 24, 2010 (the "May 2005 Warrant") that, under the terms of the warrant agreement, it intended to redeem on September 12, 2008 the May 2005 Warrant if not exercised as of that date for a redemption price of $0.08 per share of common stock underlying the May 2005 Warrant. The Company was entitled to exercise this redemption right because the closing price of the Company's common stock for twenty consecutive trading days ending June 3, 2008 was greater than $14.24 or 200% of the exercise price of the warrant. The May 2005 Warrant is exercisable by cash payment only and has an exercise price of $7.12 per share of common stock. The May 2005 warrant remained outstanding as of June 30, 2008.

During the six months ended June 30, 2008, the Company issued 1,159,168 shares of common stock in connection with warrant and stock option exercises resulting in total proceeds to the Company of $6,389,000.

(16) Related Party Transactions

During the three and six months ended June 30, 2008, the Company recorded expense of $47,000 and $94,000, respectively, for consulting services provided by Dr. Robert W. Karr, a director of the Company. The Company had no related party transactions in the three and six months ended June 30, 2007.

(17) Subsequent Events

On July 3, 2008 the Company filed a certificate of amendment to its Restated Certificate of Incorporation which increased the number of shares of common stock authorized for issuance from 40,000,000 shares to 70,000,000 shares. The increase had been previously approved by the Company's stockholders at the 2008 annual meeting of stockholders.

ITEM 2. *MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS*

GENERAL

We are engaged in the discovery and development of DNA- and RNA-based drug candidates targeted to Toll-Like Receptors, or TLRs, to treat infectious diseases, autoimmune diseases, cancer, and asthma and allergies, and for use as vaccine adjuvants. Drug candidates are compounds that we are developing and have not been approved for any commercial use. TLRs are specific receptors present in immune system cells that recognize the DNA or RNA of pathogens such as bacteria or viruses and initiate an immune response. Relying on our expertise in DNA and RNA chemistry, we have designed and created proprietary TLR agonists and antagonists to modulate immune responses. A TLR agonist is a compound that stimulates an immune response through the targeted TLR. A TLR antagonist is a compound that blocks activation of an immune response through the targeted TLR.

We are focused on developing TLR-targeted compounds for the potential treatment of infectious diseases, autoimmune diseases, and cancer. IMO-2125, a TLR9 agonist, is our lead drug candidate for infectious diseases. At present, we are conducting a Phase 1 clinical trial of IMO-2125 in patients with chronic hepatitis C virus infection who have not responded to current standard of care therapy. As part of our infectious disease program, we are also evaluating RNA-based compounds that act as agonists of TLR7 and TLR8. We have evaluated these compounds in preclinical studies in human cell-based assays and *in vivo* in non-human primates. We intend to further evaluate these compounds in preclinical models of infectious disease. In our autoimmune disease program, we have identified DNA-based compounds that act as antagonists of TLR7 and TLR9. We have evaluated these compounds in various preclinical studies, including in mouse models of lupus, rheumatoid arthritis, multiple sclerosis, and psoriasis, and selected IMO-3100, a TLR antagonist, as a lead compound for preclinical development in our autoimmune disease program. Our cancer treatment research program is focused on potential applications of our TLR7 and TLR8 agonists. We intend to further evaluate these compounds in preclinical models of cancer.

In addition, we are collaborating with three pharmaceutical companies to advance our TLR-targeted compounds in multiple disease areas. We are collaborating with Merck KGaA to research, develop, and commercialize products containing our TLR9 agonists, including IMO-2055, for the treatment of cancer, excluding cancer vaccines. We are also collaborating with Merck & Co., Inc. for the use of our TLR7, 8 and 9 agonists in combination with Merck & Co.'s therapeutic and prophylactic vaccines in the areas of oncology, infectious diseases, and Alzheimer's disease and with Novartis International Pharmaceutical, Ltd., for the discovery, development, and commercialization of our TLR9 agonists for the treatment of asthma and allergy indications. Merck KGaA and Merck & Co. are not related.

As of June 30, 2008, we had an accumulated deficit of $343,569,000. We may incur substantial operating losses in future periods. No assurance can be given that we will be able to operate profitably on a consistent basis, or at all, in the future. We do not expect to generate significant funds until we successfully complete development and obtain marketing approval for products, either alone or in collaborations with third parties, which we expect will take a number of years. In order to commercialize our products, we need to address a number of technological challenges and to comply with comprehensive regulatory requirements. In 2008, we expect that our research and development expenses will be higher than our research and development expenses in 2007 as we expand our IMO-2125 development program and accelerate our early-stage programs on TLR antagonists and on agonists of TLR7 and TLR8.

CRITICAL ACCOUNTING POLICIES AND ESTIMATES

This management's discussion and analysis of financial condition and results of operations is based on our financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States. The preparation of these financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. On an ongoing basis, management evaluates its estimates and judgments, including those related to revenue recognition. Management bases its estimates and judgments on historical experience and on various other factors that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

We regard an accounting estimate or assumption underlying our financial statements as a "critical accounting estimate" where (i) the nature of the estimate or assumption is material due to the level of subjectivity and judgment necessary to account for highly uncertain matters or the susceptibility of such matters to change; and (ii) the impact of the estimates and assumptions on financial

condition or operating performance is material.

Our significant accounting policies are described in Note 2 of the Notes to Financial Statements in our Annual Report on Form 10-K for the year ended December 31, 2007. Not all of these significant accounting policies, however, fit the definition of "critical accounting estimates." We believe that our accounting policies relating to revenue recognition and stock based compensation, as described under the caption "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations — Critical Accounting Policies" in our Annual Report on Form 10-K for the year ended December 31, 2007, fit the definition of "critical accounting estimates and judgments."

RESULTS OF OPERATIONS

Three and Six Months Ended June 30, 2008 and 2007

Alliance Revenue

Our alliance revenues were comprised of revenue earned under various collaboration and licensing agreements for research and development, including reimbursement of internal and third-party expenses, license fees, which includes sublicense fees and royalties, and milestones.

The following is a summary of our alliance revenues:

	Three Months Ended June 30, (In thousands)			Six Months Ended June 30, (In thousands)		
	2008	2007	Percentage Increase (Decrease)	2008	2007	Percentage Increase (Decrease)
License fees	$ 5,881	$ 1,707	245%	$ 10,142	$ 3,440	195%
Research and Development	984	242	307%	1,495	338	342%
Milestones	1,000	—	—	1,000	—	—
Total Alliance Revenue	$ 7,865	$ 1,949	304%	$ 12,637	$ 3,778	234%

Total alliance revenue increased by $5,916,000, or 304%, for the three months ended June 30, 2008 compared to the same period in 2007 and increased by $8,859,000, or 234%, for the six months ended June 30, 2008 compared to the same period in 2007.

License fees primarily include license fee revenue recognized under our collaborations with Merck KGaA, Merck & Co., and Novartis. License fees are comprised of a portion of upfront license fee payments we have received from alliance partners with whom we are still involved. License fees in the three and six month periods increased primarily due to license fee revenue we recognized under our collaboration with Merck KGaA, which became effective February 4, 2008. We are recognizing the $40.0 million upfront payment we received from Merck KGaA in February 2008 over the expected period of our continuing involvement.

The increases in research and development in the three and six month periods are due to the sale of bulk IMO-2055 drug supply and reimbursable clinical trial costs from trials we are conducting under our collaboration agreement with Merck KGaA and increased reimbursable research costs attributable to expanding research under our Merck & Co. collaboration agreement.

The increase in alliance revenue in the three and six month periods is also attributable to milestone revenue earned under our collaboration with Merck & Co. relating to a preclinical milestone achieved with one of our novel TLR9 agonists used as an adjuvant in cancer vaccines.

Research and Development Expenses

Research and development expenses increased by $762,000, or 25%, from $2,990,000 for the three months ended June 30, 2007 to $3,752,000 for the three months ended June 30, 2008, and increased by $2,477,000, or 43%, from $5,809,000 for the six months ended June 30, 2007 to $8,286,000 for the six months ended June 30, 2008. The increases in research and development expenses in the three and six months ended June 30, 2008 compared to the three and six months ended June 30, 2007 were primarily due to increased non-clinical safety studies and clinical costs associated with IMO-2125, increased clinical costs associated with IMO-2055, a portion of which are reimbursable under our agreement with Merck KGaA, increased research expenses under our Merck & Co. agreement, which are also reimbursable, increased allocated costs associated with our new facility, which we moved into during the second quarter of 2007, and increased compensation expenses attributable to employee stock options and accrued performance-based bonus expense. No performance- based bonus expense was accrued in the three and six months ended June 30, 2007.

	Three Months Ended June 30, (In thousands)			Six Months Ended June 30, (In thousands)		
	2008	2007	Percentage Increase (Decrease)	2008	2007	Percentage Increase (Decrease)
IMO-2055 External Development Expense	$ 555	$ 385	44%	$ 1,111	$ 760	46%
IMO-2125 External Development Expense	529	235	125%	1,792	235	663%
Other Drug Development Expense	960	906	6%	1,983	2,089	(5%)
Basic Discovery Expense	1,708	1,464	17%	3,400	2,725	25%
Total Research and Development Expense	$ 3,752	$ 2,990	25%	$ 8,286	$ 5,809	43%

In the preceding table, research and development expense is set forth in the following four categories:

IMO-2055 External Development Expenses. These expenses include external expenses that we have incurred in connection with IMO-2055, our lead compound being developed for oncology applications. These external expenses reflect payments to independent contractors and vendors for drug development activities conducted after the initiation of IMO-2055 clinical trials and drug manufacturing and related costs but exclude internal costs such as payroll and overhead expenses. Since 2003, when we commenced clinical development of IMO-2055, we have incurred approximately $13.6 million in external expenses through June 30, 2008 in connection with IMO-2055.

External development expenses for IMO-2055 increased by $170,000, or 44%, from $385,000 for the three months ended June 30, 2007 to $555,000 for the three months ended June 30, 2008 and increased by $351,000, or 46%, from $760,000 for the six months ended June 30, 2007 to $1,111,000 for the six months ended June 30, 2008. The increase in IMO-2055 expenses for both periods was primarily attributable to higher clinical trial expenses as we advanced our Phase 1b trial of IMO-2055 combined with Avastin® and Tarceva® in patients with non-small cell lung cancer. The increase in IMO-2055 expenses for the six months ended June 30, 2008 compared to the same period in 2007 was also attributable, in part, to data analysis and report preparation for our Phase 2 clinical trial of IMO-2055 in patients with metastatic or recurrent clear cell renal cancer. The increases in both periods were partially offset by decreases in expenses related to our Phase 1 clinical trial of IMO-2055 combined with gemcitabine and carboplatin in patients with solid tumor cancers, which we closed to enrollment in July 2007. Under our collaboration agreement with Merck KGaA, approximately $261,000 of expenses in the three months ended June 30, 2008 and $364,000 of expenses in the six months ended June 30, 2008 related to the Phase 1b combination trial are reimbursable.

In October 2004, we commenced patient recruitment for an open label, multi-center Phase 2 Stage A clinical trial of IMO-2055 as a monotherapy in patients with metastatic or recurrent clear cell renal cancer. Under the protocol for the trial, we sought to enroll a total of up to 92 patients in Stage A of the trial, 46 who had failed one prior therapy and 46 who were treatment-naïve. We closed enrollment in this trial on June 29, 2007. As of that date, we had enrolled 46 treatment-naïve patients and 45 patients who had failed one prior therapy. The last patient stopped receiving treatment in March 2008. Data collection and preparations for the analysis are underway and we expect the data to be available in the third quarter of 2008. Once the final results are available, we expect to report them at an appropriate scientific meeting. Under our collaboration with Merck KGaA, Merck KGaA will determine how to proceed with IMO-2055 in the treatment of metastatic or recurrent clear cell renal cancer.

In October 2005, we began patient recruitment in the Phase 1 portion of a clinical trial of IMO-2055 in combination with the chemotherapy agents gemcitabine and carboplatin in patients with refractory solid tumor cancers. The purpose of the Phase 1 portion of the trial, which was a single center, open label study, was to evaluate the safety of the chemotherapy combination. We enrolled twenty-two patients in this trial and closed enrollment in July 2007. We reported interim data from 19 patients from this trial at the 12th World Conference on Lung Cancer in Seoul, Korea, in September 2007. The interim data suggested that it was feasible for the combination of IMO-2055, gemcitabine, and carboplatin to be administered in patients with advanced solid tumors. The only dose-limiting toxicities observed in these patients were common side effects observed with gemcitabine and carboplatin. In these 19 patients, the response rate, progression-free survival, and overall survival were 5%, 4.1 months, and 12.9 months, respectively. In the subset of eight patients with non-small cell lung cancer, the response rate, progression-free survival, and overall survival were 13%, 6.5 months and 12.9 months, respectively. Under our agreement with Merck KGaA, Merck KGaA will determine how to proceed with IMO-2055 combination therapy with gemcitabine and carboplatin.

In December 2007, we initiated a Phase 1b clinical trial of IMO-2055 in combination with Avastin and Tarceva in non-small cell lung cancer patients whose cancer had progressed during a prior course of standard therapy. The trial is designed to assess safety of the IMO-2055, Tarceva and Avastin combination and to determine the recommended dosage of IMO-2055 for potential use in a subsequent Phase 2 trial. Three dose levels of IMO-2055 are being investigated with standard dosages and schedules of Tarceva and Avastin. IMO-2055 is administered subcutaneously once a week, with each patient continuing to receive therapy until disease progression as determined by Response Evaluation Criteria in Solid Tumors, or RECIST, or another protocol-specified stopping

criterion is met. We are currently recruiting patients for the trial, which was designed with a target enrollment of up to 40 patients.

We plan, in collaboration with Merck KGaA, to initiate a Phase 1b clinical trial in the U.S. to investigate IMO-2055 in combination with Erbitux® and Camptosar® in patients with colorectal cancer. The Phase 1b trial is designed to assess safety of the IMO-2055, Erbitux and Camptosar combination and to determine the recommended dosage of IMO-2055 for potential use in a subsequent Phase 2 trial. Three dose levels of IMO-2055 are proposed for investigation with established dosages and schedules of Erbitux and Camptosar in the first part of the study. The second part of the planned study is a safety confirmation cohort and the final part is designed to examine pharmacokinetic and pharmacodynamic interactions in more detail. We plan to administer IMO-2055 subcutaneously once a week, with each patient continuing to receive therapy until disease progression as determined by RECIST or another protocol-specified stopping criterion is met. The trial is designed with a target enrollment of up to 48 patients.

Under our agreement with Merck KGaA, we have agreed that we will continue to conduct on Merck KGaA's behalf the ongoing Phase 1b non-small cell lung cancer trial and that we may initiate the proposed Phase 1b colorectal cancer trial. Merck KGaA has agreed to reimburse us for the development costs associated with these two Phase 1b clinical trials incurred after February 4, 2008, which is the date our agreement with Merck KGaA became effective.

IMO-2125 External Development Expenses. These expenses include external expenses that we have incurred in connection with IMO-2125, our lead compound initially being developed for chronic hepatitis C virus infection. These external expenses reflect payments to independent contractors and vendors for drug development activities conducted after the initiation of IMO-2125 clinical development but exclude internal costs such as payroll and overhead expenses. We commenced clinical development of IMO-2125 in May 2007 and since then we have incurred approximately $3.0 million in external development expenses through June 30, 2008 in connection with IMO-2125, including costs associated with the initiation of our Phase 1 clinical trial and related non-clinical studies and manufacturing process development.

External development expenses for IMO-2125 increased by $294,000, or 125%, from $235,000 for the three months ended June 30, 2007 to $529,000 for the three months ended June 30, 2008 and increased by $1,557,000, or 663%, from $235,000 for the six months ended June 30, 2007 to $1,792,000 for the six months ended June 30, 2008. These increases in IMO-2125 expenses for the three and six months ended June 30, 2008 compared to the same periods in 2007 were attributable to advancing our Phase 1 clinical trial of IMO-2125 and to costs for non-clinical safety studies of IMO-2125 initiated after the May 2007 submission to the United States Food and Drug Administration, or FDA, of the IMO-2125 investigational new drug, or IND, application. Manufacturing process development study expenses of IMO-2125 also contributed to the increase in the six months ended June 30, 2008 compared to the same period in 2007.

In September 2007, we initiated a Phase 1 clinical trial of IMO-2125 in patients with chronic hepatitis C virus infection who have not responded to the current standard of care treatment. We plan to enroll up to 40 patients in four cohorts at escalating IMO-2125 dose levels, with four weeks of treatment. Of the ten patients per cohort, eight will be randomized to receive IMO-2125 treatment and two will be randomized to receive placebo treatment. The trial is designed to assess the safety of IMO-2125 at each dose level. Secondary objectives include assessments of the effects of IMO-2125 on hepatitis C virus RNA levels and parameters of immune system activation. We anticipate interim results from this trial to be available in the first half of 2009.

Other Drug Development Expenses. These expenses include internal and external expenses associated with preclinical development of identified compounds in anticipation of advancing these compounds into clinical development in addition to internal costs associated with products in clinical development.

The internal and external expenses associated with preclinical compounds include payments to contract vendors for manufacturing and the related stability studies, preclinical studies including animal toxicology and pharmacology studies and professional fees, as well as payroll and overhead expenses. Expenses associated with products in clinical development include costs associated with our Hepatitis C Clinical Advisory Board, our Oncology Clinical Advisory Board, our Autoimmune Disease Scientific Advisory Board, payroll and overhead expenses.

Other drug development expenses increased by $54,000, or 6%, from $906,000 for the three months ended June 30, 2007 to $960,000 for the three months ended June 30, 2008 and decreased by $106,000, or 5%, from $2,089,000 for the six months ended June 30, 2007 to $1,983,000 for the three months ended June 30, 2008. The increase in other drug development expenses in the three months ended June 30, 2008 was partially attributable to increased compensation expense attributable, in part, to accrued performance-based bonus expense. No performance-based bonus expense was accrued in the three or six months ended June 30, 2007. The increase in the three months ended June 30, 2008 was partially offset by a decrease in IMO-2125 expenses due to attribution of IMO-2125 expenses incurred after commencement of clinical development to a specific IMO-2125 External Development Expense category shown separately above. The decrease in the six months ended June 30, 2008 compared to the same

period in 2007 was primarily due to a decrease in external IMO-2125 expenses due to attribution of IMO-2125 expenses incurred after commencement of clinical development to a specific IMO-2125 External Development Expense category shown separately above. Direct external expenses related to IMO-2125 were included for the full three and six months ended June 30, 2007 but not the full three and six months ended June 30, 2008 since costs incurred after the initiation of clinical development of IMO-2125 in May 2007 have been shown separately in the above table. The decrease in other drug development expenses in the six months ended June 30, 2008 was offset, in part, by increased allocated costs associated our new facility, which we moved into during the second quarter of 2007.

Basic Discovery Expenses. These expenses include our internal and external expenses relating to the discovery and development in our TLR-targeted programs, including agonists and antagonists of TLRs 7, 8 and 9. These expenses reflect payments for laboratory supplies, external research, and professional fees, as well as payroll and overhead expenses. Basic discovery expenses increased by $244,000, or 17%, from $1,464,000 for the three months ended June 30, 2007 to $1,708,000 for the three months ended June 30, 2008 and increased by $675,000, or 25%, from $2,725,000 for the six months ended June 30, 2007 to $3,400,000 for the six months ended June 30, 2008. The increase for the three and six months ended June 30, 2008 compared to the same periods in 2007 were primarily attributable to an increase in payroll expenses, in part, relating to expanding research under our Merck & Co. collaboration and an increase in compensation expenses attributable to employee stock options and accrued performance-based bonus expense. No performance-based bonus expense was accrued in the three or six months ended June 30, 2007.

We do not know if we will be successful in developing any drug candidate from our research and development programs. At this time, without knowing the results of our ongoing clinical trials and without an established plan for future clinical tests of drug candidates, we cannot reasonably estimate or know the nature, timing and costs of the efforts that will be necessary to complete the remainder of the development of, or the period, if any, in which material net cash inflows may commence from, any drug candidate from our research and development programs. Moreover, the clinical development of any drug candidate from our research and development programs is subject to numerous risks and uncertainties associated with the duration and cost of clinical trials, which vary significantly over the life of a project as a result of unanticipated events arising during clinical development.

General and Administrative Expenses

General and administrative expenses consisted primarily of salary expense, stock compensation expense, consulting fees and professional legal fees associated with our patents, our regulatory filing requirements, and our business strategy initiatives. General and administrative expenses increased by $849,000, or 36%, from $2,383,000 in the three months ended June 30, 2007 to $3,232,000 in the three months ended June 30, 2008 and increased by $1,312,000, or 30%, from $4,336,000 in the six months ended June 30, 2007 to $5,648,000 in the six months ended June 30, 2008.

The increases in general and administrative expenses in the three and six months ended June 30, 2008 compared to the three and six months ended June 30, 2007 were primarily due to higher employee and consultant stock compensation expense, performance-based bonus expense, and consulting expense. The increase in stock compensation expense was $441,000 in the three months ended June 30, 2008 and $650,000 in the six months ended June 30, 2008 and was the result of stock compensation expenses associated with additional non-employee options and non-employee options re-measured at June 30, 2008, when our stock price was higher than in previous quarters and employee stock options granted in 2008 when our stock price was higher than in previous quarters. Salary expense increased, in part, as a result of a performance-based bonus accrual of $113,000 in the three months ended June 30, 2008 and $235,000 in the six months ended June 30, 2008. There was no performance-based bonus accrued in the three or six months ended June 30, 2007. The increases in both periods were also attributable to higher consulting fees associated with corporate business strategic initiatives undertaken in 2008. These increases were offset, in part, by costs accrued in anticipation of payments to be made to our former Chief Financial Officer under the transition agreement we entered into with him in May 2007. The increase in the six months ended June 30, 2008 compared to the same period in 2007 was also attributable to an increase in allocated costs associated with our new facility, which we moved into during the second quarter of 2007.

Investment Income, net

Investment income decreased by approximately $19,000, or 4%, from $429,000 in the three months ended June 30, 2007 to $410,000 in the three months ended June 30, 2008 and decreased by approximately $90,000, or 10%, from $906,000 in the six months ended June 30, 2007 to $816,000 in the six months ended June 30, 2008. These decreases resulted from lower interest rates and lower average short-term investment balances in the three and six months ended June 30, 2008.

Interest Expense

Interest expense decreased by approximately $8,000, or 62%, from $13,000 in the three months ended June 30, 2007 to $5,000 in

the three months ended June 30, 2008 and increased by $13,000, or 18%, from $74,000 in the six months ended June 30, 2007 to $87,000 in the six months ended June 30, 2008. The decrease in the three month period reflects our March 2008 repayment in full of our note payable to General Electric Capital Corporation. As a result of this payment, we only had interest related to our note in the three and six months ended June 30, 2007. The increase in the six month period is due to interest and a prepayment premium associated with the note repayment. As a result of our repayment, the note was cancelled. This increase in the six months ended June 30, 2008 was offset, in part, by the conversion of all our 4% notes, issued in May 2005, in the aggregate principal amount of approximately $5,033,000 into 706,844 shares of common stock on February 20, 2007.

Foreign Currency Exchange Loss

Foreign currency exchange loss was $267,000 in the six months ended June 30, 2008. In February 2008, Merck KGaA paid us a $40,000,000 upfront license fee denominated in Euros. We received $39,733,000 U.S. dollars due to foreign currency exchange rates in effect at the time we received the payment, which resulted in the foreign currency exchange loss. There was no foreign currency exchange loss in the three months ended June 30, 2008 or in the three or six months ended June 30, 2007.

Income Tax Expense

In the three months ended March 31, 2008, we made an estimated quarterly tax payment and recorded income tax expense of $50,000 as a result of the payment from Merck KGaA generating income we believed would be subject to the alternative minimum tax, or AMT. In the three months ended June 30, 2008, we reversed the $50,000 recorded as income tax expense as we no longer expect to have income subject to AMT in 2008. We did not have income subject to the alternative minimum tax for the six months ended June 30, 2008 or the three or six months ended June 30, 2007.

Net Income (Loss) Applicable to Common Stockholders

As a result of the factors discussed above, we had net income applicable to common stockholders of $1,336,000 for the three months ended June 30, 2008 compared to a net loss applicable to common stockholders of $3,008,000 for the three months ended June 30, 2007 and a net loss applicable to common stockholders of $835,000 for the six months ended June 30, 2008 compared to a net loss applicable to common stockholders of $5,535,000 for the six months ended June 30, 2007. We have incurred losses of $83,376,000 since January 1, 2001. We also incurred net losses of $260,193,000 prior to December 31, 2000 during which time we were involved in the development of antisense technology. Since our inception, we had an accumulated deficit of $343,569,000 through June 30, 2008. We may continue to incur substantial operating losses in the future.

LIQUIDITY AND CAPITAL RESOURCES

Sources of Liquidity

We require cash to fund our operating expenses, to make capital expenditures and to pay debt service. Historically, we have funded our cash requirements primarily through the following:

- equity and debt financing;
- license fees and research funding under collaborative and license agreements;
- interest income; and
- lease financings.

In June 2008, we sent notice to the holder of the Company's warrant to purchase 70,684 shares of common stock that was issued in May 2005 with an expiration date of May 24, 2010 (the "May 2005 Warrant") that under the terms of the warrant agreement, it intended to redeem on September 12, 2008 the May 2005 Warrant if not exercised as of that date for a redemption price of $0.08 per share of common stock underlying the May 2005 Warrant. We were entitled to exercise this redemption right because the closing price of our common stock for twenty consecutive trading days ending June 3, 2008 was greater than $14.24 or 200% of the exercise price of the warrant. The May 2005 Warrant is exercisable by cash payment only and has an exercise price of $7.12 per share of common stock. The May 2005 warrant remained outstanding as of June 30, 2008.

In January 2008, we sent notice to holders of our warrants to purchase common stock that were issued in August 2004 with an expiration date of August 27, 2009, or the August 2004 Warrants, that under the terms of the warrant agreement, we intended to redeem on March 31, 2008 any August 2004 Warrants not exercised as of that date for a redemption price of $0.08 per share of common stock underlying the August 2004 Warrants. We were entitled to exercise this redemption right because the closing price of

our common stock for twenty consecutive trading days ending December 20, 2007 was greater than $10.72 or 200% of the exercise price of the warrant. The August 2004 Warrants were exercisable by cash payment only and had an exercise price of $5.36 per share of common stock. Following the January 2008 notice of redemption and through March 31, 2008, we received approximately $1,472,000 in proceeds from the exercise of August 2004 Warrants to purchase 274,650 shares of common stock. As of March 31, 2008, all August 2004 Warrants had been exercised.

During the six months ended June 30, 2008, we received total proceeds of $6,389,000 from purchases under our employee stock plan and warrant and stock option exercises.

In December 2007, we entered into an exclusive, worldwide license agreement with Merck KGaA to research, develop and commercialize products containing our TLR9 agonists for the treatment of cancer, excluding cancer vaccines. Under the terms of the agreement, in February 2008 Merck KGaA paid us a $40,000,000 upfront license fee in Euros of which we received $39,733,000 due to foreign currency exchange rates.

In June 2007, we executed a promissory note in the aggregate principal amount of $1,313,000 in favor of General Electric Capital Corporation, or GE. The promissory note was secured by specific laboratory, manufacturing, office and computer equipment and was subject to the terms of a master security agreement between us and GE. The promissory note bore interest at a fixed rate of 11% per annum, and was payable in 48 consecutive monthly installments of principal and accrued interest, with the first installment having been paid out of the proceeds of the borrowing. In March 2008, we paid approximately $1,189,000 to GE as payment in full of all obligations outstanding under our promissory note with GE. The payment represented approximately $1,121,000 of principal amount outstanding plus accrued interest through the date of payment and a prepayment premium of approximately $68,000. The note has been cancelled.

Cash Flows

As of June 30, 2008, we had approximately $59,505,000 in cash and cash equivalents and investments, a net increase of approximately $35,762,000 from December 31, 2007. Operating activities provided $30,977,000 of cash during the first half of 2008. The $30,977,000 primarily reflects the $40,000,000 upfront payment less the $267,000 foreign currency exchange loss under our agreement with Merck KGaA offset, in part, by our $835,000 net loss for the period, as adjusted for non-cash revenue and expenses, including depreciation and amortization, stock-based compensation, and changes in deferred revenue and our accounts receivable and payable.

The net cash used in investing activities during the first half of 2008 of $171,000 reflects our purchase of approximately $11,062,000 in securities offset by the proceeds of approximately $11,145,000 from securities that matured in the first half of 2008. The net cash used in investing activities also reflects our purchases of $254,000 in laboratory and computer equipment in the first half of 2008.

The net cash provided by financing activities during the first half of 2008 of $5,140,000 reflects proceeds received from the exercise of stock options and warrants during the first half of 2008 offset by the repayment of our promissory note.

Funding Requirements

We have incurred operating losses in all fiscal years except 2002 and had an accumulated deficit of $343,569,000 at June 30, 2008. We had cash, cash equivalents and investments of $59,505,000 at June 30, 2008. We believe that our existing cash, cash equivalents and investments will be sufficient to fund our operations at least through March 31, 2010. We may incur substantial operating losses in future periods. These losses, among other things, have had and will continue to have an adverse effect on our stockholders' equity, total assets and working capital.

We have received no revenues from the sale of drugs. To date, almost all of our revenues have been from collaborative and license agreements. We have devoted substantially all of our efforts to research and development, including clinical trials, and we have not completed development of any drugs. Because of the numerous risks and uncertainties associated with developing drugs, we are unable to predict the extent of any future losses, whether or when any of our products will become commercially available, or when we will become profitable, if at all.

We do not expect to generate significant additional funds internally until we successfully complete development and obtain marketing approval for products, either alone or in collaboration with third parties, which we expect will take a number of years. In addition, we have no committed external sources of funds.

We believe that the key factors that will affect our internal and external sources of cash are:

- the success of our clinical and preclinical development programs;
- the success of our existing strategic collaborations with Merck KGaA, Merck & Co. and Novartis;
- the cost, timing and outcome of regulatory reviews;
- the receptivity of the capital markets to financings by biotechnology companies; and
- our ability to enter into new strategic collaborations with biotechnology and pharmaceutical companies and the success of such collaborations.

In addition, increases in expenses or delays in clinical development may adversely impact our cash position and require further cost reductions. Additional financing may not be available to us when we need it or may not be available to us on favorable terms. We could be required to seek funds through arrangements with collaborators or others that may require us to relinquish rights to some of our technologies, drug candidates or drugs that we would otherwise pursue on our own. In addition, if we raise additional funds by issuing equity securities, our then existing stockholders will experience dilution. Debt financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends, and are likely to include rights that are senior to the holders of our common stock. Any additional debt financing or equity that we raise may contain terms, such as liquidation and other preferences, or liens or other restrictions on our assets, which are not favorable to us or our stockholders. The terms of any financing may adversely affect the holdings or the rights of existing stockholders. If we are unable to obtain adequate funding on a timely basis or at all, we may be required to significantly curtail one or more of our discovery or development programs and possibly relinquish rights to portions of our technology or products.

Contractual Obligations

We have contractual obligations in the form of operating and capital leases. In March 2008, we paid approximately $1,189,000 to General Electric Capital Corporation as payment in full of all obligations outstanding under our note with GE. The payment represented approximately $1,121,000 of principal amount outstanding plus accrued interest through the date of payment and a prepayment premium. The note has been cancelled.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

As of June 30, 2008, we had approximately $0.6 million of receivables payable in Euros. We had no other assets and liabilities related to non-dollar-denominated currencies as of June 30, 2008.

We maintain investments in accordance with our investment policy. The primary objectives of our investment activities are to preserve principal, maintain proper liquidity to meet operating needs and maximize yields. Although our investments are subject to credit risk, our investment policy specifies credit quality standards for our investments and limits the amount of credit exposure from any single issue, issuer or type of investment. We do not own derivative financial investment instruments in our investment portfolio.

Based on a hypothetical ten percent adverse movement in interest rates, the potential losses in future earnings, fair value of risk sensitive financial instruments, and cash flows are immaterial, although the actual effects may differ materially from the hypothetical analysis.

ITEM 4. CONTROLS AND PROCEDURES

(a) *Evaluation of Disclosure Controls and Procedures.* Our management, with the participation of our Chief Executive Officer and our Chief Financial Officer, evaluated the effectiveness of our disclosure controls and procedures as of period covered by this report. The term “disclosure controls and procedures,” as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act, means controls and other procedures of a company that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the SEC’s rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the company’s management, including its principal executive and principal financial officers, as appropriate to allow timely decisions regarding required disclosure. Management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and management necessarily applies its

judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on the evaluation of our disclosure controls and procedures as of June 30, 2008, our Chief Executive Officer and Chief Financial Officer concluded that, as of such date, our disclosure controls and procedures were effective at the reasonable assurance level.

(b) *Changes in Internal Controls*. No change in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Securities Exchange Act) occurred during the fiscal quarter ended June 30, 2008 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

IDERA PHARMACEUTICALS, INC.
PART II — OTHER INFORMATION

ITEM 1A. RISK FACTORS

Investing in our common stock involves a high degree of risk. You should carefully consider the risks and uncertainties described below in addition to the other information included or incorporated by reference in this quarterly report on Form 10-Q before purchasing our common stock. If any of the following risks actually occurs, our business, financial condition or results of operations would likely suffer, possibly materially. In that case, the trading price of our common stock could fall, and you may lose all or part of the money you paid to buy our common stock.

Risks Relating to Our Financial Results and Need for Financing

We have incurred substantial losses and expect to continue to incur losses. We will not be successful unless we reverse this trend.

We have incurred losses in every year since our inception, except for 2002 when our recognition of revenues under a license and collaboration agreement resulted in our reporting net income for that year. As of June 30, 2008, we had an accumulated deficit of $343,569,000. We have incurred losses of $83,376,000 since January 1, 2001. We also incurred losses of $260,193,000 prior to December 31, 2000 during which time we were primarily involved in the development of antisense technology. We may incur substantial operating losses in future periods. These losses, among other things, have had and will continue to have an adverse effect on our stockholders' equity, total assets and working capital.

We have never had any products of our own available for commercial sale and have received no revenues from the sale of drugs. To date, almost all of our revenues have been from collaborative and license agreements. We have devoted substantially all of our efforts to research and development, including clinical trials, and we have not completed development of any drugs. Because of the numerous risks and uncertainties associated with developing drugs, we are unable to predict the extent of any future losses, whether or when any of our products will become commercially available, or when we will become profitable, if at all.

We will need additional financing, which may be difficult to obtain. Our failure to obtain necessary financing or doing so on unattractive terms could adversely affect our research and development programs and other operations.

We will require substantial funds to conduct research and development, including preclinical testing and clinical trials of our drug candidates. We will also require substantial funds to conduct regulatory activities and to establish commercial manufacturing, marketing and sales capabilities. We believe that, based on our current operating plan, our existing cash, cash equivalents and investments will be sufficient to fund our operations at least through March 31, 2010.

We will need to raise additional funds to operate our business beyond such time, including completing any on-going clinical trials involving IMO-2125 or other drug candidates we may develop. We believe that the key factors that will affect our ability to obtain additional funding are:

- the success of our clinical and preclinical development programs;
- the success of our existing strategic collaborations with Merck KGaA, Merck & Co. and Novartis;
- the cost, timing and outcome of regulatory reviews;
- the receptivity of the capital markets to financings by biotechnology companies; and
- our ability to enter into additional strategic collaborations with biotechnology and pharmaceutical companies and the success of such collaborations.

If we cannot obtain adequate funds, we may terminate, modify or delay preclinical or clinical trials of one or more of our drug candidates, fail to establish or delay the establishment of manufacturing, sale or marketing capabilities, or curtail research and development programs for new drug candidates.

Additional financing may not be available to us when we need it or may not be available to us on favorable terms. We could be required to seek funds through arrangements with collaborators or others that may require us to relinquish rights to some of our

technologies, drug candidates or drugs that we would otherwise pursue on our own. In addition, if we raise additional funds by issuing equity securities, our then existing stockholders will experience dilution. The terms of any financing may adversely affect the holdings or the rights of existing stockholders. Debt financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends, and are likely to include rights that are senior to the holders of our common stock. Any additional debt financing or equity that we raise may contain terms, such as liquidation and other preferences, or liens or other restrictions on our assets, which are not favorable to us or our stockholders. If we are unable to obtain adequate funding on a timely basis or at all, we may be required to significantly curtail one or more of our discovery or development programs or possibly relinquish rights to portions of our technology or products. For example, we significantly curtailed expenditures on our research and development programs during 1999 and 2000 because we did not have sufficient funds available to advance these programs at planned levels.

Risks Relating to Our Business, Strategy and Industry

We are depending heavily on the success of our lead drug candidate for infectious diseases, IMO-2125, and our collaborative programs. If we or our collaborators are unable to successfully develop and commercialize our drug candidates, or experience significant delays in doing so, our business will be materially harmed.

We are investing a significant portion of our time and financial resources in the development of our clinical stage lead drug candidate for infectious diseases, IMO-2125. We anticipate that our ability to generate product revenues will depend heavily on the successful development and commercialization of IMO-2125 and other drug candidates including drug candidates being developed by our collaborators. The commercial success of these drug candidates will depend on several factors, including the following:

- acceptable safety profile during clinical trials;
- demonstration of statistically recognized efficacy in clinical trials;
- ability to combine IMO-2125 safely and successfully with other antiviral agents;
- receipt of marketing approvals from the FDA and equivalent foreign regulatory authorities;
- establishment of commercial manufacturing arrangements with third-party manufacturers;
- the successful commercial launch of the drug candidates, whether alone or in collaboration with other products;
- acceptance of the products by the medical community and third-party payors;
- competition from other companies and their therapies;
- successful protection of our intellectual property rights from competing products in the United States and abroad; and
- a continued acceptable safety and efficacy profile of our drug candidates following approval.

Our efforts to commercialize IMO-2125 are at an early stage, as we are currently conducting the initial Phase 1 safety clinical trial of this drug candidate in a defined patient population. If we are not successful in commercializing this or our other drug candidates, or are significantly delayed in doing so, our business will be materially harmed.

If our clinical trials are unsuccessful, or if they are delayed or terminated, we may not be able to develop and commercialize our products.

In order to obtain regulatory approvals for the commercial sale of our products, we are required to complete extensive clinical trials in humans to demonstrate the safety and efficacy of our drug candidates. Clinical trials are lengthy, complex and expensive processes with uncertain results. We may not be able to complete any clinical trial of a potential product within any specified time period. Moreover, clinical trials may not show our potential products to be both safe and efficacious. The FDA and other regulatory authorities may not approve any of our potential products for any indication. We may not be able to obtain authority from the FDA or other equivalent foreign regulatory agencies to complete these trials or commence and complete any other clinical trials.

The results from preclinical testing of a drug candidate that is under development may not be predictive of results that will be obtained in human clinical trials. In addition, the results of early human clinical trials may not be predictive of results that will be obtained in larger scale, advanced stage clinical trials. Furthermore, interim results of a clinical trial do not necessarily predict final results and failure of any of our clinical trials can occur at any stage of testing. Companies in the biotechnology and pharmaceutical industries, including companies with greater experience in preclinical testing and clinical trials than we have, have suffered significant

setbacks in clinical trials, even after demonstrating promising results in earlier trials. Moreover, companies developing drugs based on TLR technologies have experienced setbacks in clinical trials. For example in June 2007, Coley Pharmaceutical Group, which since has been acquired by Pfizer, Inc., discontinued four clinical trials in lung cancer for PF-3512676, its investigational TLR9 agonist compound, in combination with cytotoxic chemotherapy. In addition, in January 2007, Coley Pharmaceutical Group announced that it had suspended its development of a TLR9 agonist, Actilon ®, for hepatitis C virus infection. In July 2007, Anadys Pharmaceuticals, Inc. and its partner Novartis announced that they had decided to discontinue the development of ANA975, the investigational TLR7 agonist compound for hepatitis C virus infection. In March 2008, Dynavax Technologies announced that two investigational new drug applications for its proprietary TLR9 agonist, HEPLISAV™, had been placed on clinical hold by the FDA. Dynavax Technologies also announced in May 2008 discontinuation of the clinical development program for TOLAMBA®, which comprises a TLR9 agonist covalently attached to ragweed antigen.

There are to date few data on the long-term clinical safety of our lead compounds under conditions of prolonged use in humans, or on any long-term consequences subsequent to human use. Effects seen in preclinical studies, even if not observed in clinical trials, may result in limitations or restrictions on our clinical trials. We may experience numerous unforeseen events during, or as a result of, preclinical testing, nonclinical testing, or the clinical trial process that could delay or inhibit our ability to receive regulatory approval or to commercialize our products, including:

- regulators or Institutional Review Boards may not authorize us to commence a clinical trial or conduct a clinical trial at a prospective trial site;
- nonclinical or clinical data may not be readily interpreted, which may lead to delays and/or misinterpretation;
- our nonclinical tests, including toxicology studies, or clinical trials may produce negative or inconclusive results, and we may decide, or regulators may require us, to conduct additional nonclinical testing or clinical trials or we may abandon projects that we expect may not be promising;
- the rate of enrollment or retention of patients in our clinical trials may be less than expected;
- we might have to suspend or terminate our clinical trials if the participating patients experience serious adverse events or undesirable side effects or are exposed to unacceptable health risks;
- regulators or Institutional Review Boards may require that we hold, suspend or terminate clinical research for various reasons, including noncompliance with regulatory requirements, including any issues identified through inspections of manufacturing or clinical trial operations or clinical trial sites;
- regulators may hold or suspend our clinical trials while collecting supplemental information on, or clarification of, our clinical trials or other clinical trials, including trials conducted in other countries or trials conducted by other companies;
- we, along with our collaborators and subcontractors, may not employ, in any capacity, persons who have been debarred under the FDA's Application Integrity Policy. Employment of such debarred persons, even if inadvertently, may result in delays in the FDA's review or approval of our products, or the rejection of data developed with the involvement of such person(s);
- the cost of our clinical trials may be greater than we currently anticipate; and
- our products may not cause the desired effects or may cause undesirable side effects or our products may have other unexpected characteristics.

As an example, in 1997, after reviewing the results from the clinical trial of GEM91, a first generation antisense compound and our lead drug candidate at the time, we determined not to continue the development of GEM91 and suspended clinical trials of this drug candidate.

The rate of completion of clinical trials is dependent in part upon the rate of enrollment of patients. For example, in Stage A of our Phase 2 trial of IMO-2055 in renal cell cancer, enrollment was slower than projected due to the approval of two new therapies, Sutent ® and Nexavar®, developed by other companies for treatment of the same patient populations. Patient accrual is a function of many factors, including:

- the size of the patient population;
- the proximity of patients to clinical sites;

- the eligibility criteria for the study;
- the nature of the study;
- the existence of competitive clinical trials; and
- the availability of alternative treatments.

We do not know whether clinical trials will begin as planned, will need to be restructured or will be completed on schedule, if at all. Significant clinical trial delays also could allow our competitors to bring products to market before we do and impair our ability to commercialize our products.

Delays in commencing clinical trials of potential products could increase our costs, delay any potential revenues and reduce the probability that a potential product will receive regulatory approval.

Our drug candidates and our collaborators' drug candidates will require preclinical and other nonclinical testing and extensive clinical trials prior to submission of any regulatory application for commercial sales. In 2007, we commenced a new Phase 1b clinical trial of IMO-2055 in oncology, and we commenced a Phase 1 clinical trial of IMO-2125 for chronic hepatitis C virus infection. In conducting clinical trials, we cannot be certain that any planned clinical trial will begin on time, if at all. Delays in commencing clinical trials of potential products could increase our product development costs, delay any potential revenues and reduce the probability that a potential product will receive regulatory approval.

Commencing clinical trials may be delayed for a number of reasons, including delays in:

- manufacturing sufficient quantities of drug candidate that satisfy the required quality standards for use in clinical trials;
- demonstrating sufficient safety to obtain regulatory approval for conducting a clinical trial;
- reaching an agreement with any collaborators on all aspects of the clinical trial;
- reaching agreement with contract research organizations, if any, and clinical trial sites on all aspects of the clinical trial;
- resolving any objections from the FDA or any regulatory authority on an IND application or proposed clinical trial design;
- obtaining Institutional Review Board approval for conducting a clinical trial at a prospective site; and
- enrolling patients in order to commence the clinical trial.

The technologies on which we rely are unproven and may not result in any approved and marketable products.

Our technologies or therapeutic approaches are relatively new and unproven. We have focused our efforts on the research and development of RNA- and DNA-based compounds targeted to TLRs. Neither we nor any other company have obtained regulatory approval to market such compounds as therapeutic drugs, and no such products currently are being marketed. It is unknown whether the results of preclinical studies with TLR-targeted compounds will be indicative of results that may be obtained in clinical trials, and results we have obtained in the initial small-scale clinical trials we have conducted to date may not be predictive of results in subsequent large-scale trials. Further, the chemical and pharmacological properties of RNA- and DNA-based compounds targeted to TLRs may not be fully recognized in preclinical and small-scale clinical trials, and such compounds may interact with human biological systems in unforeseen, ineffective, or harmful ways that we have not yet identified. As a result of these factors, we may never succeed in obtaining a regulatory approval to market any product. Furthermore, the commercial success of any of our products for which we may obtain marketing approval from the FDA or other regulatory authorities will depend upon their acceptance by the medical community and third party payors as clinically useful, safe, and cost-effective. In addition, if products based upon TLR technology being developed by our competitors have negative clinical trial results or otherwise are viewed negatively, the perception of our TLR technology and market acceptance of our products could be impacted negatively. For example, Dynavax Technologies, Inc. announced in May 2008 discontinuation of the clinical development program for TOLAMBA, which comprises a TLR9 agonist covalently attached to a ragweed antigen. In addition, we are pursuing an indication for treatment of chronic hepatitis C virus infection for IMO-2125 and commenced a Phase 1 clinical trial of IMO-2125 in patients with chronic hepatitis C virus infection in the third quarter of 2007. Pfizer, Inc. and Anadys Pharmaceuticals, Inc. each have performed early clinical trials of TLR-targeted

compounds for the treatment of chronic hepatitis C virus infection, and both programs have been discontinued. We cannot be certain whether such discontinuations will negatively impact the perception of our TLR technology.

Our efforts to educate the medical community on our potentially unique approaches may require greater resources than would be typically required for products based on conventional technologies or therapeutic approaches. The safety, efficacy, convenience and cost-effectiveness of our products as compared to competitive products will also affect market acceptance.

We face substantial competition, which may result in others discovering, developing or commercializing drugs before or more successfully than us.

The biotechnology industry is highly competitive and characterized by rapid and significant technological change. We face, and will continue to face, intense competition from pharmaceutical and biotechnology companies, as well as academic and research institutions and government agencies. Some of these organizations are pursuing products based on technologies similar to our technologies. Other of these organizations have developed and are marketing products, or are pursuing other technological approaches designed to produce products, that are competitive with our drug candidates in the therapeutic effect these competitive products have on diseases targeted by our drug candidates. Our competitors may discover, develop or commercialize products or other novel technologies that are more effective, safer or less costly than any that we are developing. Our competitors may also obtain FDA or other regulatory approval for their products more rapidly than we may obtain approval for ours. As examples, the FDA approved drugs developed by other companies, Sutent and Nexavar , for use in renal cell cancer, which is the indication for which we are evaluating IMO-2055 monotherapy in our Phase 2 trial. Pfizer, Inc. is conducting clinical trials of PF-3512676, a TLR9 agonist for treating cancer. In addition, Dynavax Technologies Corporation has announced initiation of a clinical trial for its TLR9 agonist 1018 ISS for cancer. Both Pfizer, Inc., and Dynavax Technologies Corporation have clinical programs, either independently or with collaborators, in therapeutic fields other than cancer, such as asthma and allergy treatments and for use as vaccine adjuvants, that also potentially compete with our drug candidates.

Many of our competitors are substantially larger than we are and have greater capital resources, research and development staffs and facilities than we have. In addition, many of our competitors are more experienced than we are in drug discovery, development and commercialization, obtaining regulatory approvals and drug manufacturing and marketing.

We anticipate that the competition with our products and technologies will be based on a number of factors including product efficacy, safety, availability and price. The timing of market introduction of our products and competitive products will also affect competition among products. We expect the relative speed with which we can develop products, complete the clinical trials and approval processes and supply commercial quantities of the products to the market to be important competitive factors. Our competitive position will also depend upon our ability to attract and retain qualified personnel, to obtain patent protection or otherwise develop proprietary products or processes and protect our intellectual property, and to secure sufficient capital resources for the period between technological conception and commercial sales.

Competition for technical and management personnel is intense in our industry, and we may not be able to sustain our operations or grow if we are unable to attract and retain key personnel.

Our success is highly dependent on the retention of principal members of our technical and management staff, including Dr. Sudhir Agrawal. Dr. Agrawal serves as our Chief Executive Officer and Chief Scientific Officer. Dr. Agrawal has made significant contributions to the field of oligonucleotide-based drug candidates, and has led the discovery and development of our compounds targeted to TLRs. He is named as an inventor on over 400 patents and patent applications worldwide. Dr. Agrawal provides us leadership for management and research and development activities. The loss of Dr. Agrawal's services would be detrimental to our ongoing scientific progress and the execution of our business plan.

We are a party to an employment agreement with Dr. Agrawal that expires on October 19, 2010, but automatically extends annually for an additional year. This agreement may be terminated by us or Dr. Agrawal for any reason or no reason at any time upon notice to the other party. We do not carry key man life insurance for Dr. Agrawal.

Furthermore, our future growth will require hiring a number of qualified technical and management personnel. Accordingly, recruiting and retaining such personnel in the future will be critical to our success. There is intense competition from other companies and research and academic institutions for qualified personnel in the areas of our activities. If we are not able to continue to attract and retain, on acceptable terms, the qualified personnel necessary for the continued development of our business, we may not be able to sustain our operations or growth.

Regulatory Risks

We may not be able to obtain marketing approval for products resulting from our development efforts.

All of the drug candidates that we are developing or may develop in the future will require additional research and development, extensive preclinical studies and clinical trials, and regulatory approval prior to any commercial sales. This process is lengthy, often taking a number of years, is uncertain, and is expensive. Since our inception, we have conducted clinical trials of a number of compounds. Currently, we are conducting clinical trials of IMO-2125 and IMO-2055.

We may need to address a number of technological challenges in order to complete development of our products. Moreover, these products may not be effective in treating any disease or may prove to have undesirable or unintended side effects, unintended alteration of the immune system over time, toxicities or other characteristics that may preclude our obtaining regulatory approval or prevent or limit commercial use.

We are subject to comprehensive regulatory requirements, which are costly and time consuming to comply with; if we fail to comply with these requirements, we could be subject to adverse consequences and penalties.

The testing, manufacturing, labeling, advertising, promotion, export and marketing of our products are subject to extensive regulation by governmental authorities in Europe, the United States and elsewhere throughout the world.

In general, submission of materials requesting permission to conduct clinical trials may not result in authorization by the FDA or any equivalent foreign regulatory agency to commence clinical trials. Further, permission to continue ongoing trials may be withdrawn by the FDA or other regulatory agencies at any time after initiation, based on new information available after the initial authorization to commence clinical trials. In addition, submission of an application for marketing approval to the relevant regulatory agency following completion of clinical trials may not result in the regulatory agency approving the application if applicable regulatory criteria are not satisfied, and may result in the regulatory agency requiring additional testing or information.

Any regulatory approval of a product may contain limitations on the indicated uses for which the product may be marketed or requirements for costly post-marketing testing and surveillance to monitor the safety or efficacy of the product. Any product for which we obtain marketing approval, along with the facilities at which the product is manufactured, any post-approval clinical data and any advertising and promotional activities for the product will be subject to continual review and periodic inspections by the FDA and other regulatory agencies.

Both before and after approval is obtained, violations of regulatory requirements may result in:

- the regulatory agency's delay in approving, or refusal to approve, an application for marketing of a product;
- restrictions on our products or the manufacturing of our products;
- withdrawal of our products from the market;
- warning letters;
- voluntary or mandatory recall;
- fines;
- suspension or withdrawal of regulatory approvals;
- product seizure;
- refusal to permit the import or export of our products;
- injunctions or the imposition of civil penalties; and
- criminal penalties.

We have only limited experience in regulatory affairs and our products are based on new technologies; these factors may affect our ability or the time we require to obtain necessary regulatory approvals.

We have only limited experience in filing the applications necessary to gain regulatory approvals. Moreover, the products that result from our research and development programs will likely be based on new technologies and new therapeutic approaches that

have not been extensively tested in humans. The regulatory requirements governing these types of products may be more rigorous than for conventional drugs. As a result, we may experience a longer regulatory process in connection with obtaining regulatory approvals of any product that we develop.

Risks Relating to Collaborators

We need to establish additional collaborative relationships in order to succeed.

If we do not reach agreements with additional collaborators in the future, we may fail to meet our business objectives. We believe collaborations can provide us with expertise and resources. If we cannot enter into additional collaboration agreements, we may not be able to obtain the expertise and resources necessary to achieve our business objectives. We face, and will continue to face, significant competition in seeking appropriate collaborators. Moreover, collaboration arrangements are complex and time consuming to negotiate, document and implement. We may not be successful in our efforts to establish and implement collaborations or other alternative arrangements. The terms of any collaborations or other arrangements that we establish, if any, may not be favorable to us.

The failure of these collaborative relationships could delay our drug development or impair commercialization of our products and could materially harm our business and might accelerate our need for additional capital.

Any collaboration that we enter into may not be successful. The success of our collaboration arrangements, if any, will depend heavily on the efforts and activities of our collaborators. Possible future collaborations have risks, including the following:

- disputes may arise in the future with respect to the ownership of rights to technology developed with future collaborators;
- disagreements with future collaborators could delay or terminate the research, development or commercialization of products, or result in litigation or arbitration;
- future collaboration agreements are likely to be for fixed terms and subject to termination by our collaborators in the event of a material breach or lack of scientific progress by us;
- future collaborators are likely to have the first right to maintain or defend our intellectual property rights and, although we would likely have the right to assume the maintenance and defense of our intellectual property rights if our collaborators do not, our ability to do so may be compromised by our collaborators' acts or omissions;
- future collaborators may challenge our intellectual property rights or may utilize our intellectual property rights in such a way as to invite litigation that could jeopardize or invalidate our intellectual property rights or expose us to potential liability;
- future collaborators may change the focus of their development and commercialization efforts. Pharmaceutical and biotechnology companies historically have re-evaluated their priorities following mergers and consolidations, which have been common in recent years in these industries. The ability of our products to reach their potential could be limited if future collaborators decrease or fail to increase spending relating to such products;
- future collaborators may underfund or not commit sufficient resources to the testing, marketing, distribution or development of our products; and
- future collaborators may develop alternative products either on their own or in collaboration with others, or encounter conflicts of interest or changes in business strategy or other business issues, which could adversely affect their willingness or ability to fulfill their obligations to us.

Given these risks, it is possible that any collaborative arrangements into which we enter may not be successful.

Our existing collaborations and any collaborations we enter into in the future may not be successful.

An important element of our business strategy includes entering into strategic collaborations with corporate collaborators, primarily large pharmaceutical companies, for the development, commercialization, marketing and distribution of some of our drug candidates. In December 2007, we entered into an exclusive, worldwide license agreement with Merck KGaA to research, develop, and commercialize products containing our TLR9 agonists for treatment of cancer, excluding cancer vaccines. In December 2006, we entered into an exclusive license and research collaboration with Merck & Co. to research, develop, and commercialize vaccine products containing our TLR7, 8, and 9 agonists in the fields of cancer, infectious diseases, and Alzheimer's disease. In May 2005, we entered into a collaboration with Novartis to discover, develop and potentially commercialize TLR9 agonists that are identified as

potential treatments for asthma and allergies. The failure of these collaborations or any others we enter into in the future could delay our drug development or impair commercialization of our products and could materially harm our business and might accelerate our need for additional capital.

The success of our collaboration arrangements, if any, will depend heavily on the efforts and activities of our collaborators. Our existing collaborations have risks, including the following:

- our collaborators control the development of the drug candidates being developed with our technologies and compounds including the timing of development;
- our collaborators may control the public release of information regarding the developments, and we may not be able to make announcements or data presentations on a schedule favorable to us;
- disputes may arise in the future with respect to the ownership of rights to technology developed with our collaborators;
- disagreements with our collaborators could delay or terminate the research, development or commercialization of products, or result in litigation or arbitration;
- we may have difficulty enforcing the contracts if any of our collaborators fail to perform;
- our collaborators may terminate their collaborations with us, which could make it difficult for us to attract new collaborators or adversely affect the perception of us in the business or financial communities;
- our collaboration agreements are likely to be for fixed terms and subject to termination by our collaborators in the event of a material breach or lack of scientific progress by us;
- our collaborators may have the first right to maintain or defend our intellectual property rights and, although we would likely have the right to assume the maintenance and defense of our intellectual property rights if our collaborators do not, our ability to do so may be compromised by our collaborators' acts or omissions;
- our collaborators may utilize our intellectual property rights in such a way as to invite litigation that could jeopardize or invalidate our intellectual property rights or expose us to potential liability;
- our collaborators may change the focus of their development and commercialization efforts. Pharmaceutical and biotechnology companies historically have re-evaluated their priorities following mergers and consolidations, which have been common in recent years in these industries. The ability of our products to reach their potential could be limited if our collaborators decrease or fail to increase spending relating to such products;
- our collaborators may underfund or not commit sufficient resources to the testing, marketing, distribution or development of our products; and
- our collaborators may develop alternative products either on their own or in collaboration with others, or encounter conflicts of interest or changes in business strategy or other business issues, which could adversely affect their willingness or ability to fulfill their obligations to us.

Collaborations with pharmaceutical companies and other third parties often are terminated or allowed to expire by the other party. Such terminations or expirations may adversely affect us financially and could harm our business reputation in the event we elect to pursue collaborations that ultimately expire or are terminated in such a manner.

Risks Relating to Intellectual Property

If we are unable to obtain patent protection for our discoveries, the value of our technology and products will be adversely affected.

Our patent positions, and those of other drug discovery companies, are generally uncertain and involve complex legal, scientific and factual questions. Our ability to develop and commercialize drugs depends in significant part on our ability to:

- obtain patents;

- obtain licenses to the proprietary rights of others on commercially reasonable terms;
- operate without infringing upon the proprietary rights of others;
- prevent others from infringing on our proprietary rights; and
- protect trade secrets.

We do not know whether any of our patent applications or those patent applications that we license will result in the issuance of any patents. Our issued patents and those that may be issued in the future, or those licensed to us, may be challenged, invalidated or circumvented, and the rights granted thereunder may not provide us proprietary protection or competitive advantages against competitors with similar technology. Furthermore, our competitors may independently develop similar technologies or duplicate any technology developed by us. Because of the extensive time required for development, testing and regulatory review of a potential product, it is possible that, before any of our products can be commercialized, any related patent may expire or remain in force for only a short period following commercialization, thus reducing any advantage provided by the patent.

Because patent applications in the United States and many foreign jurisdictions are typically not published until 18 months after filing, or in some cases not at all, and because publications of discoveries in the scientific literature often lag behind actual discoveries, neither we nor our licensors can be certain that we or they were the first to make the inventions claimed in issued patents or pending patent applications, or that we or they were the first to file for protection of the inventions set forth in these patent applications.

Third parties may own or control patents or patent applications and require us to seek licenses, which could increase our development and commercialization costs, or prevent us from developing or marketing products.

We may not have rights under some patents or patent applications related to our products. Third parties may own or control these patents and patent applications in the United States and abroad. Therefore, in some cases, to develop, manufacture, sell or import some of our products, we or our collaborators may choose to seek, or be required to seek, licenses under third party patents issued in the United States and abroad or under patents that might issue from United States and foreign patent applications. In such an event, we would be required to pay license fees or royalties or both to the licensor. If licenses are not available to us on acceptable terms, we or our collaborators may not be able to develop, manufacture, sell or import these products.

We may lose our rights to patents, patent applications or technologies of third parties if our licenses from these third parties are terminated. In such an event, we might not be able to develop or commercialize products covered by the licenses.

Currently, we have not in-licensed any patents or patent applications related to our TLR-targeted drug candidate programs. However in the field of antisense technology we are party to five royalty-bearing license agreements under which we have acquired rights to patents, patent applications and technology of third parties. Under these licenses we are obligated to pay royalties on net sales by us of products or processes covered by a valid claim of a patent or patent application licensed to us. We also are required in some cases to pay a specified percentage of any sublicense income that we may receive. These licenses impose various commercialization, sublicensing, insurance and other obligations on us.

Our failure to comply with these requirements could result in termination of the licenses. These licenses generally will otherwise remain in effect until the expiration of all valid claims of the patents covered by such licenses or upon earlier termination by the parties. The issued patents covered by these licenses expire at various dates ranging from 2014 to 2022. If one or more of these licenses is terminated, we may be delayed in our efforts, or be unable, to develop and market the products that are covered by the applicable license or licenses.

We may become involved in expensive patent litigation or other proceedings, which could result in our incurring substantial costs and expenses or substantial liability for damages or require us to stop our development and commercialization efforts.

There has been substantial litigation and other proceedings regarding patent and other intellectual property rights in the biotechnology industry. We may become a party to various types of patent litigation or other proceedings regarding intellectual property rights from time to time even under circumstances where we are not practicing and do not intend to practice any of the intellectual property involved in the proceedings. For instance, in 2002, 2003, and 2005, we became involved in interference proceedings declared by the United States Patent and Trademark Office for certain of our antisense and ribozyme patents. All of these interferences have since been resolved. We are neither practicing nor intending to practice the intellectual property that is associated with any of these interference proceedings.

The cost to us of any patent litigation or other proceeding even if resolved in our favor, could be substantial. Some of our competitors may be able to sustain the cost of such litigation or proceedings more effectively than we can because of their substantially greater financial resources. If any patent litigation or other proceeding is resolved against us, we or our collaborators may be enjoined from developing, manufacturing, selling or importing our drugs without a license from the other party and we may be held liable for significant damages. We may not be able to obtain any required license on commercially acceptable terms or at all.

Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could have a material adverse effect on our ability to compete in the marketplace. Patent litigation and other proceedings may also absorb significant management time.

Risks Relating to Product Manufacturing, Marketing and Sales and Reliance on Third Parties

Because we have limited manufacturing experience, facilities or infrastructure, we are dependent on third-party manufacturers to manufacture products for us. If we cannot rely on third-party manufacturers, we will be required to incur significant costs and devote significant efforts to establish our own manufacturing facilities and capabilities.

We have limited manufacturing experience and no manufacturing facilities, infrastructure or clinical or commercial scale manufacturing capabilities. In order to continue to develop our products, apply for regulatory approvals and ultimately commercialize products, we need to develop, contract for or otherwise arrange for the necessary manufacturing capabilities.

We currently rely upon third parties to produce material for nonclinical and clinical testing purposes and expect to continue to do so in the future. We also expect to rely upon third parties to produce materials that may be required for the commercial production of our products. Our current and anticipated future dependence upon others for the manufacture of our drug candidates may adversely affect our future profit margins and our ability to develop drug candidates and commercialize any drug candidates on a timely and competitive basis. We currently do not have any long term supply contracts and rely on only one contract manufacturer.

There are a limited number of manufacturers that operate under the FDA's current good manufacturing practices, or cGMP, regulations capable of manufacturing our products. As a result, we may have difficulty finding manufacturers for our products with adequate capacity for our needs. If we are unable to arrange for third party manufacturing of our products on a timely basis, or to do so on commercially reasonable terms, we may not be able to complete development of our products or market them.

Reliance on third party manufacturers entails risks to which we would not be subject if we manufactured products ourselves, including:

- reliance on the third party for regulatory compliance and quality assurance;
- the possibility of breach of the manufacturing agreement by the third party because of factors beyond our control;
- the possibility of termination or nonrenewal of the agreement by the third party, based on its own business priorities, at a time that is costly or inconvenient for us;
- the potential that third party manufacturers will develop know-how owned by such third party in connection with the production of our products that is necessary for the manufacture of our products; and
- reliance upon third party manufacturers to assist us in preventing inadvertent disclosure or theft of our proprietary knowledge.

Additionally, contract manufacturers may not be able to manufacture our TLR-targeted drug candidates at a cost or in quantities necessary to make them commercially viable. To date, our third-party manufacturers have met our manufacturing requirements, but we cannot be assured that they will continue to do so. Furthermore, changes in the manufacturing process or procedure, including a change in the location where the drug is manufactured or a change of a third-party manufacturer, may require prior FDA review and approval in accordance with the FDA's cGMP regulations. There are comparable foreign requirements. This review may be costly and time-consuming and could delay or prevent the launch of a product. The FDA or similar foreign regulatory agencies at any time may also implement new standards, or change their interpretation and enforcement of existing standards for manufacture, packaging or testing of products. If we or our contract manufacturers are unable to comply, we or they may be subject to regulatory action, civil actions or penalties.

We have no experience selling, marketing or distributing products and no internal capability to do so.

If we receive regulatory approval to commence commercial sales of any of our products, we will face competition with respect to

commercial sales, marketing and distribution. These are areas in which we have no experience. To market any of our products directly, we would need to develop a marketing and sales force with technical expertise and with supporting distribution capability. In particular, we would need to recruit a large number of experienced marketing and sales personnel. Alternatively, we could engage a pharmaceutical or other healthcare company with an existing distribution system and direct sales force to assist us. However, to the extent we entered into such arrangements, we would be dependent on the efforts of third parties. If we are unable to establish sales and distribution capabilities, whether internally or in reliance on third parties, our business would suffer materially.

If third parties on whom we rely for clinical trials do not perform as contractually required or as we expect, we may not be able to obtain regulatory approval for or commercialize our products and our business may suffer.

We do not have the ability to independently conduct the clinical trials required to obtain regulatory approval for our products. We depend on independent clinical investigators, contract research organizations and other third party service providers in the conduct of the clinical trials of our products and expect to continue to do so. We have contracted with contract research organizations to manage our current Phase 1 clinical trial of IMO-2125 in patients with chronic hepatitis C virus infection. We rely heavily on these parties for successful execution of our clinical trials, but do not control many aspects of their activities. We are responsible for ensuring that each of our clinical trials is conducted in accordance with the general investigational plan and protocols for the trial. Moreover, the FDA requires us to comply with standards, commonly referred to as good clinical practices, for conducting, recording and reporting clinical trials to assure that data and reported results are credible and accurate and that the rights, integrity and confidentiality of trial participants are protected. Our reliance on third parties that we do not control does not relieve us of these responsibilities and requirements. Third parties may not complete activities on schedule or may not conduct our clinical trials in accordance with regulatory requirements or our stated protocols. The failure of these third parties to carry out their obligations could delay or prevent the development, approval and commercialization of our products. If we seek to conduct any of these activities ourselves in the future, we will need to recruit appropriately trained personnel and add to our infrastructure.

The commercial success of any drug candidates that we may develop will depend upon the degree of market acceptance by physicians, patients, third party payors and others in the medical community.

Any products that we ultimately bring to the market, if they receive marketing approval, may not gain market acceptance by physicians, patients, third party payors and others in the medical community. If these products do not achieve an adequate level of acceptance, we may not generate significant product revenue and we may not become profitable. The degree of market acceptance of our drug candidates, if approved for commercial sale, will depend on a number of factors, including:

- the prevalence and severity of any side effects, including any limitations or warnings contained in the product's approved labeling;
- the efficacy and potential advantages over alternative treatments;
- the ability to offer our drug candidates for sale at competitive prices;
- relative convenience and ease of administration;
- the willingness of the target patient population to try new therapies and of physicians to prescribe these therapies;
- the strength of marketing and distribution support and the timing of market introduction of competitive products; and
- publicity concerning our products or competing products and treatments.

Even if a potential product displays a favorable efficacy and safety profile, market acceptance of the product will not be known until after it is launched. Our efforts to educate the medical community and third party payors on the benefits of our drug candidates may require significant resources and may never be successful. Such efforts to educate the marketplace may require more resources than are required by conventional technologies marketed by our competitors.

If we are unable to obtain adequate reimbursement from third party payors for any products that we may develop or acceptable prices for those products, our revenues and prospects for profitability will suffer.

Most patients rely on Medicare, Medicaid, private health insurers, and other third party payors to pay for their medical needs, including any drugs we may market. If third party payors do not provide adequate coverage or reimbursement for any products that we may develop, our revenues and prospects for profitability will suffer. Congress enacted a limited prescription drug benefit for Medicare recipients in the Medicare Prescription Drug and Modernization Act of 2003. While the program established by this statute may increase demand for our products, if we participate in this program, our prices will be negotiated with drug procurement

organizations for Medicare beneficiaries and are likely to be lower than we might otherwise obtain. Non-Medicare third party drug procurement organizations may also base the price they are willing to pay on the rate paid by drug procurement organizations for Medicare beneficiaries.

A primary trend in the United States healthcare industry is toward cost containment. In addition, in some foreign countries, particularly the countries of the European Union, the pricing of prescription pharmaceuticals is subject to governmental control. In these countries, pricing negotiations with governmental authorities can take six months or longer after the receipt of regulatory marketing approval for a product. To obtain reimbursement or pricing approval in some countries, we may be required to conduct a clinical trial that compares the cost effectiveness of our drug candidates or products to other available therapies. The conduct of such a clinical trial could be expensive and result in delays in commercialization of our products. These further clinical trials would require additional time, resources and expenses. If reimbursement of our products is unavailable or limited in scope or amount, or if pricing is set at unsatisfactory levels, our prospects for generating revenue, if any, could be adversely affected and our business may suffer.

Third party payors are challenging the prices charged for medical products and services, and many third party payors limit reimbursement for newly-approved healthcare products. In particular, third party payors may limit the indications for which they will reimburse patients who use any products that we may develop. Cost control initiatives could decrease the price we might establish for products that we may develop, which would result in lower product revenues to us.

We face a risk of product liability claims and may not be able to obtain insurance.

Our business exposes us to the risk of product liability claims that is inherent in the manufacturing, testing and marketing of human therapeutic drugs. We face an inherent risk of product liability exposure related to the testing of our drug candidates in human clinical trials and will face an even greater risk if we commercially sell any products. Regardless of merit or eventual outcome, liability claims and product recalls may result in:

- decreased demand for our drug candidates and products;
- damage to our reputation;
- regulatory investigations that could require costly recalls or product modifications;
- withdrawal of clinical trial participants;
- costs to defend related litigation;
- substantial monetary awards to trial participants or patients, including awards that substantially exceed our product liability insurance, which we would then have to pay using other sources, if available, and would damage our ability to obtain liability insurance at reasonable costs, or at all, in the future;
- loss of revenue;
- the diversion of management's attention away from managing our business; and
- the inability to commercialize any products that we may develop.

Although we have product liability and clinical trial liability insurance that we believe is adequate, this insurance is subject to deductibles and coverage limitations. We may not be able to obtain or maintain adequate protection against potential liabilities. If we are unable to obtain insurance at acceptable cost or otherwise protect against potential product liability claims, we will be exposed to significant liabilities, which may materially and adversely affect our business and financial position. These liabilities could prevent or interfere with our commercialization efforts.

Risks Relating to an Investment in Our Common Stock

Our corporate governance structure, including provisions in our certificate of incorporation and by-laws, our stockholder rights plan and Delaware law, may prevent a change in control or management that stockholders may consider desirable

Section 203 of the Delaware General Corporation Law and our certificate of incorporation, by-laws, and stockholder rights plan contain provisions that might enable our management to resist a takeover of our company or discourage a third party from attempting to take over our company. These provisions include:

- a classified board of directors,
- limitations on the removal of directors,
- limitations on stockholder proposals at meetings of stockholders,
- the inability of stockholders to act by written consent or to call special meetings, and
- the ability of our board of directors to designate the terms of and issue new series of preferred stock without stockholder approval.

In addition, Section 203 of the Delaware General Corporation Law imposes restrictions on our ability to engage in business combinations and other specified transactions with significant stockholders. These provisions could have the effect of delaying, deferring, or preventing a change in control of us or a change in our management that stockholders may consider favorable or beneficial. These provisions could also discourage proxy contests and make it more difficult for you and other stockholders to elect directors and take other corporate actions. These provisions could also limit the price that investors might be willing to pay in the future for shares of our common stock.

Our stock price has been and may in the future be extremely volatile. In addition, because an active trading market for our common stock has not developed, our investors' ability to trade our common stock may be limited. As a result, investors may lose all or a significant portion of their investment.

Our stock price has been volatile. During the period from January 1, 2007 to June 30, 2008, the closing sales price of our common stock ranged from a high of $15.41 per share to a low of $5.28 per share. The stock market has also experienced significant price and volume fluctuations, and the market prices of biotechnology companies in particular have been highly volatile, often for reasons that have been unrelated to the operating performance of particular companies. The market price for our common stock may be influenced by many factors, including:

- results of clinical trials of our drug candidates or those of our competitors;
- the regulatory status of our drug candidates;
- failure of any of our drug candidates, if approved, to achieve commercial success;
- the success of competitive products or technologies;
- regulatory developments in the United States and foreign countries;
- our success in entering into collaborative agreements;
- developments or disputes concerning patents or other proprietary rights;
- the departure of key personnel;
- variations in our financial results or those of companies that are perceived to be similar to us;
- our cash resources;
- the terms of any financing conducted by us;
- changes in the structure of healthcare payment systems;
- market conditions in the pharmaceutical and biotechnology sectors and issuance of new or changed securities analysts' reports or recommendations; and
- general economic, industry and market conditions.

In addition, our common stock has historically been traded at low volume levels and may continue to trade at low volume levels. As a result, any large purchase or sale of our common stock could have a significant impact on the price of our common stock and it may be difficult for investors to sell our common stock in the market without depressing the market price for the common stock or at all.

As a result of the foregoing, investors may not be able to resell their shares at or above the price they paid for such shares.

Investors in our common stock must be willing to bear the risk of fluctuations in the price of our common stock and the risk that the value of their investment in our stock could decline.

ITEM 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS.

(a) During the periods from June 6, 2008 to June 30, 2008 and July 1, 2008 to July 31, 2008, we have issued a total of 68,808 shares and 140,903 shares, respectively, of our common stock in unregistered sales of equity securities, all of which were issued to holders of warrants in connection with the exercise by such warrant holders of outstanding Idera common stock purchase warrants. We issued the aggregate 209,711 shares during the aforementioned periods for the following consideration:

- 5,712 shares were issued upon payment of a warrant exercise price of $5.84 per share;
- 165,634 shares were issued upon the payment of a warrant exercise price of $8.00 per share; and
- 38,365 shares were issued pursuant to the cashless exercise provisions of the warrants through the surrender of the right to purchase 45,354 shares.

We received approximately $1,358,000 of cash proceeds in aggregate upon the exercise of the foregoing warrants.

The issuances of shares of our common stock upon exercise of outstanding warrants described above were exempt from registration under the Securities Act of 1933 pursuant to an exemption from registration under Section 4(2) of the Securities Act of 1933, as amended, Rule 506 of Regulation D promulgated thereunder, and/or Regulation S promulgated thereunder as not involving a public offering. The shares of common stock issued by us upon these warrant exercises have been registered for resale by the holders under our Registration Statements on Form S-3, File No. 333-109630 and 333-133455.

(b) Issuer Purchases of Equity Securities

The Company's repurchase of shares of its common stock during the three months ended June 30, 2008, are as follows:

	Issuer Purchases of Equity Securities			
Period	Total Number of Shares (or units) Purchased (1)	Average Price Paid per Share (or unit)	Total Number of Shares (or units) Purchased as Part of Publicly Announced Plans or Programs (2)	Maximum Number (or Approximate Dollar Value) of Shares (or units) that may yet be purchased Under the Plans or Programs
April 1, 2008 to April 30, 2008	—	—	—	—
May 1, 2008 to May 31, 2008	—	—	—	—
June 1, 2008 to June 30, 2008	6,594	$ 14.44	—	—

(1) The amount listed in this column represents shares of common stock surrendered by an employee to us in satisfaction of tax withholding obligations incurred upon the lapse of restrictions on shares of common stock during the period in accordance with the terms of a restricted stock agreement previously entered into between us and such employee.

(2) We currently have no plan or program to repurchase our equity securities, aside from additional shares that will be surrendered to us in satisfaction of tax withholding obligations incurred upon the future lapse of restrictions on shares of common stock in accordance with the terms of a restricted stock agreement entered into between us and an employee.

ITEM 4. SUBMISSION OF MATTERS TO A VOTE OF SECURITY HOLDERS.

On June 4, 2008, the proposals listed below were voted on and approved at the annual meeting of stockholders.

Proposal	For	Against/Withheld	Abstain
To elect Mr. C. Keith Hartley to serve as a Class I Director until the 2011 annual meeting of stockholders	17,717,605	69,580	—
To elect Dr. Hans Mueller to serve as a Class I Director until the 2011 annual meeting of stockholders	17,723,676	63,509	—
To elect Mr. William S. Reardon to serve as a Class I Director until the 2011 annual meeting of stockholders	17,732,042	55,143	—
To approve an amendment to our Restated Certificate of Incorporation increasing the number of authorized shares of common stock from 40,000,000 to 70,000,000 shares	17,383,284	220,469	183,432
To approve our 2008 Stock Incentive Plan	10,031,504	171,064	13,278
To approve an amendment to our 1995 Employee Stock Purchase Plan to increase the number of shares authorized for issuance thereunder from 125,000 shares to 250,000 shares	10,068,970	136,551	10,325
To ratify the selection by our audit committee of Ernst & Young LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2008	17,568,382	4,083	214,720

ITEM 5. OTHER INFORMATION.

The information contained in Part II, Item 2 of this Quarterly Report of Form 10-Q relating to, and solely with respect to, unregistered sales of equity securities during the period commencing on July 1, 2008 and ending on July 31, 2008 is incorporated by reference to this Item 5.

ITEM 6. EXHIBITS.

The list of Exhibits filed as part of this Quarterly Report on Form 10-Q are set forth on the Exhibit Index immediately preceding such Exhibits, and is incorporated herein by this reference.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, as amended, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

IDERA PHARMACEUTICALS, INC

Date: August 1, 2008

/s/ Sudhir Agrawal
Sudhir Agrawal
Chief Executive Officer, Chief Scientific Officer and
Director (Principal Executive Officer)

Date: August 1, 2008

/s/ Louis J. Arcudi, III
Louis J. Arcudi, III
Chief Financial Officer
(Principal Financial and Accounting Officer)

Exhibit Index

Exhibit No.	
3.1	Restated Certificate of Incorporation of Idera Pharmaceuticals, Inc., as amended.
10.1*	2008 Stock Incentive Plan.
10.2*	Form of Incentive Stock Option Agreement under 2008 Stock Incentive Plan.
10.3*	Form of Nonstatutory Stock Option Agreement under 2008 Stock Incentive Plan.
10.4*	Form of Nonstatutory Stock Option Agreement (non-Employee Directors) under 2008 Stock Incentive Plan.
10.5*	Form of Restricted Stock Agreement under 2008 Stock Incentive Plan.
10.6*	1995 Employee Stock Purchase Plan, as amended.
31.1	Certification of Chief Executive Officer pursuant to Exchange Act Rules 13a-14 and 15d-14, as adopted pursuant to Section 302 of Sarbanes-Oxley Act of 2002.
31.2	Certification of Chief Financial Officer pursuant to Exchange Act Rules 13a-14 and 15d-14, as adopted pursuant to Section 302 of Sarbanes-Oxley Act of 2002.
32.1	Certification of Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2	Certification of Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.

* Incorporated by reference to the Registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on June 10, 2008.

Exhibit 3.1

RESTATED

CERTIFICATE OF INCORPORATION

OF

HYBRIDON, INC.

Hybridon, Inc., a corporation organized and existing under and by virtue of the General Corporation Law of the State of Delaware, does hereby certify as follows:

1. The Corporation filed its original Certificate of Incorporation with the Secretary of State of Delaware on May 25, 1989, which Certificate of Incorporation was amended by a Certificate of Amendment of Certificate of Incorporation filed on February 21, 1990, and amended and restated by a Restated Certificate of Incorporation filed on June 5, 1990. A Restated Certificate of Incorporation was filed with the Secretary of State of the State of Delaware on November 20, 1990, which Restated Certificate of Incorporation was amended by a Certificate of Amendment of Restated Certificate of Incorporation filed on October 16, 1991, a Certificate of Amendment of Restated Certificate of Incorporation filed on March 3, 1992, a Certificate of Amendment of Restated Certificate of Incorporation filed on March 23, 1992, a Certificate of Amendment of Restated Certificate of Incorporation filed on October 23, 1992, a Certificate of Amendment of Restated Certificate of Incorporation filed on February 12, 1993, a Certificate of Amendment of Restated Certificate of Incorporation filed on June 17, 1993, a Certificate

of Amendment of Restated Certificate of Incorporation filed on July 13, 1993, a Certificate of Amendment of Restated Certificate of Incorporation filed on September 9, 1994, a Certificate of Amendment of Restated Certificate of Incorporation filed on July 7, 1995, a Certificate of Amendment of Restated Certificate of Incorporation filed on December 19, 1995, and a Certificate of Retirement of Stock filed on even date herewith.

2. At a meeting of the Board of Directors of the Corporation, a resolution was duly adopted, pursuant to Sections 141(f) and 245 of the General Corporation Law of the State of Delaware, setting forth a Restated Certificate of Incorporation of the Corporation and declaring said Restated Certificate of Incorporation advisable. The resolution setting forth the Restated Certificate of Incorporation is as follows:

RESOLVED: That the Restated Certificate of Incorporation of the Corporation, as amended, be and hereby is amended and restated in its entirety so that the same shall read as follows:

FIRST. The name of the Corporation is:

Hybridon, Inc.

SECOND. The address of its registered office in the State of Delaware is Corporation Trust Center, 1209 Orange Street, in the City of Wilmington, County of New Castle. The name of its registered agent at such address is The Corporation Trust Company.

THIRD. The nature of the business or purposes to be conducted or promoted by the Corporation is as follows:

To engage in any lawful act or activity for which corporations may be organized under the General Corporation Law of Delaware.

FOURTH. The total number of shares of all classes of stock which the Corporation shall have authority to issues is One Hundred Million (100,000,000) shares of Common Stock, $.001 par value per share ("Common Stock"), and (ii) Five Million ($5,000,000)shares of Preferred Stock, $.01 par value per share ("Preferred Stock"), which may be issued from time to time in one or more series as set forth in Part B of this Articles FOURTH.

The following is a statement of the designations and the powers,

privileges and rights, and the qualifications, limitations or restrictions thereof in respect of each class of capital stock of the Corporation.

A. COMMON STOCK.

1. GENERAL. The voting, dividend and liquidation rights of the holders of the Common Stock are subject to and qualified by the rights of the holders of the Preferred Stock of any series as may be designated by the Board of Directors upon any issuance of the Preferred Stock of any series.

2. VOTING. The holders of the Common Stock are entitled to one vote for each share held at all meetings of stockholders (and written actions in lieu of meetings). There shall be no cumulative voting.

The number of authorized shares of Common Stock may be increased or decreased (but not below the number of shares thereof then outstanding) by the affirmative vote of the holders of a majority of the stock of the Corporation entitled to vote, irrespective of the provisions of Section 242(b)(2) of the General Corporation Law of Delaware.

3. DIVIDENDS. Dividends may be declared and paid on the Common Stock from funds lawfully available therefor as and when determined by the Board of Directors and subject to any preferential dividend rights of any then outstanding Preferred Stock.

4. LIQUIDATION. Upon the dissolution or liquidation of the Corporation, whether voluntary or involuntary, holders of Common Stock will be entitled to receive all assets of the Corporation available for distribution to its stockholders, subject to any preferential rights of any then outstanding Preferred Stock.

B. PREFERRED STOCK.

Preferred Stock may be issued from time to time in one or more series, each of such series to have such terms as stated or expressed herein and in the resolution or resolutions providing for the issue of such series adopted by the Board of Directors of the Corporation as hereinafter provided. Any shares of Preferred Stock which may be redeemed, purchased or acquired by the Corporation may be reissued except as otherwise provided by law. Different series of Preferred Stock shall not be construed to constitute different classes of shares for the purposes of voting by classes unless expressly provided.

Authority is hereby expressly granted to the Board of Directors from time to time to issue the Preferred Stock in one or more series, and in connection with the creation of any such series, by resolution or resolutions providing for the issue of the shares thereof, to determine and fix such voting powers, full or limited, or no voting powers, and such designations, preferences and relative participating, optional or other special rights, and qualifications, limitations or restrictions thereof, including without limitation thereof, dividend rights, conversion rights, redemption privileges and liquidation preferences, as shall be stated and expressed in such resolutions, all to the full extent now or hereafter permitted by the General Corporation Law of Delaware. Without limiting the generality of the foregoing, the resolutions providing for issuance of any series of Preferred Stock may provide that such series shall be superior or rank equally or be junior to the Preferred Stock of any other series to the extent permitted by law. Except as otherwise specifically provided in this Certificate of Incorporation, no vote of the holders of the Preferred Stock or Common Stock shall be a prerequisite to the issuance of any shares of any series of the Preferred Stock authorized by and complying with the conditions of the Certificate of Incorporation, the right to have such vote being expressly waived by all present and future holders of the capital stock of the Corporation.

FIFTH. The name and mailing address of the sole incorporator are as follows:

NAME	MAILING ADDRESS

SIXTH. In furtherance of and not in limitation of powers conferred by statute, it is further provided:

1. Election of directors need not be by written ballot.

2. The Board of Directors is expressly authorized to adopt, amend or repeal the By-Laws of the Corporation.

SEVENTH. Whenever a compromise or arrangement is proposed between this corporation and its creditors or any class of them and/or between this corporation and its stockholders or any class of them, any court of equitable jurisdiction within the State of Delaware may, on the application in a summary way of this corporation or of any creditor or stockholder thereof, or on the application of any receiver or receivers appointed for this corporation under the provisions of section 291 of Title 8 of the Delaware Code or on the application of trustees in dissolution or of any receiver or receivers appointed for this corporation under the provisions of section 279 of Title 8 of the Delaware Code order a meeting of the creditors or class of creditors, and/or of the stockholders or class of stockholders of this corporation, as the case may be, to be summoned in such manner as the said court directs. If a majority in number representing three-fourths in value of the creditors or class of creditors, and/or of the stockholders or class of stockholders of this corporation, as the case may be, agree to any compromise or arrangement and to any promise or arrangement, the said compromise or arrangement and the said reorganization shall, if sanctioned by the court to which the said application has been made, be binding on all the creditors or class of creditors, and/or on all the stockholders or class of stockholders, of this corporation, as the case may be, and also on this corporation.

EIGHTH. Except to the extent that the General Corporation Law of the State of Delaware prohibits the elimination or limitation of liability of directors for breaches of fiduciary duty, no director of the Corporation shall be personally liable to the Corporation or its stockholders for monetary damages for any breach of fiduciary duty as a director, notwithstanding any provision of law imposing such liability. No amendment to or repeal of this provision shall apply to or have any effect on the liability or alleged liability of any director of the Corporation for or with respect to any acts or omissions of such director occurring prior to such amendment.

NINTH. 1. ACTION, SUITS AND PROCEEDINGS OTHER THAN BY OR IN THE RIGHT OF THE CORPORATION. The Corporation shall indemnify each person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action by or in the right of the Corporation), by reason of the fact that he is or was, or has

agreed to become, a director or officer of the Corporation, or is or was serving, or has agreed to serve, at the request of the Corporation, as a director, officer or trustee of, or in a similar capacity with, another corporation, partnership, joint venture, trust or other enterprise (including any employee benefit plan) (all such persons being referred to hereafter as an "Indemnitee"), or by reason of any action alleged to have been taken or omitted in such capacity, against all expenses (including attorneys' fees) judgment, fines and amounts paid in settlement actually and reasonably incurred by him or on his behalf in connection with such action, suit or proceeding and any appeal therefrom, if he acted in good faith and in a manner he reasonably believed to be in, or not opposed to, the best interests of the Corporation, and, with respect to any criminal action or proceeding, had no reasonable cause to believe his conduct was unlawful. The termination of any action, suit or proceeding by judgment, order, settlement, conviction or upon a plea of NOLO CONTENDERE or its equivalent, shall not, of itself, create a presumption that the person did not act in good faith and in a manner which he reasonably believed to be in, or not opposed to, the best interests of the Corporation, and, with respect to any criminal action or proceeding, had reasonable cause to believe that his conduct was unlawful. Notwithstanding anything to the contrary in this Article, except as set forth in Section 6 below, the Corporation shall not indemnify an Indemnitee seeking indemnification in connection with a proceeding (or part

thereof) initiated by the Indemnitee unless the initiation thereof was approved by the Board of Directors of the Corporation.

2. ACTIONS OR SUITS BY OR IN THE RIGHT OF THE CORPORATION. The Corporation shall indemnify any Indemnitee who was or is a party or is threatened to be made a party to any threatened, pending or completed action or suit by or in the right of the Corporation to procure a judgment in its favor by reason of the fact that he is or was, or has agreed to become, a director or officer of the Corporation, or is or was serving, or has agreed to serve, at the request of the Corporation, as a director, officer or trustee of, or in a similar capacity with, another corporation, partnership, joint venture, trust or other enterprise (including any employee benefit plan), or by reason of any action alleged to have been taken or omitted in such capacity, against all expenses (including attorneys' fees) and amounts paid in settlement actually and reasonably incurred by him or on his behalf in connection with such action, suit or proceeding and any appeal therefrom, if he acted in good faith and in a manner he reasonably believed to be in, or not opposed to, the best interests of the Corporation, except that no indemnification shall be made in respect of any claim, issue or matter as to which such person shall have been adjudged to be liable to the Corporation unless and only to the extent that the Court of Chancery of Delaware or

the court in which such action or suit was brought shall determine upon application that, despite the adjudication of such liability but in view of all the circumstances of the case, such person is fairly and reasonably entitled to indemnity for such expenses (including attorneys' fees) which the Court of Chancery of Delaware or such other court shall deem proper.

3. INDEMNIFICATION FOR EXPENSES OF SUCCESSFUL PARTY. Notwithstanding the other provisions of this Article, to the extent that an Indemnitee has been successful, on the merits or otherwise, in defense of any action, suit or proceeding referred to in Sections 1 and 2 of this Article, or in defense of any claim, issue or matter therein, or on appeal from any such action, suit or proceeding, he shall be indemnified against all expenses (including attorneys' fees) actually and reasonably incurred by him or on his behalf in connection therewith. Without limiting the foregoing, if any action, suit or proceeding is disposed of, on the merits or otherwise (including a disposition without prejudice), without (i) the disposition being adverse to the Indemnitee, (ii) an adjudication that the Indemnitee was liable to the Corporation, (iii) a plea of guilty or NOLO CONTENDERE by the Indemnitee, (iv) an adjudication that the Indemnitee did not act in good faith and in a manner he reasonably believed to be in or not opposed to the best interests of the Corporation, and (v) with respect to any criminal proceeding, an adjudication that the Indemnitee had reasonable cause to believe his conduct was unlawful, the Indemnitee shall be considered for the purposes hereof to have been wholly successful with respect thereto.

4. NOTIFICATION AND DEFENSE OF CLAIM. As a condition precedent to his right to be indemnified, the Indemnitee must notify the Corporation in writing as soon as practicable of any action, suit, proceeding or investigation involving him for which indemnity will or could be sought. With respect to any action, suit, proceeding or investigation of which the Corporation is so notified, the Corporation will be entitled to participate therein at its own expense and/or to assume the defense thereof at its own expense, with legal counsel reasonably acceptable to the Indemnitee. After notice from the Corporation to the Indemnitee of its election so to assume such defense, the Corporation shall not be liable to the Indemnitee for any legal or other expenses subsequently incurred by the Indemnitee in connection with such claim, other than as provided below in this Section 4. The Indemnitee shall have the right to employ his own counsel in connection with such claim, but the fees and expenses of such counsel incurred after notice from the Corporation of its assumption of the defense thereof shall be at the expense of the Indemnitee unless (i) the employment of counsel by the Indemnitee has been authorized by the Corporation, (ii) counsel to the Indemnitee shall have reasonably concluded that there may be a

conflict of interest or position on any significant issue between the Corporation and the Indemnitee in the conduct of the defense of such action or (iii) the Corporation shall not in fact have employed counsel to assume the defense of such action, in each of which cases the fees and expenses of counsel for the Indemnitee shall be at the expense of the Corporation, except as

otherwise expressly provided by this Article. The Corporation shall not be entitled, without the consent of the Indemnitee, to assume the defense of any claim brought by or in the right of the Corporation or as to which counsel for the Indemnitee shall have reasonably made the conclusion provided for in clause (ii) above.

5. ADVANCE OF EXPENSES. Subject to the provisions of Section 6 below, in the event that the Corporation does not assume the defense pursuant to Section 4 of this Article of any action, suit, proceeding or investigation of which the Corporation receives notice under this Article, any expenses (including attorneys' fees) incurred by an Indemnitee in defending a civil or criminal action, suit, proceeding or investigation or any appeal therefrom shall be paid by the Corporation in advance of the final disposition of such matter, PROVIDED, HOWEVER, that the payment of such expense incurred by an Indemnitee in advance of the final disposition of such matter shall be made only upon receipt of an undertaking by or on behalf of the Indemnitee to repay all amounts so advanced in the event that it shall ultimately be determined that the Indemnitee is not entitled to be indemnified by the Corporation as authorized in this Article. Such undertaking may be accepted without reference to the financial ability of such person to make such repayment.

6. PROCEDURE FOR INDEMNIFICATION. In order to obtain indemnification or advancement of expenses pursuant to Section 1, 2, 3 or 5 of this Article, the Indemnitee shall submit to the Corporation a written request, including in such request such documentation and information as is reasonably available to the Indemnitee and is reasonably necessary to determine whether and to what extent the Indemnitee is entitled to indemnification or advancement of expenses. Any such indemnification or advancement of expenses shall be made promptly, and in any event within 60 days after receipt by the Corporation of the written request of the Indemnitee, unless with respect to requests under Section 1, 2 or 5 the Corporation determines, by clear and convincing evidence, within such 60-day period that the Indemnitee did not meet the applicable standard of conduct set forth in Section 1 or 2, as the case may be. Such determination shall be made in each instance by (a) a majority vote of a quorum of the directors of the Corporation consisting of persons who are not at that time parties to the action, suit or proceeding in question ("disinterested directors'), (b) if no such quorum is obtainable, a majority vote of a committee of two or more disinterested directors,

(c) a majority vote of a quorum of the outstanding shares of stock of all classes entitled to vote for directors, voting as a single class, which quorum shall consist of stockholders who are not at that time parties to the action, suit or proceeding in question, (d) independent legal counsel (who may be regular legal counsel to the Corporation), or (e) a court of competent jurisdiction.

7. REMEDIES. The right to indemnification or advances as granted by this Article shall be enforceable by the Indemnitee in any court of competent jurisdiction if the Corporation denies such request, in whole or in part, or if no disposition thereof is made within the 60-day period referred to above in Section 6. Unless otherwise provided by law, the burden of proving that the Indemnitee is not entitled to indemnification or advanced of expenses under this Article shall be on the Corporation. Neither the failure of the Corporation to have made a determination prior to the commencement of such action that indemnification is proper in the circumstances because the Indemnitee has met the applicable standard of conduct, nor an actual determination by the Corporation pursuant to Section 6 that the Indemnitee has not met such applicable standard of conduct, shall be a defense to the action or create a presumption that the Indemnitee has not met the applicable standard of conduct. The Indemnitee's expenses (including attorneys' fees) incurred in connection with successfully establishing his right to indemnification, in whole or in part, in any such proceeding shall also be indemnified by the Corporation.

8. SUBSEQUENT AMENDMENT. No amendment, termination or repeal of this Article or of the relevant provisions of the General Corporation Law of Delaware or any other applicable laws shall affect or diminish in any way the rights of any Indemnitee to indemnification under the provisions hereof with respect to any action, suit, proceeding or investigation arising out of or relating to any actions, transactions or facts occurring prior to the final adoption of such amendment, termination or repeal.

9. OTHER RIGHTS. The indemnification and advancement of expenses provided by this Article shall not be deemed exclusive of any other rights to

which an Indemnitee seeking indemnification or advancement of expenses may be entitled under any law (common or statutory), agreement or vote of stockholders or disinterested directors or otherwise, both as to action in his official capacity and as to action in any other capacity while holding office for the Corporation, and shall continue as to an Indemnitee who has ceased to be a director or officer, and shall inure to the benefit of the estate, heirs, executors and administrators of the Indemnitee. Nothing contained in this Article shall be deemed to prohibit, and the Corporation is specifically authorized to enter into, agreements with officers and directors providing

indemnification rights and procedures different from those set forth in this Article. In addition, the Corporation may, to the extent authorized from time to time by its Board of Directors, grant indemnification rights to other employees or agents of the Corporation or other persons serving the Corporation and such rights may be equivalent to, or greater or less than, those set forth in this Article.

10. PARTIAL INDEMNIFICATION. If an Indemnitee is entitled under any provision of this Article to indemnification by the Corporation for some or a portion of the expenses (including attorneys' fees), judgments, fines or amounts paid in settlement actually and reasonably incurred by him or on his behalf in connection with any action, suit, proceeding or investigation and any appeal, therefrom but not, however, for the total amount thereof, the Corporation shall nevertheless indemnify the Indemnitee for the portion of such expenses (including attorneys' fees), judgments, fines or amounts paid in settlement to which the Indemnitee is entitled.

11. INSURANCE. The Corporation may purchase and maintain insurance, at its expense, to protect itself and any director, officer, employee or agent of the Corporation or another corporation, partnership, joint venture, trust or other enterprise (including any employee benefit plan) against any expense, liability or loss incurred by him in any such capacity, or arising out of his status as such, whether or not the Corporation would have the power to indemnify such person against such expense, liability or loss under the General Corporation law of Delaware.

12. MERGER OR CONSOLIDATION. If the Corporation is merged into or consolidated with another corporation and the Corporation is not the surviving corporation, the surviving corporation shall assume the obligations of the Corporation under this Article with respect to any action, suit, proceeding or investigation arising out of or relating to any actions, transactions or facts occurring prior to the date of such merger or consolidation.

13. SAVINGS CLAUSE. If this Article or any portion hereof shall be invalidated on any ground by any court of competent jurisdiction, then the Corporation shall nevertheless indemnify each Indemnitee as to any expenses (including attorneys' fees) judgments, fines and amounts paid in settlement in connection with any action, suit, proceeding or investigation, whether civil, criminal or administrative, including an action by or in the right of the Corporation, to the fullest extent permitted by any applicable portion of this Article that shall not have been invalidated and to the fullest extent permitted by applicable law.

14. DEFINITIONS. Terms used herein and defined in Section 145(h) and Section 145(i) of the General Corporation Law of Delaware shall have the respective meanings assigned to such terms in such Section 145(h) and Section 145(i).

15. SUBSEQUENT LEGISLATION. If the General Corporation Law of Delaware is amended after adoption of this Article to expand further the indemnification permitted to Indemnitees, then the Corporation shall indemnify such persons to the fullest extent permitted by the General Corporation Law of Delaware, as so amended.

TENTH. The Corporation reserves the right to amend, alter, change or repeal any provision contained in this Restated Certificate of Incorporation, in the manner now or hereafter prescribed by statute and this Restated Certificate of Incorporation, and all rights conferred upon stockholders herein are granted subject to this reservation.

ELEVENTH. This Article is inserted for the management of the business

and for the conduct of the affairs of the Corporation and shall not become effective until the closing of the sale of shares of Common Stock in an underwritten public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended, resulting in at least $10,000,000 of gross proceeds to the Corporation (a "Public Offering").

1. NUMBER OF DIRECTORS. The number of directors of the Corporation shall not be less than three. The exact number of directors within the limitations specified in the preceding sentence shall be fixed from time to time by, or in the manner provided in, the Corporation's By-Laws.

2. CLASSES OF DIRECTORS. The Board of Directors shall be and is divided into three classes: Class I, Class II and Class III. No one class shall have more than one director more than any other class. If a fraction is contained in the quotient arrived at by dividing the designated number of directors by three, then, if such fraction is one-third, the extra director shall be a member of Class II, and if such fraction is two-thirds, one of the extra directors shall be a member of Class I and one of the extra directors shall be a member of Class II, unless otherwise provided from time to time by resolution adopted by the Board of Directors.

3. ELECTION OF DIRECTORS. Elections of directors need not be by written ballot except as and to the extent provided in the By-Laws of the Corporation.

4. TERMS OF OFFICE. Each director shall serve for a term ending on the date of the third annual meeting following the annual meeting at which such director was elected; PROVIDED, that each initial director in Class I shall serve for a term ending on the date of the annual meeting in 1996; each initial director in Class II shall serve for a term ending on the date of the annual meeting in 1997; and each initial director in Class III shall serve for a term ending on the date of the annual meeting in 1998; and PROVIDED FURTHER, that the term of each director shall be subject to the election and qualification of his successor and to his earlier death, resignation or removal.

5. ALLOCATION OF DIRECTORS AMONG CLASSES IN THE EVENT OF INCREASES OR DECREASES IN THE NUMBER OF DIRECTORS. In the event of any increase or decrease in the authorized number of directors, (i) each director then serving as such shall nevertheless continue as a director of the class of which he is a member and (ii) the newly created or eliminated directorships resulting from such increase or decrease shall be apportioned by the Board of Directors among the three classes of directors so as to ensure that no one class has more than one director more than any other class. To the extent possible, consistent with the foregoing rule, any newly created directorships shall be added to those classes whose terms of office are to expire at the latest dates following such allocation, and any newly eliminated directorships shall be subtracted from those classes whose terms of offices are to expire at the earliest dates following such allocation, unless otherwise provided from time to time by resolution adopted by the Board of Directors.

6. QUORUM; ACTION AT MEETING. A majority of the directors at any time in office shall constitute a quorum for the transaction of business. In the event one or more of the directors shall be disqualified to vote at any meeting, then the required quorum shall be reduced by one for each director so disqualified, provided that in no case shall less than one-third of the number of directors fixed pursuant to Section 1 above constitute a quorum. If at any meeting of the Board of Directors there shall be less than such a quorum, a majority of those present may adjourn the meeting from time to time. Every act or decision done or made by a majority of the directors present at a meeting duly held at which a quorum is present shall be regarded as the act of the Board of Directors unless a greater number is required by law, by the By-Laws of the Corporation or by this Restated Certificate of Incorporation.

7. REMOVAL. Directors of the Corporation may be removed only for cause by the affirmative vote of the holders of at least two-thirds of the shares of the capital stock of the Corporation issued and outstanding and entitled to vote.

8. VACANCIES. Any vacancy in the Board of Directors, however occurring, including a vacancy resulting from an enlargement of the board, shall be filled only by a vote of a majority of the directors then in office, although less than a quorum, or by a sole remaining director. A director elected to fill a vacancy

shall be elected to hold office until the next election of the class for which such director shall have been chosen, subject to the election and qualification of his successor and to his earlier death, resignation or removal.

9. STOCKHOLDER NOMINATIONS AND INTRODUCTION OF BUSINESS, ETC. Advance notice of stockholder nominations for election of directors and other business to be brought by stockholders before a meeting of stockholders shall be given in the manner provided by the By-Laws of the Corporation.

10. AMENDMENTS TO ARTICLE. Notwithstanding any other provisions of law, this Restated Certificate of Incorporation or the By-Laws of the Corporation, and notwithstanding the fact that a lesser percentage may be specified by law, the affirmative vote of the holders of at least seventy-five percent (75%) of the shares of capital stock of the Corporation issued and outstanding and entitled to vote shall be required to amend or repeal, or to adopt any provision inconsistent with, this Article ELEVENTH.

TWELFTH. Until the closing of a Public Offering, any action which is required to be taken or which may be taken at any annual or special meeting of stockholders of the Corporation may be taken without a meeting, without prior notice and without a vote, if a consent in writing, setting forth the action so taken, is signed by the holders of outstanding stock having not less than the minimum number of votes that would be necessary to authorize or take such action at a meeting at which all shares entitled to vote on such action were present and voted. Effective upon the closing of a Public Offering, stockholders of the Corporation may not take any action by written consent in lieu of a meeting. Notwithstanding any other provisions of law, the Restated Certificate of Incorporation or the By-Laws of the Corporation, and notwithstanding the fact that a lesser percentage may be specified by law, the affirmative vote of the holders of at least seventy-five percent (75%) of the shares of capital stock of the Corporation issued and outstanding and entitled to vote shall be required to amend or repeal, or to adopt any provision inconsistent with, this Article TWELFTH.

THIRTEENTH. Effective upon the closing of a Public Offering, special meetings of stockholders may be called at any time by only the Chief Executive Officer (or if there is no Chief Executive Officer, the President) or the Board of Directors. Business transacted at any special meeting of stockholders shall be limited

to matters relating to the purpose or purposes stated in the notice of meeting. Notwithstanding any other provision of law, this Restated Certificate of Incorporation or the By-Laws of the Corporation, as amended, and notwithstanding the fact that a lesser percentage may be specified by law, the affirmative vote of the holders of at least seventy-five percent (75%) of the shares of capital stock of the Corporation issued and outstanding and entitled to vote shall be required to amend or repeal, or to adopt any provision inconsistent with this Article THIRTEENTH.

IN WITNESS WHEREOF, the Corporation has caused its corporate seal to be affixed hereto and this Restated Certificate of Incorporation to be signed by its Chairman this 28TH March, 1996.

HYBRIDON, INC.

By: /s/ E. Andrews Grinstead, III

Chairman

[Corporate Seal]

CERTIFICATE OF AMENDMENT
OF
RESTATED
CERTIFICATE OF INCORPORATION
OF HYBRIDON, INC.

Pursuant to Section 242 of the General

Corporation Law of the State of Delaware

HYBRIDON, INC. (the "Corporation"), organized and existing under and by virtue of the General Corporation Law of the State of Delaware, does hereby certify as follows:

By written action of the Board of Directors of the Corporation, dated October 20, 1997, the Board of Directors duly adopted resolutions pursuant to Sections 141(f) and 242 of the General Corporation Law of the State of Delaware setting forth an amendment to the Restated Certificate of Incorporation of the Corporation, as amended, and declaring said amendment to be advisable. The stockholders of the Corporation duly approved, pursuant to said Section 242, said proposed amendment at a Special Meeting of Stockholders held on November 18, 1997. The resolution setting forth the amendment to the Restated Certificate of Incorporation is as follows:

RESOLVED: That, subject to stockholder approval, the following paragraph be inserted prior to the first paragraph of Article FOURTH of the Certificate of Incorporation:

"That upon the filing date of the Certificate of Amendment of Restated Certificate of Incorporation of the Corporation (the "Effective Date"), a one-for-five reverse split of the Corporation's Common Stock (as defined below) shall become effective, such that each five shares of Common Stock outstanding and held of record by each stockholder of the Corporation (including treasury shares)

immediately prior to the Effective Date shall represent one share of Common Stock from and after the Effective Date."

IN WITNESS WHEREOF, the Corporation has caused this Certificate of Amendment to be executed by its Chairman of the Board of Directors, President and Chief Executive Officer this 10th day of December, 1997.

HYBRIDON, INC.

By: /s/ E. Andrews Grinstead, III

E. Andrews Grinstead, III
Chairman of the Board of Directors,
President and Chief Executive Officer

CERTIFICATE OF DESIGNATION

for

SERIES A CONVERTIBLE PREFERRED STOCK

of

HYBRIDON, INC.

Pursuant to Section 151 of the
General Corporation Law of the State of Delaware

HYBRIDON INC., a corporation organized and existing under the laws of the State of Delaware (the "Corporation"), does hereby certify that pursuant to the authority conferred on the board of directors of the Corporation (the "Board of Directors") by the Restated Certificate of Incorporation, as amended (the "Certificate of Incorporation") of the Corporation and in accordance with Section 151 of the General Corporation Law of the State of Delaware, the Board of Directors adopted the following resolution establishing a series of 1,500,000 shares of preferred stock of the Corporation designated as "Series A Convertible Preferred Stock":

RESOLVED, that pursuant to the authority conferred on the

Board of Directors by the Certificate of Incorporation, a series of preferred stock, par value $.01 per share, of the Corporation is hereby established and created, and that the designation and number of shares thereof and the voting and other powers, preferences and relative participating, optional or other special rights of, the shares of such series and the qualifications, limitations and restrictions thereof are as follows:

Series A Convertible Preferred Stock

1. Designation and Amount and Definitions. (a) There shall be a series of Preferred Stock designated as "Series A Convertible Preferred Stock" and the number of shares constituting such series shall be 1,500,000. Such series is referred to herein as the "Series A Preferred Stock". Notwithstanding any other provision in this Certificate of Designation of the Series A Preferred Stock (the "Certificate of Designation") to the contrary, such series shall be senior to the common stock, par value $.001 per share of the Corporation (the "Common Stock") with respect to dividends and the distribution of assets upon liquidation, dissolution or winding up. Such number of shares may be increased or decreased by resolution of the Board of Directors, subject to the provisions of Section 7 hereof; provided, however, that no decrease shall reduce the number of shares of Series A Preferred Stock to fewer than the number of shares then issued and outstanding.

(b) As used in this Certificate of Designation, except as otherwise provided in Subsection 4(c), the following terms shall have the following meanings:

(i) The "Closing Bid Price" for any security for each trading day shall be the reported per share closing bid price of such security regular way on the Stock Market on such trading day, or, if there were no transactions on such trading day, the average of the reported closing bid and asked prices, regular way, of such security on the relevant Stock Market on such trading day.

(ii) "Fair Market Value" of any asset (including any security) means the fair market value thereof as mutually determined by the Corporation and the holders of a majority of the Series A Preferred Stock then outstanding. If the Corporation and the holders of a majority of the Series A Preferred Stock then outstanding are unable to reach agreement on any valuation matter, such valuation shall be submitted to and determined by a nationally recognized independent investment bank selected by the Board of Directors and the holders of a majority of the Series A Preferred Stock then outstanding (or, if such selection cannot be agreed upon promptly, or in any event within ten days, then such valuation shall be made by a nationally recognized independent investment banking firm selected by the American Arbitration Association in New York City in accordance with its rules), the costs of which valuation shall be paid for by the Corporation.

(iii) "Market Price" shall mean the average Closing Bid Price for twenty (20) consecutive trading days, ending with the trading day prior to the date as of which the Market Price is being determined (with appropriate adjustments for subdivisions or combinations of shares effected during such period), provided that if the prices referred to in the definition of Closing Bid Price cannot be determined on any trading day, the Closing Bid Price for such trading day will be deemed to equal Fair Market Value of such security on such trading day.

(iv) "Registered Holders" shall mean, at any time, the holders of record of the Series A Preferred Stock.

(v) The "Stock Market" shall mean, with respect to any security, the principal national securities exchange on which such security is listed or admitted to trading or, if such security is not listed or admitted to trading on any national securities exchange, shall mean The Nasdaq National Market System ("NNM") or The Nasdaq SmallCap Market ("SCM" and, together with NNM, "Nasdaq") or, if such security is not

quoted on Nasdaq, shall mean the OTC Bulletin Board or, if such security is not quoted on the OTC Bulletin Board, shall mean the over-the-counter market as furnished by any NASD member firm selected from time to time by the Corporation for that purpose.

(vi) A "trading day" shall mean a day on which the relevant Stock Market is open for the transaction of business.

2. Dividends and Distributions. (a) The holders, as of the Dividend Record Date (as defined below), of the Series A Preferred Stock shall be entitled to receive semi-annual dividends on their respective shares of Series A Preferred Stock (aggregating, for this purpose,

all shares of Series A Preferred Stock held of record or, to the Corporation's knowledge, beneficially by such holder), payable, at the option of the Corporation, in cash or additional shares of Series A Preferred Stock, at the rate of 6.5% per annum (computed on the basis of a 360-day year of twelve 30 day months) of the Dividend Base Amount (as defined below), payable semi-annually in arrears; provided that, to the extent the declaration or payment of such dividend is prohibited by applicable law, such dividend need not be paid but shall nevertheless accrue and shall be paid promptly when applicable law permits. Such dividends shall accrue from the date of issuance of such share and shall be paid semi-annually on April 1 and October 1 of each year or, if any such day is not a business day, on the next succeeding business day. Such dividends shall be paid, at the election of the Corporation, either in cash or additional duly authorized, fully paid and non assessable shares of Series A Preferred Stock. In calculating the number of shares of Series A Preferred Stock to be paid with respect to each dividend, the Series A Preferred Stock shall be valued at $100.00 per share (subject to appropriate adjustment to reflect any stock split, combination, reclassification or reorganization of the Series A Preferred Stock). Notwithstanding the foregoing, the Corporation shall not be required to issue fractional shares of Series A Preferred Stock; the Corporation may elect, in its sole discretion, independently for each holder, whether such number of shares (on an aggregated basis) will be rounded to the nearest whole share (with .5 of a share rounded upward) or whether such holder will be given cash in lieu of any fractional shares. The "Dividend Base Amount" of a share of Series A Preferred Stock shall be $100.00 plus all accrued but unpaid dividends (subject to appropriate adjustment to reflect any stock split, combination, reclassification or reorganization of the Series A Preferred Stock). The "Dividend Record Date" shall mean, for each semi-annual dividend, the March 15 or September 15, as the case may be, immediately preceding the dividend payment date.

(b) In addition to the foregoing, subject to the rights of the holders of any shares of any series or class of capital stock ranking prior, and superior to, or pari passu with, the shares of Series A Preferred Stock with respect to dividends, the holders of shares of Series A Preferred Stock shall be entitled to receive, as, when and if declared by the Board of Directors, out of assets legally available for that purpose, dividends or distributions in cash, stock or otherwise.

(c) The Corporation shall not declare any dividend or distribution on any Junior Stock (as defined below) of the Corporation unless all dividends required by Section 2(a) have been or contemporaneously are declared and paid, or declared and a sum sufficient for the payment thereof set apart for such payment, on the Series A Preferred Stock.

(d) [Reserved]

(e) All dividends or distributions declared upon the Series A Preferred Stock shall be declared pro rata per share.

(f) Any reference to "distribution" contained in this Section 2 shall not be deemed to include any distribution made in connection with or in lieu of any Liquidation Event (as defined below).

(g) No interest, or sum of money in lieu of interest, shall be payable in respect of any dividend payment or payments on the Series A Preferred Stock which may be in arrears (it being understood that this provision does not alter the Corporation's obligations under Section 2(a)).

(h) So long as any shares of the Series A Preferred Stock are outstanding, no dividends, except as described in the next succeeding sentence, shall be declared or paid or set apart for payment on any class or series of

stock of the Corporation ranking, as to dividends, on a parity with the Series A Preferred Stock, for any period unless all dividends have been or contemporaneously are declared and paid, or declared and a sum sufficient for the payment thereof set apart for such payment, on the Series A Preferred Stock. When dividends are not paid in full or a sum sufficient for such payment is not set apart, as aforesaid, upon the shares of the Series A Preferred Stock and any other class or series of stock ranking on a parity as to dividends with the Series A Preferred Stock, all dividends declared upon such other stock shall be declared pro rata so that the amounts of dividends per share declared on the Series A Preferred Stock and such other stock shall in all cases bear to each other the same ratio that accrued dividends per share on the shares of the Series A Preferred Stock and on such other stock bear to each other.

(i) So long as any shares of the Series A Preferred Stock are outstanding, no other stock of the Corporation ranking on a parity with the Series A Preferred Stock as to dividends or upon liquidation, dissolution or winding up shall be redeemed, purchased or otherwise acquired for any consideration (or any moneys be paid to or made available for a sinking fund or otherwise for the purchase or redemption of any shares of any such stock) by the Corporation unless the dividends, if any, accrued on all outstanding shares of the Series A Preferred Stock shall have been paid or set apart for payment.

(j) "Junior Stock" shall mean the Common Stock and any shares of preferred stock of any series or class of the Corporation, whether presently outstanding or hereafter issued, which are junior to the shares of Series A Preferred Stock with respect to (i) the distribution of assets on any voluntary or involuntary liquidation, dissolution or winding up of the Corporation, (ii) dividends or (iii) voting.

3. Liquidation Preference. (a) In the event of a (i) liquidation, dissolution or winding up of the Corporation, whether voluntary or involuntary, (ii) a sale or other disposition of all or substantially all of the assets of the Corporation or (iii) any consolidation, merger, combination, reorganization or other transaction in which the Corporation is not the surviving entity or shares of Common Stock constituting in excess of 50% of the voting power of the Corporation are exchanged for or changed into stock or securities of another entity, cash and/or any other property (a "Merger Transaction") (items (i), (ii) and (iii) of this sentence being collectively referred to as a "Liquidation Event"), after payment or provision for payment of debts and other liabilities of the Corporation, the holders of the Series A Preferred Stock then outstanding shall be entitled to be paid out of the assets of the Corporation available for distribution to its stockholders, whether such assets are capital, surplus, or earnings, before any payment or declaration and setting apart for payment of any amount shall be made in respect of any Junior Stock of the Corporation, an amount equal to the Dividend Base Amount at such

time; provided, however, in the case of a Merger Transaction, such payment may be made in cash, property (valued as provided in Subsection 3(b)) and/or securities (valued as provided in Subsection 3(b)) of the entity surviving such Merger Transaction. In the case of property or in the event that any such securities are subject to an investment letter or other similar restriction on transferability, the value of such property or securities shall be determined by agreement between the Corporation and the holders of a majority of the Series A Preferred Stock then outstanding. If upon any Liquidation Event, whether voluntary or involuntary, the assets to be distributed to the holders of the Series A Preferred Stock shall be insufficient to permit the payment to such shareholders of the full preferential amounts aforesaid, then all of the assets of the Corporation to be distributed shall be so distributed ratably to the holders of the Series A Preferred Stock on the basis of the number of shares of Series A Preferred Stock held. Notwithstanding item (iii) of the first sentence of this Subsection 3(a), any consolidation, merger, combination, reorganization or other transaction in which the Corporation is not the surviving entity but the stockholders of the Corporation immediately prior to such transaction own in excess of 50% of the voting power of the corporation surviving such transaction and own amongst themselves such interest in substantially the same proportions as prior to such transaction, shall not be considered a Liquidation Event provided that the surviving corporation shall make appropriate provisions to ensure that the terms of this Certificate of Designation survive any such transaction. All shares of Series A Preferred Stock shall rank as to payment upon the occurrence of any Liquidation Event senior to the Common Stock and, unless the terms of such series shall provide otherwise, senior to all other series of the Corporation's preferred stock.

(b) Any securities or other property to be delivered to the holders of the Series A Preferred Stock pursuant to Subsection 3(a) hereof shall

be valued as follows:

(i) Securities not subject to an investment letter or other similar restriction on free marketability:

(A) If actively traded on a Stock Market, the per share value shall be deemed to be the Market Price of such securities as of the third day prior to the date of valuation.

(B) If not actively traded on a Stock Market, the value shall be the Fair Market Value of such securities.

(ii) For securities for which there is an active public market but which are subject to an investment letter or other restrictions on free marketability, the value shall be the Fair Market Value thereof, determined by discounting appropriately the per share Market Price thereof.

(iii) For all other securities, the value shall be the Fair Market Value thereof.

4. Conversion.

(a) Right of Conversion. Commencing after the expiration of 12 months following the Alternative Equity Closing Date (as hereinafter defined), but not prior thereto, the shares of Series A Preferred Stock shall be convertible, in whole or in part, at the option of the holder thereof and upon notice to the Corporation as set forth in Subsection 4(b), into fully paid and nonassessable shares of Common Stock and such other securities and property as hereinafter provided. The initial conversion price per share of Common Stock (the "Conversion Price"), shall be equal to the product of 2.125 multiplied by the per share price (the "Stated Common Price") of Common Stock sold by the Corporation in connection with the Alternative Equity Offering (as such term is defined in the Corporation's Offer to Exchange dated February 6, 1998 (the "Original Offer to Exchange"), as amended by the Amendment thereto (the "Amendment") dated March 30, 1998 (collectively, the "Offer to Exchange")) and shall be subject to adjustment as provided herein. The rate at which each share Series A Preferred Stock is convertible at any time into Common Stock (the "Conversion Rate") shall be determined by dividing the then existing Conversion Price (determined in accordance with this Section 4, including the last paragraph hereof) into the Dividend Base Amount.

The Corporation shall prepare a certificate signed by the Chairman or President, and by the Treasurer or an Assistant Treasurer or the Secretary or an Assistant Secretary, of the Corporation setting forth the Conversion Rate as of the date of the closing of the Alternative Equity Offering (the "Alternative Equity Closing Date"), showing in reasonable detail the facts upon which such Conversion Rate is based, and such certificate shall forthwith be filed with the transfer agent of the Series A Preferred Stock.

(b) Conversion Procedures. Any holder of shares of Series A Preferred Stock desiring to convert such shares into Common Stock shall surrender the certificate or certificates evidencing such shares of Series A Preferred Stock at the office of the transfer agent for the Series A Preferred Stock, which certificate or certificates, if the Corporation shall so require, shall be duly endorsed to the Corporation or in blank, or accompanied by proper instruments of transfer to the Corporation or in blank, accompanied by irrevocable written notice to the Corporation that the holder elects so to convert such shares of Series A Preferred Stock and specifying the name or names (with address) in which a certificate or certificates evidencing shares of Common Stock are to be issued. The Corporation need not deem a notice of conversion to be received unless the holder complies with all the provisions hereof. The Corporation will instruct the transfer agent (which may be the Corporation) to make a notation of the date that a notice of conversion is received, which date of receipt shall be deemed to be the date of receipt for purposes hereof.

The Corporation shall, as soon as practicable after such deposit of certificates evidencing shares of Series A Preferred Stock accompanied by the written notice and compliance with any other conditions herein contained, deliver at such office of such transfer agent to the person for whose account such shares of Series A Preferred Stock were so surrendered, or to the nominee or nominees of such person, certificates evidencing the number

of full shares of Common Stock to which such person shall be entitled as aforesaid, subject to Section 4(d). Subject to the following provisions of this paragraph, such conversion shall be deemed to have been made as of the date of such surrender of the shares of Series A Preferred Stock to be converted, and the person or persons entitled to receive the Common Stock deliverable upon

conversion of such Series A Preferred Stock shall be treated for all purposes as the record holder or holders of such Common Stock on such date; provided, however, that the Corporation shall not be required to convert any shares of Series A Preferred Stock while the stock transfer books of the Corporation are closed for any purpose, but the surrender of Series A Preferred Stock for conversion during any period while such books are so closed shall become effective for conversion immediately upon the reopening of such books as if the surrender had been made on the date of such reopening, and the conversion shall be at the conversion rate in effect on such date. No adjustments in respect of any dividends on shares surrendered for conversion or any dividend on the Common Stock issued upon conversion shall be made upon the conversion of any shares of Series A Preferred Stock.

The Corporation shall at all times, reserve and keep available out of its authorized but unissued shares of Common Stock, solely for the purpose of effecting the conversion of the shares of Series A Preferred Stock, such number of shares of Common Stock as shall from time to time be sufficient to effect the conversion of all outstanding shares of the Series A Preferred Stock.

All notices of conversion shall be irrevocable; provided, however, that if the Corporation has sent notice of an event pursuant to Subsection 4(g) hereof, a holder of Series A Preferred Stock may, at its election, provide in its notice of conversion that the conversion of its shares of Series A Preferred Stock shall be contingent upon the occurrence of the record date or effectiveness of such event (as specified by such holder), provided that such notice of conversion is received by the Corporation prior to such record date or effective date, as the case may be.

(c) Adjustment of Conversion Rate and Conversion Price.

(i) As used in this Subsection 4(c), the following terms shall have the following meanings:

"Capital Stock" of any Person means the Common Stock or Preferred Stock of such Person. Unless otherwise stated herein or the context otherwise requires, "Capital Stock" means Capital Stock of the Corporation;

"Common Stock" of any Person other than the Corporation means the common equity (however designated), including, without limitation, common stock or partnership or membership interests of, or participation or interests in such Person (or equivalents thereof). "Common Stock" of the Corporation means the Common Stock, par value $.001 per share, of the Corporation, any successor class or classes of common equity (however designated) of the Corporation into or for which such Common Stock may hereafter be converted, exchanged or reclassified and any class or classes of common equity (however designated) of the Corporation which may be distributed or issued with respect to such Common Stock or successor class of classes to holders thereof generally. Unless otherwise stated herein or the context requires otherwise, "Common Stock" means Common Stock of the Corporation;

"Current Market Price" means, when used with respect to any security as of any date, the last sale price, regular way, or, in case no such sale takes place on such date, the average of the closing bid and asked prices, regular way, of such security in either case as reported for consolidated transactions on the New York Stock Exchange or, if such security is not listed or admitted to trading on the New York Stock Exchange, as reported for consolidated transactions with respect to securities listed on the principal national securities exchange on which such security is listed or admitted to trading or, if such security is not listed or admitted to trading on any national securities exchange, as reported on the Nasdaq National Market, or, if such security

is not listed or admitted to trading on the Nasdaq National Market, as reported on the Nasdaq SmallCap Market, or if such security is not listed or admitted to trading on any national securities exchange or the Nasdaq National Market or the Nasdaq SmallCap Market, the average of the high bid and low asked prices of such security in the over-the-counter market, as reported by the National Association of Securities Dealers, Inc. Automated Quotations System or such other system then in use or, if such security is not quoted by any such organization, the average of the closing bid and asked prices of such security furnished by an NASD member firm selected by the Corporation. If such security is not quoted by any such organization and no such NASD member firm is able to provide such prices, the Current Market Price of such security shall be the Fair Market Value thereof;

"Fair Market Value" means, at any date as to any asset, Property or right (including without limitation, Capital Stock of any Person, evidence of indebtedness or other securities, but excluding cash), the fair market value of such item as determined in good faith by the Board of Directors, whose determination shall be conclusive; provided, however, that such determination is described in an Officers' Certificate filed with the transfer agent and that, if there is a Current Market Price for such item on such date, "Fair Market Value" means such Current Market Price (without giving effect to the last sentence of the definition thereof);

"GAAP" means, as of any date, generally accepted accounting principles in the United States and does not include any interpretations or regulations that have been proposed but that have not become effective;

"Officer" means, with respect to any Person, the Chairman of the Board, the Chief Executive Officer, the President, the Chief Operating Officer, the Chief Financial Officer, the Treasurer, any Assistant Treasurer, the Controller, the Secretary, any Assistant Secretary or any Vice President of such Person;

"Officers' Certificate" means a certificate signed on behalf of the Corporation by two Officers, one of whom must be the Chairman of the Board, the President, the Treasurer or a Vice-President of the Corporation;

"Person" means any individual, corporation, partnership, association, trust

or any other entity or organization, including a government or political subdivision or any agency or instrumentality thereof;

"Preferred Stock" of any Person means the class or classes of equity, ownership or participation interests (however designated) in such Person, including, without limitation, stock, share, partnership and membership interests, which are preferred as to the payment of dividends or distributions by, or as to the distribution of assets upon any voluntary or involuntary liquidation or dissolution of, such Person (or equivalent thereof) over interests of any other class of interests of such Person. Unless otherwise stated herein or the context otherwise requires, "Preferred Stock" means Preferred Stock of the Corporation;

"Property" of any Person means any and all types of real, personal, tangible, intangible or mixed property owned by such Person whether or not included on the most recent consolidated balance sheet of such Person in accordance with GAAP;

"Subsidiary" of a Person on any date means any other Person of whom such Person owns, directly or indirectly through a Subsidiary or Subsidiaries of such Person, Capital Stock with voting power, acting independently and under ordinary circumstances, entitling such person to elect a

majority of the board of directors or other governing body of such other Person. Unless otherwise stated herein or the context otherwise requires, "Subsidiary" means a Subsidiary of the Corporation.

(ii) If the Corporation shall (i) pay a dividend or other distribution, in Common Stock, on any class of Capital Stock of the Corporation, (ii) subdivide the outstanding Common Stock into a greater number of shares by any means or (iii) combine the outstanding Common Stock into a smaller number of shares by any means including, without limitation, a reverse stock split), then in each such case the Conversion Price in effect immediately prior thereto shall be adjusted so that the Registered Holder of any shares of Series A Preferred Stock thereafter surrendered for conversion shall be entitled to receive the number of shares of Common Stock that such Registered Holder would have owned or have been entitled to receive upon the happening of such event had such Series A Preferred Stock been converted immediately prior to the relevant record date or, if there is no such record date, the effective date of such event. An adjustment made pursuant to this Paragraph 4(c)(ii) shall become effective immediately after the record date for the determination of stockholders entitled to receive such dividend or distribution and shall become effective immediately after the effective date of such subdivision or combination, as the case may be.

(iii) If the Corporation shall (i) issue or distribute (at a price per share less than the Current Market Price per share of such Capital Stock on the date of such issuance or distribution) Capital Stock generally to holders of Common Stock or to holders of any class or series of Capital Stock which is convertible

into or exchangeable or exercisable for Common Stock (excluding an issuance or distribution of Common Stock described in Paragraph 4(c)(ii)) or (ii) issue or distribute generally to such holders rights, warrants, options or convertible or exchangeable securities entitling the holder thereof to subscribe for, purchase, convert into or exchange for Capital Stock at a price per share less than the Current Market Price per share of such Capital Stock on the date of issuance or distribution, then, in each such case, at the earliest of (A) the date the Corporation enters into a firm contract for such issuance or distribution, (B) the record date for the determination of stockholders entitled to receive any such Capital Stock or any such rights, warrants, options or convertible or exchangeable securities or (C) the date of actual issuance or distribution of any such Capital Stock or any such rights, warrants, options or convertible or exchangeable securities, the Conversion Price shall be reduced by multiplying the Conversion Price in effect immediately prior to such earliest date by:

(A) if such Capital Stock is Common Stock, a fraction the numerator of which is the number of shares of Common Stock outstanding, on such earliest date plus the number of shares of Common Stock which could be purchased at the Current Market Price per share of Common Stock on the date of such issuance or distribution with the aggregate consideration (based on the Fair Market Value thereof) received or receivable by the Corporation either (A) in connection with such issuance or distribution or (B) upon the conversion, exchange, purchase or subscription of all such rights, warrants, options or convertible or exchangeable securities (the "Aggregate Consideration"), and the denominator of which is the number of shares of Common Stock outstanding on such earliest date plus the number of shares of Common Stock to be so issued or distributed or to be issued upon the conversion, exchange, purchase or subscription of all such rights, warrants, options or convertible or exchangeable securities; or

(B) if such Capital Stock is other than Common Stock, a fraction the numerator of which is the Current Market Price per share of Common Stock on such earliest date minus an amount equal to (A) the difference between (1) the Current Market Price per share of such Capital Stock multiplied by the number of shares of such Capital Stock to be so issued and (2) the Aggregate Consideration, divided by (B) the number of shares of Common Stock outstanding on such date, and the denominator of which is the Current Market Price per share of Common Stock on such earliest date.

Such adjustment shall be made successively whenever any such Capital Stock, rights, warrants, options or convertible or exchangeable securities are so issued or distributed. In determining whether any rights, warrants, options or convertible or exchangeable securities entitle the holders thereof to subscribe for, purchase, convert into or exchange for shares of such Capital Stock at less than such Current Market Price, there

shall be taken into account the Fair Market Value of any consideration received or receivable by the Corporation for such rights, warrants, options or convertible or exchangeable securities. If any right, warrant,option or convertible or exchangeable security, the issuance of which resulted in an adjustment in the Conversion Price pursuant to this Paragraph 4(c)(iii), shall expire and shall not have been exercised, the Conversion Price shall immediately upon such expiration be recomputed to the Conversion Price which would have been in effect if such right, warrant, option or convertible or exchangeable securities had never been distributed or issued. Notwithstanding anything contained in this paragraph to the contrary, (i) the issuance of Capital Stock upon the exercise of such rights, warrants or options or the conversion or exchange of such convertible or exchangeable securities will not cause an adjustment in the Conversion Price if no such adjustment would have been required at the time such right, warrant, option or convertible or exchangeable security was issued or distributed; provided, however, that, if the consideration payable upon such exercise, conversion or exchange and/or the Capital Stock receivable thereupon are changed after the time of the issuance or distribution of such right, warrant, option or convertible or exchangeable security then such change shall be deemed to be the expiration thereof without having been exercised and the issuance or distribution of new options, rights, warrants or convertible or exchangeable securities and (ii) the issuance of convertible preferred stock of the Corporation as a dividend on convertible preferred stock of the Corporation will not cause an adjustment in the Conversion Price if no such adjustment would have been required at the time such underlying convertible preferred stock was issued (or as a result of any subsequent modification to the terms thereof) and the conversion provisions of such convertible stock so issued as a dividend are the same as in such underlying convertible preferred stock.

Notwithstanding any contained in this Certificate of Designation to the contrary, options, rights or warrants issued or distributed by the Corporation, including options, rights or warrants distributed prior to the date of filing of this Certificate of Designation, to holders of Common Stock generally which, until the occurrence of a specified event or events (a "Trigger Event"), (i) are deemed to be transferred with Common Stock, (ii) are not exercisable and (iii) are also issued on a pro rata basis with respect to future issuances of Common Stock, shall be deemed not to have been issued or distributed for purposes of this Subsection 4(c) (and no adjustment to the Conversion Price under this Subsection 4(c) will be required) until the occurrence of the earliest Trigger Event. Upon the occurrence of a Trigger Event, such options, rights or warrants shall continue to be deemed not to have

been issued or distributed for purposes of this Subsection 4(c) (and no adjustment to the Conversion Price under this Subsection 4(c) will be required) if and for so long as each Registered Holder who thereafter converts such Registered Holder's Series A Preferred Stock shall be entitled to receive upon such conversion, in addition to the shares of Common Stock issuable upon such conversion, a number of such options, rights or warrants, as the case may be, equal to the number of options, rights or warrants to which a holder of the number of shares of

Common Stock equal to the number of shares of Common Stock issuable upon conversion of such Registered Holder's Series A Preferred Stock is entitled to receive at the time of such conversion in accordance with the terms and provisions of, and applicable to, such options, rights or warrants. Upon the expiration of any such options, rights or warrants or at such time, if any, as a Registered Holder is not entitled to receive such options, rights or warrants upon conversion of such Registered Holder's Series A Preferred Stock, an adjustment (if any is required) to the Conversion Price shall be made in accordance with this Paragraph 4(c)(iii) with respect to the issuance of all such options, rights and warrants as of the date of issuance thereof, but subject to the provisions of the preceding paragraph, if any such option, right or warrant, including any such options right or warrants distributed prior to the date of filing of this Certificate of Designation, are subject to events, upon the occurrence of which such options, rights or warrants become exercisable to purchase different securities, evidence of indebtedness, cash, Properties or other assets or different amounts thereof, then, subject to the preceding provision of this paragraph, the date of the occurrence of any and each such event shall be deemed to be the date of distribution and record date with respect to new options, right or warrants with such new purchase rights (and a termination or expiration of the existing options, rights or warrants without exercise thereof). In addition, in the event of any distribution (or deemed distribution) of options, rights or warrants, or any Trigger Event or other event of the type described in the preceding sentence, that required (or would have required but for the provisions of Paragraph 4(c)(vi) or this paragraph) an adjustment to the Conversion Price under this Subsection 4(c) and such options, rights or warrants shall thereafter have been redeemed or repurchased without having been exercised, then the Conversion Price shall be adjusted upon such redemption or repurchase to give effect to such distribution, Trigger Event or other event, as the case may, as though it had instead been a cash distribution, equal on a per share basis to the result of the aggregate redemption or repurchase price received by holders of such options, rights or warrants divided by the number of shares of Common Stock outstanding as of the date of such repurchase or redemption, made to holders of Common Stock generally as of the date of such redemption or repurchase.

(iv) If the Corporation shall pay or distribute, as a dividend or otherwise, generally to holders of Common Stock or any class or series of Capital Stock which is convertible into or exercisable or exchangeable for Common Stock any assets, Properties or rights (including, without limitation, evidences of indebtedness of the Corporation, any Subsidiary or any other Person, cash or Capital Stock or other securities of the Corporation, any Subsidiary or any other Person, but excluding payments and distributions as described in Paragraphs 4(c)(ii) or (iii), dividends and distributions in connection with a Liquidation Event and distributions consisting solely of cash described in Paragraph 4(c)(v)), then in each such case the Conversion Price shall be reduced by multiplying the Conversion Price in effect immediately prior to the date of such payment or distribution by a fraction, the numerator of which is the Current Market Price per share of Common Stock on the record

date for the determination of stockholders entitled to receive such payment or distribution less the Fair Market Value per

share of Common Stock on such record date of the assets, Properties or rights so paid or distributed, and the denominator of which is the Current Market Price per share of Common Stock on such record date. Such adjustment shall become effective immediately after such record date. For purposes of this Paragraph 4(c)(iv), such Fair Market Value per share shall equal the aggregate Fair Market Value on such record date of the assets, Properties or rights so paid or distributed divided by the number of shares of Common Stock outstanding on such record date. For all purposes of this Certificate of Designation, adjustments to any security's conversion or exercise price pursuant to such security's original terms shall not be deemed a distribution or dividend to holders thereof.

(v) If the Corporation shall, by dividend or otherwise, make a distribution (other than in connection with the liquidation, dissolution or winding up of the Corporation in its entirety), generally to holders of Common Stock or any class or series of Capital Stock which is convertible into or exercisable or exchangeable for Common Stock, consisting solely of cash where (x) the sum of (i) the aggregate amount for such cash plus (ii) the aggregate amount of all cash so distributed (by dividend or otherwise) to such holders within the 12-month period ending on the record date for determining stockholder entitled to receive such distribution with respect to which no adjustment has been made to the Conversion Price pursuant to this Paragraph 4(c)(v) exceeds (y) 10% of the result of the multiplication of (1) the Current Market Price per share of Common Stock on such record date times (2) the number of shares of Common Stock outstanding on such record date, then the Conversion Price shall be reduced, effective immediately prior to the opening of business on the day following such record date, by multiplying the Conversion Price in effect immediately prior to the close of business on the day prior to such record date by a fraction, the numerator of which is the Current Market Price per share of Common Stock on such record date less the aggregate amount of cash per share so distributed and the denominator of which is such Current Market Price; provided, however, that, if the aggregate amount of cash per share is equal to or greater than such Current Market Price, then, in lieu of the foregoing adjustment, adequate provisions shall be made so that each Registered Holder shall have the right to receive upon conversion (with respect to each share of Common Stock issued upon such conversion and in addition to the Common Stock issuable upon conversion) the aggregate amount of cash per share such Registered Holder would have received had such Registered Holder's Series A Preferred Stock been converted immediately prior to such record date. In no event shall the Conversion Price be increased pursuant to this Paragraph 4(c)(v); provided, however, that if such distribution is not so made, the Conversion Price shall be adjusted to be the Conversion Price which would have been in effect if such distribution had not been declared. For purposes of this Paragraph 4(c)(v), such aggregate amount of cash per share shall equal such sum divided by the number of shares of Common Stock outstanding on such record date.

(vi) The provisions of this Subsection 4(c) shall similarly apply to all successive events of the type described in this Subsection 4(c). Notwithstanding anything contained herein to the contrary, no adjustment in the Conversion Price shall be required unless such adjustment would require an increase or decrease of at least 1% in the Conversion Price then in effect; provided, however, that any adjustments which by reason of this Paragraph 4(c)(vi) are not required to be made shall be carried forward and taken into account in any subsequent adjustment. All calculations under this Section 4 shall be made by the Corporation and shall be made to the nearest cent or to the nearest one hundredth of a share, as the case may be, and the transfer agent shall be entitled to rely conclusively thereon. Except as provided in this Section 4, no adjustment in the Conversion Price will be made for the issuance of Common Stock or any securities convertible into or

exchangeable for Common Stock or carrying the right to purchase Common Stock or any securities so convertible or exchangeable.

(vii) Whenever the Conversion Price is adjusted as provided herein, the Corporation shall promptly file with the transfer agent an Officers' Certificate setting forth the Conversion Price in effect after such adjustment and setting forth a brief statement of the facts requiring such adjustment. Promptly after delivery of such Officers' Certificate, the Corporation shall give or cause to be given to each Registered Holder a notice of such adjustment of the Conversion Price setting forth the adjusted Conversion Price and the date on which such adjustment becomes effective.

(viii) Notwithstanding anything contained herein to the contrary, in any case in which this Subsection 4(c) provides that an adjustment in the Conversion Price shall become effective immediately after a record date for an event, the Corporation may defer until the occurrence of such event (i) issuing to the Registered Holder of any Series A Preferred Stock converted after such record date and before the occurrence of such event the additional shares of Common Stock issuable upon such conversion by reason of the adjustment required by such event over and above the number of shares of Common Stock issuable upon such conversion before giving effect to such adjustment and (ii) paying to such Registered Holder any amount in cash in lieu of any fractional share of Common Stock pursuant to Subsection 4(d).

(ix) Notwithstanding any other provision hereof, no adjustment to the Conversion Price shall be made upon the issuance or exercise or conversion of (1) options or warrants to purchase, in the aggregate, up to 25% of the securities sold in the offerings of securities of the Corporation described in the Original Offer to Exchange or any options or warrants described in the Amendment in respect of the Alternative Equity Offering, in each case issued to (or to the designee of) any placement agent or financial advisor (such options or warrants, the "Offering Warrants"), (2) any equity securities or warrants of the Corporation (including, without limitation, the Series A Preferred Stock, warrants and equity securities underlying warrants) issued in exchange for 9% Convertible Subordinated

Notes due 2004 (the "9% Notes") of the Corporation or accrued interest thereon or pursuant to the conversion or exercise provisions thereof, (3) any warrants issued in connection with the offerings described in the Original Offer to Exchange or the Amendment (collectively, the "Offering"), (4) any warrants issued to Forum Capital Markets, LLC ("Forum") in exchange for or in addition to, or any amendment to, any warrants held by Forum, in each case, pursuant to a letter agreement dated January 5, 1998, between the Corporation and Forum, and any other warrants to purchase Common Stock or shares of Common Stock issued to Forum or its designee, (5) any Series A Preferred Stock issued in the Offering, (6) any Capital Stock issued or cash paid as dividends on the Series A Preferred Stock or (7) any Capital Stock issued or cash paid upon the mandatory conversion or redemption of any Series A Preferred Stock in accordance with Section 5 of this Certificate of Designation.

(d) No Fractional Shares. No fractional shares or scrip representing fractional shares of Common Stock shall be issued upon conversion of Series A Preferred Stock. If more than one certificate evidencing shares of Series A Preferred Stock shall be surrendered for conversion at one time by the same holder, the number of full shares issuable upon conversion thereof shall be computed on the basis of the aggregate number of shares of Series A Preferred Stock so surrendered. Instead of any fractional share of Common Stock which would otherwise be issuable upon conversion of such aggregate number of shares of Series A Preferred Stock, the Corporation may elect, in its sole discretion, independently for each holder, whether such number of shares of Common Stock will be rounded to the nearest whole share (with a .5 of a share rounded upward) or whether such holder will be given cash, in lieu of any fractional share, in

an amount equal to the same fraction of the Market Price of the Common Stock as of the close of business on the day of conversion.

(e) [Reserved]

(f) Reservation of Shares; Transfer Taxes, Etc. The Corporation shall at all times reserve and keep available, out of its authorized and unissued shares of Common Stock, solely for the purpose of effecting the conversion of the Series A Preferred Stock, such number of shares of its Common Stock free of preemptive rights as shall be sufficient to effect the conversion of all shares of Series A Preferred Stock from time to time outstanding. The Corporation shall use its best efforts from time to time, in accordance with the laws of the State of Delaware to increase the authorized number of shares of Common Stock if at any time the number of shares of authorized, unissued and unreserved Common Stock shall not be sufficient to permit the conversion of all the then-outstanding shares of Series A Preferred Stock.

The Corporation shall pay any and all issue or other taxes (excluding any income taxes) that may be payable in respect of any issue or delivery of shares of Common Stock on conversion of the Series A Preferred Stock. The Corporation shall not, however, be required to pay any tax which may be payable in respect of any transfer involved in the issue or delivery of Common Stock (or other securities or assets) in a name other than that in which the shares of Series A Preferred Stock so converted were registered, and no such issue or delivery shall be made unless and until the person requesting such issue has paid to the Corporation the amount

of such tax or has established, to the satisfaction of the Corporation, that such tax has been paid or need not be paid.

(g) Prior Notice of Certain Events. In case:

(i) the Corporation shall declare any dividend (or any other distribution); or

(ii) the Corporation shall authorize the granting to the holders of Common Stock of rights or warrants to subscribe for or purchase any shares of stock of any class or of any other rights or warrants; or

(iii) of any reclassification of Common Stock (other than a subdivision or combination of the outstanding Common Stock, or a change in par value, or from par value to no par value, or from no par value to par value); or

(iv) of any consolidation or merger to which the Corporation is a party and for which approval of any stockholders of the Corporation shall be required, or of the sale or transfer of all or substantially all of the assets of the Corporation or of any compulsory share exchange whereby the Common Stock is converted into other securities, cash or other property; or

(v) of any Liquidation Event;

then the Corporation shall cause to be filed with the transfer agent for the Series A Preferred Stock, and shall cause to be mailed to the Registered Holders, at their last addresses as they shall appear upon the stock transfer books of the Corporation, at least 20 days prior to the applicable record date hereinafter specified, a notice stating (x) the date on which a record (if any) is to be taken for the purpose of such dividend. distribution or granting of rights or warrants or, if a record is not to be taken, the date as of which the holders of Common Stock of record to be entitled to such dividend, distribution, rights or warrants are to be determined and a description of the cash, securities or other property to be received by such holders upon such dividend, distribution or granting of rights or warrants or (y) the date on which such reclassification, consolidation, merger, sale, transfer, share exchange or Liquidation Event is expected to become effective, the date as of which it is expected that holders of Common Stock of record shall be entitled to exchange their shares of Common Stock for securities or other property deliverable upon such exchange or Liquidation Event and the consideration, including securities or other property, to be received by such holders upon such exchange; provided, however, that no failure to mail such notice or any defect therein or in the mailing thereof shall affect the validity of the corporate action required to be specified in such notice.

(h) Other Changes in Conversion Rate. The Corporation from time to time may increase the Conversion Rate by any amount for any period of time if the period is at least 20 days and if the increase is irrevocable during the period. Whenever the Conversion Rate is so increased, the Corporation shall mail to the Registered Holders a notice of the increase at least 15 days before the date the increased Conversion Rate takes effect, and such notice shall

state the increased Conversion Rate and the period it will be in effect.

The Corporation may make such increases in the Conversion Rate, in addition to those required or allowed by this Section 4, as shall be determined by it, as evidenced by a resolution of the Board of Directors, to be advisable in order to avoid or diminish any income tax to holders of Common Stock resulting from any dividend or distribution of stock or issuance of rights or warrants to purchase or subscribe for stock or from any event treated as such for income tax purposes.

Notwithstanding anything to the contrary herein, in no case shall the Conversion Price be adjusted to an amount less than $.001 per share, the current par value of the Common Stock into which the Series A Preferred Stock is convertible.

(i) Ambiguities/Errors. The Board of Directors of the Corporation shall have the power to resolve any ambiguity or correct any error in the provisions relating to the convertibility of the Series A Preferred Stock, and its actions in so doing shall be final and conclusive.

5. Mandatory Conversion and Redemption. (a) At any time after the expiration of 12 months after the Alternative Equity Closing Date, the Corporation at its option, may cause the Series A Preferred Stock to be converted in whole or in part, on a pro rata basis, into fully paid and nonassessable shares of Common Stock using a conversion price equal to 200% of the Stated Common Price if the Closing Bid Price (or, if the price referenced in the definition of Closing Bid Price cannot be determined, the Fair Market Value) of the Common Stock shall have equalled or exceeded 250% of the Conversion Price for at least 20 trading days in any 30 consecutive trading day period ending three days prior to the date of notice of conversion (such event, the "Market Trigger"). Any shares of Series A Preferred Stock so converted shall be treated as having been surrendered by the holder thereof for conversion pursuant to Section 4 on the date of such mandatory conversion (unless previously converted at the option of the holder).

(b) At any time after April 1, 2000, the Corporation, at its option, may redeem the Series A Preferred Stock for cash equal to the Dividend Base Amount at such time, if the Market Trigger has occurred in the period ending three days prior to the date of notice of redemption (unless previously converted at the option of the holder).

(c) No greater than 60 nor fewer than 20 days prior to the date of any such mandatory conversion or redemption, notice by first class mail, postage prepaid, shall be given to the holders of record of the Series A Preferred Stock to be converted or redeemed, addressed to such holders at their last addresses as shown on the stock transfer books of the Corporation. Each such notice shall specify the date fixed for conversion or redemption, the place or places for surrender of shares of Series A Preferred Stock and the then effective Conversion Rate pursuant to Section 4.

Any notice which is mailed as herein provided shall be conclusively presumed to have been duly given by the Corporation on the date deposited in the mail, whether or not

the holder of the Series A Preferred Stock receives such notice; and failure properly to give such notice by mail, or any defect in such notice, to the holders of the shares to be converted or redeemed shall not affect the validity of the proceedings for the conversion or redemption of any other shares of Series A Preferred Stock. On or after the date fixed for conversion or redemption (the "Take-Out Date") as stated in such notice, each holder of shares called to be converted or redeemed shall surrender the certificate evidencing such shares to the Corporation at the place designated in such notice for conversion or redemption. After the mailing of such notice, but before the Take-Out Date as stated therein, all rights whatsoever with respect to the shares so called for conversion or redemption (except the right of the holders to convert such shares pursuant to Section 4 and to have such shares converted or redeemed, as the case may be, upon surrender of their certificates therefor,

pursuant to this Section 5) shall terminate. On or after the Take-Out Date, notwithstanding that the certificates evidencing any shares properly called for conversion or redemption shall not have been surrendered, such shares shall no longer be deemed outstanding and all rights whatsoever with respect to the shares so called for conversion or redemption (except the right of the holders to have such shares converted or redeemed, as the case may be, upon surrender of their certificates therefor, pursuant to this Section 5) shall terminate.

6. Outstanding Shares. For purposes of this Certificate of Designation, a share of Series A Preferred Stock, when issued, shall be deemed outstanding except (i) from the date, or the deemed date, of surrender of certificates evidencing shares of Series A Preferred Stock, all shares of Series A Preferred Stock converted into Common Stock or redeemed pursuant to Section 5 and (ii) from the date of registration of transfer, all shares of Series A Preferred Stock held of record by the Corporation or any subsidiary of the Corporation.

7. Class Voting Rights. The Corporation shall not, without the affirmative vote or consent of the holders of at least 50% of all outstanding Series A Preferred Stock, voting separately as a class, (i) amend, alter or repeal any provision of the Certificate of Incorporation or the Bylaws of the Corporation so as adversely to affect the relative rights, preferences, qualifications, limitations or restrictions of the Series A Preferred Stock (it being understood that the issuance of securities ranking prior to, or pari passu with, the Series A Preferred Stock (A) upon a Liquidation Event or (B) with respect to the payment of dividends or distributions shall not be considered adversely to affect such relative rights, preferences, qualifications, limitations or restrictions); or (ii) authorize or issue, or increase the authorized amount of, Series A Preferred Stock, other than Series A Preferred Stock issuable in connection with the Offering, issuable in exchange for 9% Notes or accrued interest thereon or issuable as dividends on Series A Preferred Stock.

8. Status of Acquired Shares. Shares of Series A Preferred Stock received upon conversion or redemption pursuant to Section 4 or Section 5 or otherwise acquired by the Corporation will be restored to the status of authorized but unissued shares of Preferred Stock, without designation as to class, and may thereafter be issued, but not as shares of Series A Preferred Stock.

9. Preemptive Rights. The Series A Preferred Stock is not entitled to any preemptive or subscription rights in respect of any securities of the Corporation.

10. Severability of Provisions. Whenever possible, each provision hereof shall be interpreted in a manner as to be effective and valid under applicable law, but if any provision hereof is held to be prohibited by or invalid under applicable law, such provision shall be ineffective only to the extent of such prohibition or invalidity, without invalidating or otherwise adversely affecting the remaining provisions hereof. If a court of competent jurisdiction should determine that a provision hereof would be valid or enforceable if a period of time were extended or shortened or a particular percentage were increased or decreased, then such court may make such changes as shall be necessary to render the provision in question effective and valid under applicable law.

11. Restrictions on Change of Control. Notwithstanding anything to the contrary contained in this Certificate of Designation, without the prior written consent of the Corporation, so long as any 9% Notes remain outstanding under that certain Indenture dated as of March 26, 1997 (as amended, the "Indenture") in respect of the 9% Notes, no holder of Series A Preferred Stock shall have voting rights granted hereunder, be entitled to receive any voting securities of the Corporation pursuant hereto or be entitled to exercise any of the conversion rights set forth herein (each, a "Restricted Event"), to the extent that any such Restricted Event could, in the Corporation's reasonable judgment, either alone or in conjunction with other issuances or holdings of capital stock, warrants or convertible securities of the Corporation, result in a Change of Control (as defined in the Indenture).

[Signature page follows]

IN WITNESS WHEREOF, E. Andrews Grinstead, III, President and Chief Executive Officer of the Corporation, acting for and on behalf of the Corporation, has hereunto subscribed his name this 5th day of May, 1998.

HYBRIDON, INC.

By: /s/ E. Andrews Grinstead, III

Name: E. Andrews Grinstead, III
Title: President and Chief Executive Officer

CERTIFICATE OF AMENDMENT OF RESTATED CERTIFICATE OF INCORPORATION

OF

HYBRIDON, INC.

It is hereby certified that:

1. The name of the corporation (hereinafter called the "Corporation") is Hybridon, Inc.

2. The Certificate of Incorporation of the Corporation is hereby amended by inserting a new sentence at the end of paragraph 4 of Subsection A of Articles FOURTH thereof so that said paragraph as so amended shall read as follows:

"4. LIQUIDATION. Upon the dissolution or liquidation of the Corporation, whether voluntary or involuntary, holders of Common Stock will be entitled to receive all assets of the Corporation available for distribution to its stockholders, subject to any preferential rights of any then outstanding Preferred Stock. Notwithstanding the foregoing, and notwithstanding any amendments to, or resolutions of the Board of Directors in connection with, this Certificate of Incorporation, the transaction between the Corporation and Boston Biosystems, Inc. pursuant to that certain Asset Purchase Agreement of June 29, 2000, shall not constitute a dissolution or liquidation of the Corporation such as would entitle any holder of the Series A Preferred Stock to a preferred distribution."

3. Paragraph 3 of the Certificate of Designation of the Corporation shall be amended by inserting a new sentence at the end of the paragraph such that said paragraph shall read as follows:

"3(c) Notwithstanding the foregoing, and notwithstanding any amendments to, or resolutions of the Board of Directors in connection with, this Certificate of Incorporation or Certificate of Designation, the transaction between the Corporation and Boston Biosystems, Inc. pursuant to that certain Asset Purchase Agreement dated as of June 29, 2000, shall not constitute a Liquidation Event of the Corporation such as would entitle any holder of any series of Series A Preferred Stock to any preferred distribution."

4. Every other Article and provision in the Certificate of Incorporation of the Corporation remains in full force and effect.

5. The amendment of the Certificate of Incorporation herein certified has been duly adopted in accordance with the provisions of Section 242 of the General Corporation Law of the State of Delaware.

IN WITNESS WHEREOF, the Corporation has caused this Certificate of Amendment to be duly signed by its President this 19th day of September, 2000.

HYBRIDON, INC.

By: /s/ Robert G. Andersen

Robert G. Andersen, Vice President and CFO

CERTIFICATE OF DESIGNATION
for
SERIES B CONVERTIBLE PREFERRED STOCK
of
HYBRIDON, INC.

Pursuant to Section 151 of the
General Corporation Law of the State of Delaware

HYBRIDON, INC., a corporation organized and existing under the laws of the State of Delaware (the "Corporation"), does hereby certify that pursuant to the authority conferred on the board of directors of the Corporation (the "Board of Directors") by the Restated Certificate of Incorporation, as amended (the "Certificate of Incorporation") of the Corporation and in accordance with Section 151 of the General Corporation Law of the State of Delaware, the Board of Directors adopted the following resolution establishing a series of 85,000 shares of preferred stock of the Corporation designated as "Series B Convertible Preferred Stock":

RESOLVED, that pursuant to the authority conferred on the Board of Directors by the Certificate of Incorporation, a series of preferred stock, par value $.01 per share, of the Corporation is hereby established and created, and that the designation and number of shares thereof and the voting and other powers, preferences and relative participating, optional or other special rights of, the shares of such series and the qualifications, limitations and restrictions thereof are as follows:

Series B Convertible Preferred Stock

1. Designation and Amount and Definitions. (a) There shall be a series of Preferred Stock designated as "Series B Convertible Preferred Stock" and the number of shares constituting such series shall be 85,000. Such series is referred to herein as the "Series B Preferred Stock". Notwithstanding any other provision in this Certificate of Designation of the Series B Preferred Stock (the "Certificate of Designation") to the contrary, such series shall be senior to the common stock, par value $.001 per share of the Corporation (the "Common Stock"), and the Series A Convertible Preferred Stock, $.01 par value per share, of the Corporation (the "Series A Preferred Stock"), with respect to dividends and the distribution of assets upon liquidation, dissolution or winding up. Such number of shares may be increased or decreased by resolution of the Board of Directors, subject to the provisions of Section 7 hereof; provided, however, that no decrease shall reduce the number of shares of Series B Preferred Stock to fewer than the number of shares then issued and outstanding.

(b) As used in this Certificate of Designation, except as otherwise provided in Subsection 4(c), the following terms shall have the following meanings:

(i) "Closing Bid Price" for any security for each trading day shall be the reported per share closing bid price of such security regular way on the Stock Market on such trading day, or, if there were no transactions on such trading day, the average of the reported closing bid and asked prices, regular way, of such security on the relevant Stock Market on such trading day.

(ii) "Fair Market Value" of any asset (including any security) means the fair market value thereof as mutually determined by the Corporation and the holders of a majority of the Series B Preferred Stock then outstanding. If the Corporation and the holders of a majority of the Series B Preferred Stock then outstanding are unable to reach agreement on any valuation matter, such valuation shall be submitted to and determined by a nationally recognized independent investment bank selected by the Board of Directors and the holders of a majority of the Series B Preferred Stock then outstanding (or, if such selection cannot be agreed upon promptly, or in any event within ten (10) days, then such valuation shall be made by a nationally recognized independent investment banking firm selected by the American Arbitration Association in New York City in accordance with its rules), the costs of which valuation shall be paid for by the Corporation.

(iii) "Market Price" shall mean the average Closing Bid Price for twenty (20) consecutive trading days, ending with the trading day prior to the date as of which the Market Price is being determined (with appropriate adjustments for subdivisions or combinations of shares effected during such period), provided that if the prices referred to in the definition of Closing Bid Price cannot be determined on any trading day, the Closing Bid Price for such trading day will

be deemed to equal Fair Market Value of such security on such trading day.

(iv) "Registered Holders" shall mean, at any time, the holders of record of the Series B Preferred Stock.

(v) "Stock Market" shall mean, with respect to any security, the principal national securities exchange on which such security is listed or admitted to trading or, if such security is not listed or admitted to trading on any national securities exchange, shall mean The Nasdaq National Market System ("NNM") or The Nasdaq SmallCap Market ("SCM" and, together with NNM, "Nasdaq") or, if

such security is not quoted on Nasdaq, shall mean the OTC Bulletin Board or, if such security is not quoted on the OTC Bulletin Board, shall mean the over-the-counter market as furnished by any NASD member firm selected from time to time by the Corporation for that purpose.

(vi) "Trading Day" shall mean a day on which the relevant Stock Market is open for the transaction of business.

2. Dividends and Distributions. (a) The holders, as of the Dividend Record Date (as defined below), of the Series B Preferred Stock shall be entitled to receive semi-annual dividends on their respective shares of Series B Preferred Stock (aggregating, for this purpose, all shares of Series B Preferred Stock held of record or, to the Corporation's knowledge, beneficially by such holder), payable, at the option of the Corporation, in cash or additional shares of Series B Preferred Stock, at the rate of 8% per annum (computed on the basis of a 360-day year of twelve 30 day months) of the Dividend Base Amount (as defined below), payable semi-annually in arrears; provided that, to the extent the declaration or payment of such dividend is prohibited by applicable law, such dividend need not be paid but shall nevertheless accrue and shall be paid promptly when applicable law permits. Such dividends shall accrue (i) from March 6, 2001 for shares of Series B Preferred Stock issued within thirty days of the date of the filing of this Certificate of Designation, or (ii) from the date of issuance for shares of Series B Preferred Stock issued after thirty days from the date of filing of this Certificate of Designation, and shall be paid semi-annually on April 1 and October 1 of each year or, if any such day is not a business day, on the next succeeding business day. Such dividends shall be paid, at the election of the Corporation, either in cash or additional duly authorized, fully paid and non assessable shares of Series B Preferred Stock. In calculating the number of shares of Series B Preferred Stock to be paid with respect to each dividend, the Series B Preferred Stock shall be valued at $100.00 per share (subject to appropriate adjustment to reflect any stock split, combination, reclassification or reorganization of the Series B Preferred Stock). Notwithstanding the foregoing, the Corporation shall not be required to issue fractional shares of Series B Preferred Stock; the Corporation may elect, in its sole discretion, independently for each holder, whether such number of shares (on an aggregated basis) will be rounded to the nearest whole share (with .5 of a share rounded upward) or whether such holder will be given cash in lieu of any fractional shares. The "Dividend Base Amount" of a share of Series B Preferred Stock shall be $100.00 plus all accrued but unpaid dividends (subject to appropriate adjustment to reflect any stock split, combination, reclassification or reorganization of the Series B Preferred Stock). The "Dividend Record Date" shall mean, for each semi-annual dividend, the March 15 or September 15, as the case may be, immediately preceding the dividend payment date.

(b) In addition to the foregoing, subject to the rights of the holders of any shares of any series or class of capital stock ranking prior, and superior to, or pari passu with, the shares of Series B Preferred Stock with respect to dividends, and prior to the rights of the holders of Common Stock, Series A Preferred Stock and any other series or class of capital stock, the holders of shares of Series B Preferred Stock shall be entitled to receive, as, when and if declared by the Board of Directors, out of assets legally available for that purpose, dividends or distributions in cash, stock or otherwise.

(c) The Corporation shall not declare or pay any dividend or distribution on any Junior Stock (as defined below) of the Corporation unless all dividends required by Section 2(a) have been or contemporaneously are declared and paid, or declared and a sum sufficient for the payment thereof set apart for such payment, on the Series B Preferred Stock.

(d) [Reserved]

(e) All dividends or distributions declared upon the Series B Preferred Stock shall be declared pro rata per share.

(f) Any reference to "distribution" contained in this Section 2 shall not be deemed to include any distribution made in connection with or in lieu of any Liquidation Event (as defined below).

(g) No interest, or sum of money in lieu of interest, shall be payable in respect of any dividend payment or payments on the Series B Preferred Stock which may be in arrears (it being understood that this provision does not alter the Corporation's obligations under Section 2(a)).

(h) So long as any shares of the Series B Preferred Stock are outstanding, no dividends, except as described in the next succeeding sentence, shall be declared or paid or set apart for payment on any class or series of stock of the Corporation ranking, as to dividends, on a parity with the Series B Preferred Stock, for any period unless all dividends have been or contemporaneously are declared and paid, or declared and a sum sufficient for the payment thereof set apart for such payment, on the Series B Preferred Stock. When dividends are not paid in full or a sum sufficient for such payment is not set apart, as aforesaid, upon the shares of the Series B Preferred Stock and any other class or series of stock ranking on a parity as to dividends with the Series B Preferred Stock, all dividends declared upon such other stock shall be declared pro rata so that the amounts of dividends per share declared on the Series B Preferred Stock and such other stock shall in all cases bear to each other the same ratio that accrued dividends per share

on the shares of the Series B Preferred Stock and on such other stock bear to each other.

(i) So long as any shares of the Series B Preferred Stock are outstanding, no other stock of the Corporation ranking on a parity with the Series B Preferred Stock as to dividends or upon liquidation, dissolution or winding up shall be redeemed, purchased or otherwise acquired for any consideration (or any moneys be paid to or made available for a sinking fund or otherwise for the purchase or redemption of any shares of any such stock) by the Corporation unless the dividends, if any, accrued on all outstanding shares of the Series B Preferred Stock shall have been paid or set apart for payment.

(j) "Junior Stock" shall mean the Common Stock, Series A Preferred Stock, and any shares of preferred stock of any series or class of the Corporation, whether presently outstanding or hereafter issued, which are junior to the shares of Series B Preferred Stock with respect to (i) the distribution of assets on any voluntary or involuntary liquidation, dissolution or winding up of the Corporation, (ii) dividends or (iii) voting.

3. Liquidation Preference. (a) In the event of a (i) liquidation, dissolution or winding up of the Corporation, whether voluntary or involuntary, (ii) a sale or other disposition of all or substantially all of the assets of the Corporation or (iii) any consolidation, merger, combination, reorganization or other transaction in which the Corporation is not the surviving entity or shares of Common Stock constituting in excess of 50% of the voting power of the Corporation are exchanged for or changed into stock or securities of another entity, cash and/or any other property (a "Merger Transaction") (items (i), (ii) and (iii) of this sentence being collectively referred to as a "Liquidation Event"), after payment or provision for payment of debts and other liabilities of the Corporation, the holders of the Series B Preferred Stock then outstanding shall be entitled to be paid out of the assets of the Corporation available for distribution to its stockholders, whether such assets are capital, surplus, or earnings, before any payment or declaration and setting apart for payment of any amount shall be made in respect of any Junior Stock of the Corporation, an amount equal to the Dividend Base Amount at such time; provided, however, in the case of a Merger Transaction, such payment may be made in cash, property (valued as provided in Subsection 3(b)) and/or securities (valued as provided in Subsection 3(b)) of the entity surviving such Merger Transaction. In the case of property or in the event that any such securities are subject to an investment letter or other similar restriction on transferability, the value of such property or securities shall be determined by agreement between the Corporation and the holders of a majority of the Series B Preferred Stock then outstanding. If upon any Liquidation Event, whether voluntary or involuntary, the assets to be distributed to the holders of the Series B Preferred Stock shall be insufficient to

permit the payment to such shareholders of the full preferential amounts aforesaid, then all of the assets of the Corporation to be distributed shall be so distributed ratably to the holders of the Series B Preferred Stock on the basis of the number of shares of Series B Preferred Stock held. Notwithstanding item (iii) of the first sentence of this Subsection 3(a), any consolidation, merger, combination, reorganization or other transaction in which the Corporation is not the surviving entity but the stockholders of the Corporation immediately prior to such transaction own in excess of 50% of the voting power of the corporation surviving such transaction and own amongst themselves such interest in substantially the same proportions as prior to such transaction, shall not be considered a Liquidation Event provided that the surviving corporation shall make appropriate provisions to ensure that the terms of this Certificate of Designation survive any such transaction. All shares of Series B Preferred Stock shall rank as to payment upon the occurrence of any Liquidation Event senior to the Common Stock, the Series A Preferred Stock, and, unless the terms of such series shall provide otherwise, senior to all other series of the Corporation's preferred stock.

(b) Any securities or other property to be delivered to the holders of the Series B Preferred Stock pursuant to Subsection 3(a) hereof shall be valued as follows:

(i) Securities not subject to an investment letter or other similar restriction on free marketability:

(A) If actively traded on a Stock Market, the per share value shall be deemed to be the Market Price of such securities as of the third day prior to the date of valuation.

(B) If not actively traded on a Stock Market, the value shall be the Fair Market Value of such securities.

(ii) For securities for which there is an active public market but which are subject to an investment letter or other restrictions on free marketability, the value shall be the Fair Market Value thereof, determined by discounting appropriately the per share Market Price thereof.

(iii) For all other securities, the value shall be the Fair Market Value thereof.

4. Conversion.

(a) Right of Conversion. The shares of Series B Preferred Stock are convertible, in whole or in part, at the option of the holder thereof and upon notice to the Corporation as set forth in Subsection 4(b), into fully paid and nonassessable shares of Common Stock and such other securities and property as hereinafter provided. The initial conversion price per share of Common Stock (the "Conversion Price"), shall be $.50, subject to adjustment as provided herein. The rate at which each share of Series B Preferred Stock is convertible at any time into Common Stock (the "Conversion Rate") shall be determined by dividing the then existing Conversion Price (determined in accordance with this Section 4, including the last paragraph hereof) into the Dividend Base Amount.

(b) Conversion Procedures. Any holder of shares of Series B Preferred Stock desiring to convert such shares into Common Stock shall surrender the certificate or certificates evidencing such shares of Series B Preferred Stock at the office of the transfer agent for the Series B Preferred Stock, which certificate or certificates, if the Corporation shall so require, shall be duly endorsed to the Corporation or in blank, or accompanied by proper instruments of transfer to the Corporation or in blank, accompanied by irrevocable written notice to the Corporation that the holder elects so to convert such shares of Series B Preferred Stock and specifying the name or names (with address) in which a certificate or certificates evidencing shares of Common Stock are to be issued. The Corporation need not deem a notice of conversion to be received unless the holder complies with all the provisions hereof. The Corporation will instruct the transfer agent (which may be the Corporation) to make a notation of the date that a notice of conversion is received, which date of receipt shall be deemed to be the date of receipt for purposes hereof.

The Corporation shall, as soon as practicable after such

deposit of certificates evidencing shares of Series B Preferred Stock accompanied by the written notice and compliance with any other conditions herein contained, deliver at such office of such transfer agent to the person for whose account such shares of Series B Preferred Stock were so surrendered, or to the nominee or nominees of such person, certificates evidencing the number of full shares of Common Stock to which such person shall be entitled as aforesaid, subject to Section 4(d). Subject to the following provisions of this paragraph, such conversion shall be deemed to have been made as of the date of such surrender of the shares of Series B Preferred Stock to be converted, and the person or persons entitled to receive the Common Stock deliverable upon conversion of such Series B Preferred Stock shall be treated for all purposes as the record holder or holders of such Common Stock on such date; provided, however, that the Corporation shall not be required to convert any shares of Series B Preferred Stock while the stock transfer books of the Corporation are closed for any purpose, but the surrender of Series B Preferred Stock for conversion during any period while such books are so closed shall become effective for

conversion immediately upon the reopening of such books as if the surrender had been made on the date of such reopening, and the conversion shall be at the conversion rate in effect on such date. No adjustments in respect of any dividends on shares surrendered for conversion or any dividend on the Common Stock issued upon conversion shall be made upon the conversion of any shares of Series B Preferred Stock.

The Corporation shall at all times, reserve and keep available out of its authorized but unissued shares of Common Stock, solely for the purpose of effecting the conversion of the shares of Series B Preferred Stock, such number of shares of Common Stock as shall from time to time be sufficient to effect the conversion of all outstanding shares of the Series B Preferred Stock.

All notices of conversion shall be irrevocable; provided, however, that if the Corporation has sent notice of an event pursuant to Subsection 4(g) hereof, a holder of Series B Preferred Stock may, at its election, provide in its notice of conversion that the conversion of its shares of Series B Preferred Stock shall be contingent upon the occurrence of the record date or effectiveness of such event (as specified by such holder), provided that such notice of conversion is received by the Corporation prior to such record date or effective date, as the case may be.

(c) Adjustment of Conversion Rate and Conversion Price.

(i) As used in this Subsection 4(c), the following terms shall have the following meanings:

"Capital Stock" of any Person means the Common Stock or Preferred Stock of such Person. Unless otherwise stated herein or the context otherwise requires, "Capital Stock" means Capital Stock of the Corporation; "Common Stock" of any Person other than the Corporation means the common equity (however designated), including, without limitation, common stock or partnership or membership interests of, or participation or interests in such Person (or equivalents thereof).

"Common Stock" of the Corporation means the Common Stock, par value $.001 per share, of the Corporation, any successor class or classes of common equity (however designated) of the Corporation into or for which such Common Stock may hereafter be converted, exchanged or reclassified and any class or classes of common equity (however designated) of the Corporation which may be distributed or issued with respect to such Common Stock or successor class of classes to holders thereof generally. Unless otherwise stated herein or the

context requires otherwise, "Common Stock" means Common Stock of the Corporation;

"Current Market Price" means, when used with respect to any security as of any date, the last sale price, regular way, or, in case no such sale takes place on such date, the average of the closing bid and asked prices, regular way, of such security in either case as reported for consolidated

transactions on the New York Stock Exchange or, if such security is not listed or admitted to trading on the New York Stock Exchange, as reported for consolidated transactions with respect to securities listed on the principal national securities exchange on which such security is listed or admitted to trading or, if such security is not listed or admitted to trading on any national securities exchange, as reported on the Nasdaq National Market, or, if such security is not listed or admitted to trading on the Nasdaq National Market, as reported on the Nasdaq SmallCap Market, or if such security is not listed or admitted to trading on any national securities exchange or the Nasdaq National Market or the Nasdaq SmallCap Market, the average of the high bid and low asked prices of such security in the over-the-counter market, as reported by the National Association of Securities Dealers, Inc. Automated Quotations System or such other system then in use or, if such security is not quoted by any such organization, the average of the closing bid and asked prices of such security furnished by an NASD member firm selected by the Corporation. If such security is not quoted by any such organization and no such NASD member firm is able to provide such prices, the Current Market Price of such security shall be the Fair Market Value thereof;

"Fair Market Value" means, at any date as to any asset, Property or right (including without limitation, Capital Stock of any Person, evidence of indebtedness or other securities, but excluding cash), the fair market value of such item as determined in good faith by the Board of Directors, whose determination shall be conclusive; provided, however, that such determination is described in an Officers' Certificate filed with the transfer agent and that, if there is a Current Market Price for such item on such date, "Fair Market Value" means such Current Market Price (without giving effect to the last sentence of the definition thereof);

"GAAP" means, as of any date, generally accepted accounting principles in the United States and does not include any

interpretations or regulations that have been proposed but that have not become effective;

"Officer" means, with respect to any Person, the Chairman of the Board, the Chief Executive Officer, the President, the Chief Operating Officer, the Chief Financial Officer, the Treasurer, any Assistant Treasurer, the Controller, the Secretary, any Assistant Secretary or any Vice President of such Person;

"Officers' Certificate" means a certificate signed on behalf of the Corporation by two Officers, one of whom must be the Chairman of the Board, the President, the Treasurer or a Vice-President of the Corporation;

"Person" means any individual, corporation, partnership, association, trust or any other entity or organization, including a government or political subdivision or any agency or instrumentality thereof;

"Preferred Stock" of any Person means the class or classes of equity, ownership or participation interests (however designated) in such Person, including, without limitation, stock, share, partnership and membership interests, which are preferred as to the payment of dividends or distributions by, or as to the distribution of assets upon any voluntary or involuntary liquidation or dissolution of, such Person (or equivalent thereof) over interests of any other class of interests of such Person. Unless otherwise stated herein or the context otherwise requires, "Preferred Stock" means Preferred Stock of the Corporation;

"Property" of any Person means any and all types of real, personal, tangible, intangible or mixed property owned by such Person whether or not included on the most recent

consolidated balance sheet of such Person in accordance with GAAP;

"Subsidiary" of a Person on any date means any other Person of whom such Person owns, directly or indirectly through a Subsidiary or Subsidiaries of such Person, Capital Stock with voting power, acting independently and under ordinary circumstances, entitling such person to elect a majority of the board of directors or other governing body of such other Person. Unless otherwise stated herein or the context otherwise requires, "Subsidiary" means a Subsidiary of the Corporation.

(ii) If the Corporation shall (i) pay a dividend or other distribution, in Common Stock, on any class of Capital Stock of the Corporation, (ii) subdivide the outstanding Common Stock into a greater number of shares by any means or (iii) combine the outstanding Common Stock into a smaller number of shares by any means including, without limitation, a reverse stock split), then in each such case the Conversion Price in effect immediately prior thereto shall be adjusted so that the Registered Holder of any shares of Series B Preferred Stock thereafter surrendered for conversion shall be entitled to receive the number of shares of Common Stock that such Registered Holder would have owned or have been entitled to receive upon the happening of such event had such Series B Preferred Stock been converted immediately prior to the relevant record date or, if there is no such record date, the effective date of such event. An adjustment made pursuant to this Paragraph 4(c)(ii) shall become effective immediately after the record date for the determination of stockholders entitled to receive such dividend or distribution and shall become effective immediately after the effective date of such subdivision or combination, as the case may be.

(iii) If the Corporation shall (i) issue or distribute (at a price per share less than the Current Market Price per share of such Capital Stock on the date of such issuance or distribution) Capital Stock generally to holders of Common Stock or to holders of any class or series of Capital Stock which is convertible into or exchangeable or exercisable for Common Stock (excluding an issuance or distribution of Common Stock described in Paragraph 4(c)(ii)) or (ii) issue or distribute generally to such holders rights, warrants, options or convertible or exchangeable securities entitling the holder thereof to subscribe for, purchase, convert into or exchange for Capital Stock at a price per share less than the Current Market Price per share of such Capital Stock on the date of issuance or distribution, then, in each such case, at the earliest of (A) the date the Corporation enters into a firm contract for such issuance or distribution, (B) the record date for the determination of stockholders entitled to receive any such Capital Stock or any such rights, warrants, options or convertible or exchangeable securities or (C) the date of actual issuance or distribution of any such Capital Stock or any such rights, warrants, options or convertible or exchangeable securities, the Conversion Price shall be reduced by multiplying the Conversion Price in effect immediately prior to such earliest date by:

(A) if such Capital Stock is Common Stock, a fraction the numerator of which is the number of shares of Common Stock outstanding, on such earliest date plus the number of shares of Common Stock which could be purchased at the Current Market Price per share of Common Stock on the date of such issuance or distribution with the aggregate consideration (based on the Fair Market Value thereof) received or receivable by the Corporation either (A) in connection with such issuance or distribution or (B) upon the conversion, exchange, purchase or subscription of all such rights, warrants, options or convertible or exchangeable securities (the "Aggregate Consideration"), and the denominator of

which is the number of shares of Common Stock outstanding on such earliest date plus the number of shares of Common Stock to be so issued or distributed or to be issued upon the conversion, exchange, purchase or subscription of all such rights, warrants, options or convertible or exchangeable securities; or

(B) if such Capital Stock is other than Common Stock, a fraction the numerator of which is the Current Market Price per share of Common Stock on such earliest date minus an amount equal to (A) the difference between (1) the Current Market Price per share of such Capital Stock multiplied by the number of shares of such Capital Stock to be so issued and (2) the Aggregate Consideration, divided by (B) the number of shares of Common Stock outstanding on such date, and the denominator of which is the Current Market Price per share of Common Stock on such earliest date.

Such adjustment shall be made successively whenever any such Capital Stock, rights, warrants, options or convertible or exchangeable securities are so issued or distributed. In determining whether any rights, warrants, options or convertible or exchangeable securities entitle the holders thereof to subscribe for, purchase, convert into or exchange for shares of such Capital Stock at less than such Current Market Price, there shall be taken into account the Fair Market Value of any consideration received or receivable by the Corporation for such rights, warrants, options or convertible or exchangeable securities. If any right, warrant, option or convertible or exchangeable security, the issuance of which resulted in an adjustment in the Conversion Price pursuant to this Paragraph 4(c)(iii), shall expire and shall not have been exercised, the Conversion Price shall immediately upon such expiration be recomputed to the Conversion Price which would have

been in effect if such right, warrant, option or convertible or exchangeable securities had never been distributed or issued. Notwithstanding anything contained in this paragraph to the contrary, (i) the issuance of Capital Stock upon the exercise of such rights, warrants or options or the conversion or exchange of such convertible or exchangeable securities will not cause an adjustment in the Conversion Price if no such adjustment would have been required at the time such right, warrant, option or convertible or exchangeable security was issued or distributed; provided, however, that, if the consideration payable upon such exercise, conversion or exchange and/or the Capital Stock receivable thereupon are changed after the time of the issuance or distribution of such right, warrant, option or convertible or exchangeable security then such change shall be deemed to be the expiration thereof without having been exercised and the issuance or distribution of new options, rights, warrants or convertible or exchangeable securities and (ii) the issuance of convertible preferred stock of the Corporation as a dividend on convertible preferred stock of the Corporation will not cause an adjustment in the Conversion Price if no such adjustment would have been required at the time such underlying convertible preferred stock was issued (or as a result of any subsequent modification to the terms thereof) and the conversion provisions of such convertible stock so issued as a dividend are the same as in such underlying convertible preferred stock.

Notwithstanding any contained in this Certificate of Designation to the contrary, options, rights or warrants issued or distributed by the Corporation, including options, rights or warrants distributed prior to the date of filing of this Certificate of Designation, to holders of Common Stock generally which, until the occurrence of a specified event or events (a "Trigger Event"), (i) are deemed to be transferred with Common Stock, (ii) are not exercisable and (iii) are also

issued on a pro rata basis with respect to future issuances of Common Stock, shall be deemed not to have been issued or distributed for purposes of this Subsection 4(c) (and no adjustment to the Conversion Price under this Subsection 4(c) will be required) until the occurrence of the earliest Trigger Event. Upon the occurrence of a Trigger Event, such options, rights or warrants shall continue to be deemed not to have been issued or distributed for purposes of this Subsection 4(c) (and no adjustment to the Conversion Price under this Subsection 4(c) will be required) if and for so long as each Registered Holder who thereafter converts such Registered Holder's Series B Preferred Stock shall be entitled to receive upon such conversion, in addition to the shares of Common Stock issuable upon such conversion,

a number of such options, rights or warrants, as the case may be, equal to the number of options, rights or warrants to which a holder of the number of shares of Common Stock equal to the number of shares of Common Stock issuable upon conversion of such Registered Holder's Series B Preferred Stock is entitled to receive at the time of such conversion in accordance with the terms and provisions of, and applicable to, such options, rights or warrants. Upon the expiration of any such options, rights or warrants or at such time, if any, as a Registered Holder is not entitled to receive such options, rights or warrants upon conversion of such Registered Holder's Series B Preferred Stock, an adjustment (if any is required) to the Conversion Price shall be made in accordance with this Paragraph 4(c)(iii) with respect to the issuance of all such options, rights and warrants as of the date of issuance thereof, but subject to the provisions of the preceding paragraph, if any such option, right or warrant, including any such options right or warrants distributed prior to the date of filing of this Certificate of Designation, are subject to events, upon the occurrence of which such options, rights or warrants become exercisable to purchase different securities, evidence of indebtedness, cash, Properties or other assets or different amounts thereof, then, subject to the preceding provision of this paragraph, the date of the occurrence of any and each such event shall be deemed to be the date of distribution and record date with respect to new options, right or warrants with such new purchase rights (and a termination or expiration of the existing options, rights or warrants without exercise thereof). In addition, in the event of any distribution (or deemed distribution) of options, rights or warrants, or any Trigger Event or other event of the type described in the preceding sentence, that required (or would have required but for the provisions of Paragraph 4(c)(vi) or this paragraph) an adjustment to the Conversion Price under this Subsection 4(c) and such options, rights or warrants shall thereafter have been redeemed or repurchased without having been exercised, then the Conversion Price shall be adjusted upon such redemption or repurchase to give effect to such distribution, Trigger Event or other event, as the case may, as though it had instead been a cash distribution, equal on a per share basis to the result of the aggregate redemption or repurchase price received by holders of such options, rights or warrants divided by the number of shares of Common Stock outstanding as of the date of such repurchase or redemption, made to holders of Common Stock generally as of the date of such redemption or repurchase.

(iv) If the Corporation shall pay or distribute, as a dividend or otherwise, generally to holders of Common Stock or any class or series of Capital Stock which is convertible into or exercisable or exchangeable for Common Stock any assets, Properties or rights (including, without limitation, evidences of indebtedness of the Corporation, any Subsidiary or any other Person, cash or Capital Stock or other securities of the Corporation, any Subsidiary or any other Person, but excluding payments and distributions as described in Paragraphs 4(c)(ii) or (iii), dividends and distributions in connection with a Liquidation Event and distributions consisting solely of cash described in Paragraph 4(c)(v)), then in each such case the Conversion Price shall be reduced by multiplying the

Conversion Price in effect immediately prior to the date of such payment or distribution by a fraction, the numerator of which is the Current Market Price per share of Common Stock on the record date for the determination of stockholders entitled to receive such payment or distribution less the Fair Market Value per share of Common Stock on such record date of the assets, Properties or rights so paid or distributed, and the denominator of which is the Current Market Price per share of Common Stock on such record date. Such adjustment shall become effective immediately after such record date. For purposes of this Paragraph 4(c)(iv), such Fair Market Value per share shall equal the aggregate Fair Market Value on such record date of the assets, Properties or rights so paid or distributed divided by the number of shares of Common Stock outstanding on such record date. For all purposes of this Certificate of Designation, adjustments to any security's conversion or exercise price pursuant to such security's original terms shall not be deemed a distribution or dividend to holders thereof.

(v) If the Corporation shall, by dividend or otherwise, make a distribution (other than in connection with the liquidation, dissolution or winding up of the Corporation in its entirety), generally to holders of Common Stock or any class or series of Capital Stock which is convertible into or exercisable or exchangeable for Common Stock, consisting solely of cash where (x) the sum of (i) the aggregate amount for such cash plus (ii) the aggregate amount of all cash so distributed (by dividend or otherwise) to such holders within the 12-month period ending on the record date for determining stockholder entitled to receive such distribution with respect to which no adjustment has been made to the Conversion Price pursuant to this Paragraph 4(c)(v) exceeds (y) 10% of the result of the multiplication of (1) the Current Market Price per share of Common Stock on such record date times (2)

the number of shares of Common Stock outstanding on such record date, then the Conversion Price shall be reduced, effective immediately prior to the opening of business on the day following such record date, by multiplying the Conversion Price in effect immediately prior to the close of business on the day prior to such record date by a fraction, the numerator of which is the Current Market Price per share of Common Stock on such record date less the aggregate amount of cash per share so distributed and the denominator of which is such Current Market Price; provided, however, that, if the aggregate amount of cash per share is equal to or greater than such Current Market Price, then, in lieu of the foregoing adjustment, adequate provisions shall be made so that each Registered Holder shall have the right to receive upon conversion (with respect to each share of Common Stock issued upon such conversion and in addition to the Common Stock issuable upon conversion) the aggregate amount of cash per share such Registered Holder would have received had such Registered Holder's Series B Preferred Stock been converted immediately prior to such record date. In no event shall the Conversion Price be increased pursuant to this Paragraph 4(c)(v); provided, however, that if such distribution is not so made, the Conversion Price shall be adjusted to be the Conversion Price which would have been in effect if such distribution had not been declared. For purposes of this Paragraph 4(c)(v), such aggregate amount of cash per share shall equal such sum divided by the number of shares of Common Stock outstanding on such record date.

(vi) The provisions of this Subsection 4(c) shall similarly apply to all successive events of the type described in this Subsection 4(c). Notwithstanding anything contained herein to the contrary, no adjustment in the Conversion Price shall be required unless such adjustment would require an increase or decrease of at least 1% in the Conversion Price then in effect; provided, however, that any adjustments which by reason of this Paragraph 4(c)(vi) are not required to be made shall be carried forward and taken into account in any subsequent adjustment. All calculations under this Section 4

shall be made by the Corporation and shall be made to the nearest cent or to the nearest one hundredth of a share, as the case may be, and the transfer agent shall be entitled to rely conclusively thereon. Except as provided in this Section 4, no adjustment in the Conversion Price will be made for the issuance of Common Stock or any securities convertible into or exchangeable for Common Stock or carrying the right to purchase Common Stock or any securities so convertible or exchangeable.

(vii) Whenever the Conversion Price is adjusted as provided herein, the Corporation shall promptly file with the transfer agent an Officers' Certificate setting forth the Conversion Price in effect after such adjustment and setting forth a brief statement of the facts requiring such adjustment. Promptly after delivery of such Officers' Certificate, the Corporation shall give or cause to be given to each Registered Holder a notice of such adjustment of the Conversion Price setting forth the adjusted Conversion Price and the date on which such adjustment becomes effective.

(viii) Notwithstanding anything contained herein to the contrary, in any case in which this Subsection 4(c) provides that an adjustment in the Conversion Price shall become effective immediately after a record date for an event, the Corporation may defer until the occurrence of such event (i) issuing to the Registered Holder of any Series B Preferred Stock converted after such record date and before the occurrence of such event the additional shares of Common Stock issuable upon such conversion by reason of the adjustment required by such event over and above the number of shares of Common Stock issuable upon such conversion before giving effect to such adjustment and (ii) paying to such Registered Holder any amount in cash in lieu of any fractional share of Common Stock pursuant to Subsection 4(d).

(ix) Notwithstanding any other provision hereof, no adjustment to the Conversion Price shall be made upon the issuance or exercise or conversion of (1) any Capital Stock issued or cash paid as dividends on the Series B Preferred Stock, or (2) any Capital Stock issued or cash paid upon the mandatory conversion or redemption of any Series B Preferred Stock in accordance with Section 5 of this Certificate of Designation.

(d) No Fractional Shares. No fractional shares or scrip representing fractional shares of Common Stock shall be issued upon conversion of Series B Preferred Stock. If more than one certificate evidencing shares of Series B Preferred Stock shall be surrendered for conversion at one time by the same holder, the number of full shares issuable upon conversion thereof shall be computed on the basis of the aggregate number of shares of Series B Preferred Stock so surrendered. Instead of any fractional share of Common Stock which would otherwise be issuable upon conversion of such aggregate number of shares of Series B Preferred Stock, the Corporation may elect, in its sole discretion, independently for each holder, whether such number of shares of Common Stock will be rounded to the nearest whole share (with a .5 of a share rounded upward) or whether such holder will be given cash, in

lieu of any fractional share, in an amount equal to the same fraction of the Market Price of the Common Stock as of the close of business on the day of conversion.

(e) [Reserved]

(f) Reservation of Shares; Transfer Taxes, Etc. The Corporation shall at all times reserve and keep available, out of its authorized and unissued shares of Common Stock, solely for the purpose of effecting the conversion of the Series B Preferred Stock, such number of shares of its Common Stock free of preemptive rights as shall be sufficient to effect the conversion of all shares of Series B Preferred Stock from time to time outstanding. The Corporation shall use its best efforts from time to time, in accordance with the laws of the State of Delaware to increase the authorized number of shares of Common Stock if at any time the number of shares of authorized, unissued and unreserved Common Stock shall not be sufficient to permit the conversion of all the then-outstanding shares of Series B Preferred Stock.

The Corporation shall pay any and all issue or other taxes (excluding any income taxes) that may be payable in respect of any issue or delivery of shares of Common Stock on conversion of the Series B Preferred Stock. The Corporation shall not, however, be required to pay any tax which may be payable in respect of any transfer involved in the issue or delivery of Common Stock (or other securities or assets) in a name other than that in which the shares of Series B Preferred Stock so converted were registered, and no such issue or delivery shall be made unless and until the person requesting such issue has paid to the Corporation the amount of such tax or has established, to the satisfaction of the Corporation, that such tax has been paid or need not be paid.

(g) Prior Notice of Certain Events. In case:

(i) the Corporation shall declare any dividend (or any other distribution); or

(ii) the Corporation shall authorize the granting to the holders of Common Stock or the Series A Preferred Stock of rights or warrants to subscribe for or purchase any shares of stock of any class or of any other rights or warrants; or

(iii) of any reclassification of Common Stock (other than a subdivision or combination of the outstanding Common Stock, or a change in par value, or from par value to no par value, or from no par value to par value); or

(iv) of any consolidation or merger to which the Corporation is a party and for which approval of any stockholders of the Corporation shall be required, or of the sale or transfer of all or substantially all of the assets of the Corporation or of any compulsory share exchange whereby the Common Stock is converted into other securities, cash or other property; or

(v) of any Liquidation Event;

then the Corporation shall cause to be filed with the transfer agent for the Series B Preferred Stock, and shall cause to be mailed to the Registered Holders, at their last addresses as they shall appear upon the stock transfer books of the Corporation, at least twenty (20) days prior to the applicable record date hereinafter specified, a notice stating (x) the date on which a record (if any) is to be taken for the purpose of such dividend, distribution or granting of rights or warrants or, if a record is not to be taken, the date as of which the holders of Common Stock or Series A Preferred Stock of record to be entitled to such dividend, distribution, rights or warrants are to be determined and a description of the cash, securities or other property to be received by such holders upon such dividend, distribution or granting of rights or warrants or (y) the date on which such reclassification, consolidation, merger, sale, transfer, share exchange or Liquidation Event is expected to become effective, the date as of which it is expected that holders of Common Stock of record shall be entitled to exchange their shares of Common Stock for securities or other property deliverable upon such exchange or Liquidation Event and the consideration, including securities or other property, to be received by such holders upon such exchange; provided, however, that no failure to mail such notice or any defect therein or in the mailing thereof shall affect the validity of the corporate action required to be specified in such notice.

(h) Other Changes in Conversion Rate. The Corporation from time to time may increase the Conversion Rate by any amount for any period of time if the period is at least 20 days and if the increase is irrevocable during the period. Whenever the Conversion Rate is so increased, the Corporation shall mail to the Registered Holders a notice of the increase at least 15 days before the date the increased Conversion Rate takes effect, and such notice shall state the increased Conversion Rate and the period it will be in effect.

The Corporation may make such increases in the Conversion Rate, in addition to those required or allowed by this Section 4, as shall be determined by it, as evidenced by a resolution of the Board of Directors, to be advisable in order to avoid or diminish any income tax to holders of Common Stock resulting from any dividend or distribution of stock or issuance of rights or warrants to purchase or subscribe for stock or from any event treated as such

for income tax purposes.

Notwithstanding anything to the contrary herein, in no case shall the Conversion Price be adjusted to an amount less than $.001 per share, the current par value of the Common Stock into which the Series B Preferred Stock is convertible.

(i) Ambiguities/Errors. The Board of Directors of the Corporation shall have the power to resolve any ambiguity or correct any error in the provisions relating to the convertibility of the Series B Preferred Stock, and its actions in so doing shall be final and conclusive.

5. Mandatory Conversion and Redemption. (a) In the event the Corporation causes the Series A Preferred Stock to be converted in whole or in part, into fully paid and nonassessable shares of Common Stock, then the Corporation shall also convert the Series B Preferred Stock, in whole or in part, on a pro rata basis among holders of the Series B Preferred Stock, into fully paid and nonassessable shares of Common Stock using a conversion price of $.50. Any shares of Series B Preferred Stock so converted shall be treated as having been surrendered by the holder thereof for conversion pursuant to Section 4 on the date of such mandatory conversion (unless previously converted at the option of the holder).

(b) If, at any time, the Corporation redeems the Series A Preferred Stock, the Corporation may, at its option, redeem the Series B Preferred Stock, in whole or in part, on a pro rata basis among holders of the Series B Preferred Stock.

(c) No greater than 60 nor fewer than 20 days prior to the date of any such mandatory conversion or redemption, notice by first class mail, postage prepaid, shall be given to the holders of record of the Series B Preferred Stock to be converted or redeemed, addressed to such holders at their last addresses as shown on the stock transfer books of the Corporation. Each such notice shall specify the date fixed for conversion or redemption, the place or places for surrender of shares of Series B Preferred Stock and the then effective Conversion Rate pursuant to Section 4.

Any notice which is mailed as herein provided shall be conclusively presumed to have been duly given by the Corporation on the date deposited in the mail, whether or not the holder of the Series B Preferred Stock receives such notice; and failure properly to give such notice by mail, or any defect in such notice, to the holders of the shares to be converted or redeemed shall not affect the validity of the proceedings for the conversion or redemption of any other shares of Series B Preferred Stock. On or after the date fixed for conversion or redemption (the "Take-Out Date") as stated in such notice, each holder of shares called to be converted or

redeemed shall surrender the certificate evidencing such shares to the Corporation at the place designated in such notice for conversion or redemption. After the mailing of such notice, but before the Take-Out Date as stated therein, all rights whatsoever with respect to the shares so called for conversion or redemption (except the right of the holders to convert such shares pursuant to Section 4 and to have such shares converted or redeemed, as the case may be, upon surrender of their certificates therefor, pursuant to this Section 5) shall terminate. On or after the Take-Out Date, notwithstanding that the certificates evidencing any shares properly called for conversion or redemption shall not have been surrendered, such shares shall no longer be deemed outstanding and all rights whatsoever with respect to the shares so called for conversion or redemption (except the right of the holders to have such shares converted or redeemed, as the case may be, upon surrender of their certificates therefor, pursuant to this Section 5) shall terminate.

6. Outstanding Shares. For purposes of this Certificate of Designation, a share of Series B Preferred Stock, when issued, shall be deemed outstanding except (i) from the date, or the deemed date, of surrender of certificates evidencing shares of Series B Preferred Stock, all shares of Series B Preferred Stock converted into Common Stock or redeemed pursuant to Section 5 and (ii) from the date of registration of transfer, all shares of Series B Preferred Stock held of record by the Corporation or any subsidiary of the Corporation.

7. Class Voting Rights. The Corporation shall not, without the affirmative vote or consent of the holders of at least 50% of all outstanding Series B Preferred Stock, voting separately as a class, (i) amend, alter or repeal any provision of the Certificate of Incorporation or the Bylaws of the

Corporation so as to adversely affect the relative rights, preferences, qualifications, limitations or restrictions of the Series B Preferred Stock; (ii) authorize or issue, or increase the authorized amount of, Series B Preferred Stock, other than Series B Preferred Stock issuable in exchange for 8% Notes or accrued interest thereon or issuable as dividends on Series B Preferred Stock; or (iii) issue securities ranking prior to, or pari passu with the Series B Preferred Stock.

8. Status of Acquired Shares. Shares of Series B Preferred Stock received upon conversion or redemption pursuant to Section 4 or Section 5 or otherwise acquired by the Corporation will be restored to the status of authorized but unissued shares of Preferred Stock, without designation as to class, and may thereafter be issued, but not as shares of Series B Preferred Stock.

9. Preemptive Rights. The Series B Preferred Stock is not entitled to any preemptive or subscription rights in respect of any securities of the Corporation.

10. Severability of Provisions. Whenever possible, each provision hereof shall be interpreted in a manner as to be effective and valid under applicable law, but if any provision hereof is held to be prohibited by or invalid under applicable law, such provision shall be ineffective only to the extent of such prohibition or invalidity, without invalidating or otherwise adversely affecting the remaining provisions hereof. If a court of competent jurisdiction should determine that a provision hereof would be valid or enforceable if a period of time were extended or shortened or a particular percentage were increased or decreased, then such court may make such changes as shall be necessary to render the provision in question effective and valid under applicable law.

IN WITNESS WHEREOF, Sudhir Agrawal, President and Acting Chief Executive Officer of the Corporation, acting for and on behalf of the Corporation, has hereunto subscribed his name this 15 day of March, 2001.

HYBRIDON, INC.

By: //Sudhir Agrawal

Name: Sudhir Agrawal
Title: President and Acting Chief Executive Officer

HYBRIDON, INC.

CERTIFICATE OF ELIMINATION
OF NUMBER OF SHARES OF PREFERRED STOCK
DESIGNATED AS
SERIES B CONVERTIBLE PREFERRED STOCK

Hybridon, Inc., a Delaware corporation (the "Corporation"), pursuant to authority conferred upon the Board of Directors of the Corporation by the Corporation's Restated Certificate of Incorporation, as amended (the "Certificate of Incorporation"), and in accordance with the provisions of Section 151(g) of the General Corporation Law of the State of Delaware (the "Delaware Law"), certifies that the Board of Directors of the Corporation duly adopted the following resolution:

"RESOLVED: That no shares of the Corporation's Series B Convertible Preferred Stock (the "Series B Preferred Stock") are outstanding and no shares of Series B Preferred Stock will be issued subject to the Certificate of Designation dated March 28, 2001 with respect to such series (the "Series B Certificate of Designation"); and that the proper officers of the Corporation be and hereby are authorized and directed in the name and on behalf of the Corporation to execute and file a certificate with the Secretary of State of the State of Delaware pursuant to Section 151(g) of the Delaware Law setting forth the text of this resolution, upon the filing and effectiveness of which all matters are set forth in the Series B

Certificate of Designation shall be deemed to have been eliminated from the Certificate of Incorporation and the 85,000 shares of Preferred Stock previously designated as Series B Preferred Stock shall resume their status as undesignated shares of Preferred Stock available for future issuance in accordance with the Certificate of Incorporation."

IN WITNESS WHEREOF, the Corporation has caused its corporate seal to be affixed hereto and this Certificate to be signed by its Chief Executive Officer this 10th day of December, 2001.

HYBRIDON, INC.

By: /s/ Stephen R. Seiler
Stephen R. Seiler
Chief Executive Officer

CERTIFICATE OF DESIGNATIONS
OF
SERIES C JUNIOR PARTICIPATING PREFERRED STOCK
OF
HYBRIDON, INC.

Hybridon, Inc., a corporation organized and existing under the laws of the State of Delaware (hereinafter called the "Corporation"), hereby certifies that the following resolution was adopted by the Board of Directors of the Corporation at a meeting duly called and held on December 10, 2001:

RESOLVED: That pursuant to the authority granted to and vested in the Board of Directors of the Corporation (hereinafter called the "Board") in accordance with the provisions of the Certificate of Incorporation, as amended, the Board hereby creates a series of Preferred Stock, $.01 par value per share (the "Preferred Stock"), of the Corporation and hereby states the designation and number of shares, and fixes the relative rights, preferences and limitations thereof as follows:

Series C Junior Participating Preferred Stock:

Section 1. Designation and Amount. The shares of such series shall be designated as "Series C Junior Participating Preferred Stock" (the "Series C Preferred Stock") and the number of shares constituting the Series C Preferred Stock shall be one hundred thousand (100,000). Such number of shares may be increased or decreased by resolution of the Board prior to issuance; provided, that no decrease shall reduce the number of shares of Series C Preferred Stock to a number less than the number of shares then outstanding plus the number of shares reserved for issuance upon the exercise of outstanding options, rights or warrants or upon the conversion of any outstanding securities issued by the Corporation convertible into Series C Preferred Stock.

Section 2. Dividends and Distributions.

(A) Subject to the rights of the holders of any shares of any series of Preferred Stock (or any similar stock) ranking prior and superior to the Series C Preferred Stock with respect to dividends, the holders of shares of Series C Preferred Stock, in preference to the holders of Common Stock, par value $.001 per share (the "Common Stock"), of the Corporation, and of any other junior stock, shall be entitled to receive, when, as and if declared by the Board out of funds of the Corporation legally available for the payment of dividends, quarterly dividends payable in cash on the last day of each fiscal quarter of the Corporation in each year (each such date being

referred to herein as a "Quarterly Dividend Payment Date"), commencing on the first Quarterly Dividend Payment Date after the first issuance of a share or fraction of a share of Series C Preferred Stock, in an amount per share (rounded to the nearest cent) equal to the greater of (a) $10 or (b) subject to the provision for adjustment hereinafter set forth, 1,000 times the aggregate per share amount of all cash dividends, and 1,000 times the aggregate per share amount (payable in kind) of all non-cash dividends or other distributions, other than a dividend payable in shares of Common Stock or a subdivision of the outstanding shares of Common Stock (by reclassification or otherwise), declared on the Common Stock since the immediately preceding Quarterly Dividend Payment

Date or, with respect to the first Quarterly Dividend Payment Date, since the first issuance of any share or fraction of a share of Series C Preferred Stock. In the event the Corporation shall at any time declare or pay any dividend on the Common Stock payable in shares of Common Stock, or effect a subdivision, combination or consolidation of the outstanding shares of Common Stock (by reclassification or otherwise than by payment of a dividend in shares of Common Stock) into a greater or lesser number of shares of Common Stock, then in each such case the amount to which holders of shares of Series C Preferred Stock were entitled immediately prior to such event under clause (b) of the preceding sentence shall be adjusted by multiplying such amount by a fraction, the numerator of which is the number of shares of Common Stock outstanding immediately after such event and the denominator of which is the number of shares of Common Stock that were outstanding immediately prior to such event. In the event the Corporation shall at any time declare or pay any dividend on the Series C Preferred Stock payable in shares of Series C Preferred Stock, or effect a subdivision, combination or consolidation of the outstanding shares of Series C Preferred Stock (by reclassification or otherwise than by payment of a dividend in shares of Series C Preferred Stock) into a greater or lesser number of shares of Series C Preferred Stock, then in each such case the amount to which holders of shares of Series C Preferred Stock were entitled immediately prior to such event under clause (b) of the first sentence of this Section 2(A) shall be adjusted by multiplying such amount by a fraction, the numerator of which is the number of shares of Series C Preferred Stock that were outstanding immediately prior to such event and the denominator of which is the number of shares of Series C Preferred Stock outstanding immediately after such event.

(B) The Corporation shall declare a dividend or distribution on the Series C Preferred Stock as provided in paragraph (A) of this Section immediately after it declares a dividend or distribution on the Common Stock (other than a dividend payable in shares of Common Stock) and the Corporation shall pay such dividend or distribution on the Series C Preferred Stock before the dividend or distribution declared on the Common Stock is paid or set apart; provided that, in the event no dividend or distribution shall have been declared on the Common Stock during the period between any Quarterly Dividend Payment Date and the next subsequent Quarterly Dividend Payment Date, a dividend of $10 per share on the Series C Preferred Stock shall nevertheless be payable on such subsequent Quarterly Dividend Payment Date.

(C) Dividends shall begin to accrue and be cumulative on outstanding shares of Series C Preferred Stock from the Quarterly Dividend Payment Date next preceding the date of issue of such shares, unless the date of issue of such shares is prior to the record date for the first Quarterly Dividend Payment Date, in which case dividends on such shares shall begin to accrue from the date of issue of such shares, or unless the date of issue is a Quarterly Dividend Payment Date or is a date after the record date for the determination of holders of shares of Series C Preferred Stock entitled to receive a quarterly dividend and before such Quarterly Dividend Payment

Date, in either of which events such dividends shall begin to accrue and be cumulative from such Quarterly Dividend Payment Date. Accrued but unpaid dividends shall not bear interest. Dividends paid on the shares of Series C Preferred Stock in an amount less than the total amount of such dividends at the time accrued and payable on such shares shall be allocated pro rata on a share-by-share basis among all such shares at the time outstanding. The Board may fix a record date for the determination of holders of shares of Series C Preferred Stock entitled to receive payment of a dividend or distribution declared thereon, which record date shall be not more than 60 days prior to the date fixed for the payment thereof.

Section 3. Voting Rights. The holders of shares of Series C Preferred Stock shall have the following voting rights:

(A) Subject to the provision for adjustment hereinafter set forth, each share of Series C Preferred Stock shall entitle the holder thereof to 1,000 votes on all matters submitted to a vote of the stockholders of the Corporation. In the event the Corporation shall at any time declare or pay any dividend on the Common Stock payable in shares of Common Stock, or effect a subdivision, combination or consolidation of the outstanding shares of Common Stock (by reclassification or otherwise than by payment of a dividend in shares of Common Stock) into a greater or lesser number of shares of Common Stock, then in each such case the number of votes per share to which holders of shares of Series C Preferred Stock were entitled immediately prior to such event shall be adjusted by multiplying such number by a fraction, the numerator of which is the number of shares of

Common Stock outstanding immediately after such event and the denominator of which is the number of shares of Common Stock that were outstanding immediately prior to such event. In the event the Corporation shall at any time declare or pay any dividend on the Series C Preferred Stock payable in shares of Series C Preferred Stock, or effect a subdivision, combination or consolidation of the outstanding shares of Series C Preferred Stock (by reclassification or otherwise than by payment of a dividend in shares of Series C Preferred Stock) into a greater or lesser number of shares of Series C Preferred Stock, then in each such case the number of votes per share to which holders of shares of Series C Preferred Stock were entitled immediately prior to such event shall be adjusted by multiplying such amount by a fraction, the numerator of which is the number of shares of Series C Preferred Stock that were outstanding immediately prior to such event and the denominator of which is the number of shares of Series C Preferred Stock outstanding immediately after such event.

(B) Except as otherwise provided herein, in the Certificate of Incorporation or by law, the holders of shares of Series C Preferred Stock and the holders of shares of Common Stock and any other capital stock of the Corporation having general voting rights shall vote together as one class on all matters submitted to a vote of stockholders of the Corporation.

(C) (i) If at any time dividends on any Series C Preferred Stock shall be in arrears in an amount equal to six quarterly dividends thereon, the holders of the Series C Preferred Stock, voting as a separate series from all other series of Preferred Stock and classes of capital stock, shall be entitled to elect two members of the Board in addition to any Directors elected by any other series, class or classes of securities and the authorized number of Directors

will automatically be increased by two. Promptly thereafter, the Board of the Corporation shall, as soon as may be practicable, call a special meeting of holders of Series C Preferred Stock for the purpose of electing such members of the Board. Such special meeting shall in any event be held within 45 days of the occurrence of such arrearage.

(ii) During any period when the holders of Series C Preferred Stock, voting as a separate series, shall be entitled and shall have exercised their right to elect two Directors, then, and during such time as such right continues, (a) the then authorized number of Directors shall be increased by two, and the holders of Series C Preferred Stock, voting as a separate series, shall be entitled to elect the additional Directors so provided for, and (b) each such additional Director shall not be a member of any existing class of the Board, but shall serve until the next annual meeting of stockholders for the election of Directors, or until his successor shall be elected and shall qualify, or until his right to hold such office terminates pursuant to the provisions of this Section 3(C).

(iii) A Director elected pursuant to the terms hereof may be removed with or without cause by the holders of Series C Preferred Stock entitled to vote in an election of such Director.

(iv) If, during any interval between annual meetings of stockholders for the election of Directors and while the holders of Series C Preferred Stock shall be entitled to elect two Directors, there is no such Director in office by reason of resignation, death or removal, then, promptly thereafter, the Board shall call a special meeting of the holders of Series C Preferred Stock for the purpose of filling such vacancy and such vacancy shall be filled at such special meeting. Such special meeting shall in any event be held within 45 days of the occurrence of such vacancy.

(v) At such time as the arrearage is fully cured, and all dividends accumulated and unpaid on any shares of Series C Preferred Stock outstanding are paid, and, in addition thereto, at least one regular dividend has been paid subsequent to curing such arrearage, the term of office of any Director elected pursuant to this Section 3(C), or his successor, shall automatically terminate, and the authorized number of Directors shall automatically decrease by two, the rights of the holders of the shares of the Series C Preferred Stock to vote as provided in this Section 3(C) shall cease, subject to renewal from time to time upon the same terms and conditions, and the holders of shares of the Series C Preferred Stock shall have only the limited voting rights elsewhere herein set forth.

(D) Except as set forth herein, or as otherwise provided by law, holders of Series C Preferred Stock shall have no special voting rights and their consent shall not be required (except to the extent they are entitled to vote with

holders of Common Stock as set forth herein) for taking any corporate action.

Section 4. Certain Restrictions.

(A) Whenever quarterly dividends or other dividends or distributions payable on the Series C Preferred Stock as provided in Section 2 are in arrears, thereafter and until all accrued and unpaid dividends and distributions, whether or not declared, on shares of Series C Preferred Stock outstanding shall have been paid in full, the Corporation shall not:

(i) declare or pay dividends, or make any other distributions, on any shares of stock ranking junior (either as to dividends or upon liquidation, dissolution or winding up) to the Series C Preferred Stock;

(ii) declare or pay dividends, or make any other distributions, on any shares of stock ranking on a parity (either as to dividends or upon liquidation, dissolution or winding up) with the Series C Preferred Stock, except dividends paid ratably on the Series C Preferred Stock and all such parity stock on which dividends are payable or in arrears in proportion to the total amounts to which the holders of all such shares are then entitled;

(iii) redeem or purchase or otherwise acquire for consideration shares of any stock ranking junior (either as to dividends or upon liquidation, dissolution or winding up) to the Series C Preferred Stock, provided that the Corporation may at any time redeem, purchase or otherwise acquire shares of any such junior stock in exchange for shares of any stock of the Corporation ranking junior (either as to dividends or upon dissolution, liquidation or winding up) to the Series C Preferred Stock; or

(iv) redeem or purchase or otherwise acquire for consideration any shares of Series C Preferred Stock, or any shares of stock ranking on a parity with the Series C Preferred Stock, except in accordance with a purchase offer made in writing or by publication (as determined by the Board) to all holders of such shares upon such terms as the Board, after consideration of the respective annual dividend rates and other relative rights and preferences of the respective series and classes, shall determine in good faith will result in fair and equitable treatment among the respective series or classes.

(B) The Corporation shall not permit any subsidiary of the Corporation to purchase or otherwise acquire for consideration any shares of stock of the Corporation unless the Corporation could, under paragraph (A) of this Section 4, purchase or otherwise acquire such shares at such time and in such manner.

Section 5. Reacquired Shares. Any shares of Series C Preferred Stock purchased or otherwise acquired by the Corporation in any manner whatsoever shall be retired and cancelled promptly after the acquisition thereof. All such shares shall upon their cancellation become authorized but unissued shares of Preferred Stock and may be reissued as part of a new series of Preferred Stock subject to the conditions and restrictions on issuance set forth herein, in the Certificate of Incorporation, or in any other Certificate of Designations creating a series of Preferred Stock or any similar stock or as otherwise required by law.

Section 6. Liquidation, Dissolution or Winding Up.

(A) Upon any liquidation, dissolution or winding up of the Corporation, no distribution shall be made (1) to the holders of shares of stock ranking junior (either as to dividends or upon liquidation, dissolution or winding up) to the Series C Preferred Stock unless, prior thereto, the holders of shares of Series C Preferred Stock shall have received $1,000 per share, plus an amount equal to accrued and unpaid dividends and distributions thereon, whether or not declared, to the date of such payment, provided that the holders of shares of Series C Preferred Stock shall be entitled to receive an aggregate amount per share, subject to the provision for adjustment hereinafter set forth, equal to 1,000 times the aggregate amount to be distributed per share to holders of shares of Common Stock, or (2) to the holders of shares of stock ranking on a parity (either as to dividends or upon liquidation, dissolution or winding up) with the Series C Preferred Stock, except distributions made ratably on the Series C Preferred Stock and all such parity stock in proportion to the total amounts to which the holders of all such shares are entitled upon such liquidation, dissolution or winding up.

(B) Neither the consolidation, merger or other business combination of the Corporation with or into any other corporation nor the sale, lease, exchange or conveyance of all or any part of the property, assets or business of the Corporation shall be deemed to be a liquidation, dissolution or winding up of the Corporation for purposes of this Section 6.

(C) In the event the Corporation shall at any time declare or pay any dividend on the Common Stock payable in shares of Common Stock, or effect a subdivision, combination or consolidation of the outstanding shares of Common Stock (by reclassification or otherwise than by payment of a dividend in shares of Common Stock) into a greater or lesser number of shares of Common Stock, then in each such case the aggregate amount to which holders of shares of Series C Preferred Stock were entitled immediately prior to such event under the proviso in clause (1) of paragraph (A) of this Section 6 shall be adjusted by multiplying such amount by a fraction, the numerator of which is the number of shares of Common Stock outstanding immediately after such event and the denominator of which is the number of shares of Common Stock that were outstanding immediately prior to such event. In the event the Corporation shall at any time declare or pay any dividend on the Series C Preferred Stock payable in shares of Series C Preferred Stock, or effect a subdivision, combination or consolidation of the outstanding shares of Series C Preferred Stock (by reclassification or otherwise than by payment of a dividend in shares of Series C Preferred Stock) into a greater or lesser number of shares of Series C Preferred Stock, then in each such case the aggregate amount to which holders of shares of Series C Preferred Stock were entitled immediately prior to such event under the proviso in clause (1) of paragraph (A) of this Section 6 shall be adjusted by multiplying such amount by a fraction, the numerator of which is the number of shares of Series C Preferred Stock that were outstanding immediately prior to such event and the denominator of which is the number of shares of Series C Preferred Stock outstanding immediately after such event.

Section 7. Consolidation, Merger, etc. Notwithstanding anything to the contrary contained herein, in case the Corporation shall enter into any consolidation, merger, combination or other transaction in which the shares of Common Stock are exchanged for or changed into other stock or securities, cash and/or any other property, then in any such case each share

of Series C Preferred Stock shall at the same time be similarly exchanged or changed into an amount per share, subject to the provision for adjustment hereinafter set forth, equal to 1,000 times the aggregate amount of stock, securities, cash and/or any other property (payable in kind), as the case may be, into which or for which each share of Common Stock is changed or exchanged. In the event the Corporation shall at any time declare or pay any dividend on the Common Stock payable in shares of Common Stock, or effect a subdivision, combination or consolidation of the outstanding shares of Common Stock (by reclassification or otherwise than by payment of a dividend in shares of Common Stock) into a greater or lesser number of shares of Common Stock, then in each such case the amount set forth in the preceding sentence with respect to the exchange or change of shares of Series C Preferred Stock shall be adjusted by multiplying such amount by a fraction, the numerator of which is the number of shares of Common Stock outstanding immediately after such event and the denominator of which is the number of shares of Common Stock that were outstanding immediately prior to such event. In the event the Corporation shall at any time declare or pay any dividend on the Series C Preferred Stock payable in shares of Series C Preferred Stock, or effect a subdivision, combination or consolidation of the outstanding shares of Series C Preferred Stock (by reclassification or otherwise than by payment of a dividend in shares of Series C Preferred Stock) into a greater or lesser number of shares of Series C Preferred Stock, then in each such case the amount set forth in the first sentence of this Section 7 with respect to the exchange or change of shares of Series C Preferred Stock shall be adjusted by multiplying such amount by a fraction, the numerator of which is the number of shares of Series C Preferred Stock that were outstanding immediately prior to such event and the denominator of which is the number of shares of Series C Preferred Stock outstanding immediately after such event.

Section 8. No Redemption. The shares of Series C Preferred Stock shall not be redeemable.

Section 9. Rank. The Series C Preferred Stock shall rank, with respect to the payment of dividends and the distribution of assets, junior to all series of any other class of the Preferred Stock issued either before or after the issuance of the Series C Preferred Stock (including, without limitation, the Series A

Convertible Preferred Stock $.01 par value, of the Company established pursuant to the Certificate of Designation for Series A Convertible preferred Stock dated May 5, 1998), unless the terms of any such series shall provide otherwise.

Section 10. Amendment. At such time as any shares of Series C Preferred Stock are outstanding, the Certificate of Incorporation, as amended, of the Corporation shall not be amended in any manner which would materially alter or change the powers, preferences or special rights of the Series C Preferred Stock so as to affect them adversely without the affirmative vote of the holders of at least two-thirds of the outstanding shares of Series C Preferred Stock, voting together as a single class.

Section 11. Fractional Shares. Series C Preferred Stock may be issued in fractions of a share which shall entitle the holder, in proportion to such holder's fractional shares, to exercise voting rights, receive dividends, participate in distributions and have the benefit of all other rights of holders of Series C Preferred Stock.

IN WITNESS WHEREOF, this Certificate of Designations is executed on behalf of the Corporation by its Chief Executive Officer this 10th day of December, 2001.

HYBRIDON, INC.

By: /s/ Stephen R. Seiler
Name: Stephen R. Seiler
Title: Chief Executive Officer

CERTIFICATE OF INCREASE

OF

SERIES C JUNIOR PARTICIPATING PREFERRED STOCK

OF

HYBRIDON, INC.

(Pursuant to Section 151(g) of the
Delaware General Corporation Law)

Hybridon, Inc., a corporation organized and existing under the Delaware General Corporation Law (the "Corporation") does hereby certify:

FIRST: In a Certificate of Designations filed with the Secretary of State of the State of Delaware on December 10, 2001, pursuant to Section 151 of the Delaware General Corporation Law, the Corporation was authorized to issue 100,000 shares of Series C Junior Participating Preferred Stock as a series of the Corporation's authorized Preferred Stock, par value $.01 per share; and

SECOND: The board of directors of the Corporation, by resolution adopted June 22, 2003, duly authorized and directed that the number of shares of the Corporation's Series C Junior Participating Preferred Stock be increased from 100,000 shares to 150,000 shares.

IN WITNESS WHEREOF, the Corporation has caused this Certificate of Increase to be signed by its duly authorized officer this 4th day of December, 2003.

By: /s/Stephen R. Seiler

Name: Stephen R. Seiler
Title: Chief Executive Officer

CERTIFICATE OF AMENDMENT

OF

RESTATED CERTIFICATE OF INCORPORATION

OF

HYBRIDON, INC.

Hybridon, Inc. (hereinafter called the "Corporation"), organized and existing under and by virtue of the General Corporation Law of the State of Delaware, does hereby certify as follows:

By action of the Board of Directors of the Corporation at a meeting a resolution was duly adopted, pursuant to Section 242 of the General Corporation Law of the State of Delaware, setting forth amendments to the Certificate of Incorporation of the Corporation and declaring said amendments to be advisable. The stockholders of the Corporation duly approved said proposed amendments at a meeting in accordance with Section 242 of the General Corporation Law of the State of Delaware. The resolutions setting forth the amendments are as follows:

RESOLVED: That Section 2(a) of the Certificate of Designation of the Series A Convertible Preferred Stock of the Corporation filed on May 6, 1998 is hereby amended by deleting the reference to "6.5%" therein and inserting in lieu thereof "1.0%".

RESOLVED: That Section 3(a) of the Certificate of Designation of the Series A Convertible Preferred Stock of the Corporation filed on May 6, 1998 is hereby amended by deleting the first sentence of Section 3(a) in its entirety and inserting in lieu thereof the following sentence:

"3. Liquidation Preference. (a) In the event of a (i) liquidation, dissolution or winding up of the Corporation, whether voluntary or involuntary, (ii) a sale or other disposition of all or substantially all of the assets of the Corporation or (iii) any consolidation, merger, combination, reorganization or other transaction in which the Corporation is not the surviving entity or shares of Common Stock constituting in excess of 50% of the voting power of the Corporation are exchanged for or changed into stock or securities of another entity, cash and/or any other property (a "Merger Transaction") (items (i), (ii) and (iii) of this sentence being collectively referred to as a "Liquidation Event"), after payment or provision for payment of debts and other liabilities of the Corporation, the holders of the Series A Preferred Stock then outstanding shall be entitled to be paid out of the assets of the Corporation available for distribution to its stockholders, whether such assets are capital, surplus, or earnings, before any payment or declaration and setting apart for payment of any amount shall be made in respect of any Junior Stock of the Corporation, an amount equal to $1.00 per share (subject to appropriate adjustment in the event of any stock split, stock dividend, combination or other similar recapitalization affecting the Series A Preferred Stock), plus any dividends declared or accrued but unpaid on such shares; provided, however, in the case of a Merger Transaction, such payment may be made in cash, property (valued as provided in Subsection 3(b)) and/or securities (valued as provided in Subsection 3(b)) of the entity surviving such Merger Transaction."

RESOLVED: That Section 4(a) of the Certificate of Designation of the Series A Convertible Preferred Stock of the Corporation filed on May 6, 1998 is hereby amended by deleting the first paragraph of Section 4(a) in its entirety and inserting in lieu thereof the following paragraph:

"(a) Right of Conversion. Commencing after the expiration of 12 months following the Alternative Equity Closing Date (as hereinafter defined), but not prior thereto, the shares of Series A Preferred Stock shall be convertible, in whole or in part, at the option of the holder thereof and upon notice to the Corporation as set forth in Subsection 4(b), into fully paid and nonassessable shares of Common Stock and such other securities and property as hereinafter provided. The initial conversion price per share of Common Stock (the "Conversion Price"), shall be equal to the product of 2.125 multiplied by the per share price (the "Stated Common Price") of Common Stock sold by the Corporation in connection with the Alternative Equity Offering (as such term is defined in the Corporation's Offer to Exchange dated February 6, 1998 (the "Original Offer to Exchange"), as amended by the Amendment thereto (the "Amendment") dated March 30, 1998 (collectively, the "Offer to Exchange")) and shall be subject to adjustment as provided herein. The rate at which each share of Series A Preferred Stock is convertible at any time into Common Stock (the "Conversion Rate") shall be determined by dividing the then existing Conversion

Price (determined in accordance with this Section 4, including the last paragraph hereof) into the Dividend Base Amount; provided, however, that, during the period beginning on the date of the filing of this Certificate of Amendment and ending on the date 60 days after the date of the filing of this Certificate of Amendment (the "Early Conversion Period"), the Conversion Rate shall be determined by dividing the Conversion Price (in effect as of the first day of the Early Conversion Period) into an amount equal to 125% of the Dividend Base Amount. For illustrative purposes only, if the Conversion Price equals $4.25 and the Dividend Base Amount equals $100.00, then each share of Series A Preferred Stock will be convertible into 23.53 shares of Common Stock ($100.00 / $4.25); provided, however, that during the Early Conversion Period, each share of Series A Preferred Stock will be convertible into 29.41 shares of Common Stock ($125.00 / $4.25)."

IN WITNESS WHEREOF, the Corporation has caused this Certificate of Amendment to be signed by its authorized officer on the 4th day of December, 2003.

By: /s/Stephen R. Seiler

Name: Stephen R. Seiler
Title: Chief Executive Officer

CERTIFICATE OF AMENDMENT
TO THE
RESTATED CERTIFICATE OF INCORPORATION
OF
HYBRIDON, INC.

Hybridon, Inc. (hereinafter called the "Corporation"), organized and existing under and by virtue of the General Corporation Law of the State of Delaware, does hereby certify as follows:

At a meeting of the Board of Directors of the Corporation a resolution was duly adopted, pursuant to Section 242 of the General Corporation Law of the State of Delaware, setting forth an amendment to the Restated Certificate of Incorporation of the Corporation, as amended to date (the "Certificate of Incorporation"), and declaring said amendment to be advisable. The stockholders of the Corporation duly approved said proposed amendment in accordance with Section 242 of the General Corporation Law of the State of Delaware at a meeting of stockholders held on June 24, 2004. The resolution setting forth the amendment is as follows:

RESOLVED: That the first paragraph of Article FOURTH of the Certificate of Incorporation be and hereby is amended and restated in its entirety so that the same shall read as follows:

> "FOURTH. The total number of shares of all classes of stock which the Corporation shall have authority to issue is (i) One Hundred Eighty Five Million (185,000,000) shares of Common Stock, $.001 par value per share ("Common Stock"), and (ii) Five Million (5,000,000) shares of Preferred Stock, $.01 par value per share ("Preferred Stock"), which may be issued from time to time in one or more series as set forth in Part B of this Article FOURTH."

IN WITNESS WHEREOF, the Corporation has caused this Certificate of Amendment to be signed by its Chief Executive Officer on this 25th day of June 2004.

HYBRIDON, INC.

/s/ Stephen R. Seiler

Name: Stephen R. Seiler
Title: Chief Executive Officer

CERTIFICATE OF INCREASE

OF

SERIES C JUNIOR PARTICIPATING PREFERRED STOCK

OF

HYBRIDON, INC.

(Pursuant to Section 151(g) of the
Delaware General Corporation Law)

Hybridon, Inc., a corporation organized and existing under the Delaware General Corporation Law (the "Corporation") does hereby certify:

FIRST: In a Certificate of Designations filed with the Secretary of State of the State of Delaware on December 10, 2001, pursuant to Section 151 of the Delaware General Corporation Law, the Corporation was authorized to issue 100,000 shares of Series C Junior Participating Preferred Stock as a series of the Corporation's authorized Preferred Stock, par value $.01 per share;

SECOND: In a Certificate of Increase filed with the Secretary of State of the State of Delaware on December 4, 2003, pursuant to Section 151 of the Delaware General Corporation Law, the number of authorized shares of the Corporation's Series C Junior Participating Preferred Stock was increased from 100,000 to 150,000; and

THIRD: The board of directors of the Corporation, by resolution adopted March 15, 2005, duly authorized and directed that the number of authorized shares of the Corporation's Series C Junior Participating Preferred Stock be increased from 150,000 shares to 185,000 shares.

IN WITNESS WHEREOF, the Corporation has caused this Certificate of Increase to be signed by its duly authorized officer this 24th day of March, 2005.

By: /s/ Sudhir Agrawal

Name: Sudhir Agrawal, D. Phil
Title: Chief Executive Officer, President and Chief Scientific Officer

CERTIFICATE OF AMENDMENT

TO THE

RESTATED CERTIFICATE OF INCORPORATION

OF

HYBRIDON, INC.

Hybridon, Inc. (hereinafter called the "Corporation"), organized and existing under and by virtue of the General Corporation Law of the State of Delaware, does hereby certify as follows:

At a meeting of the Board of Directors of the Corporation a resolution was duly adopted, pursuant to Section 242 of the General Corporation Law of the State of Delaware, setting forth an amendment to the Restated Certificate of Incorporation of the Corporation, as amended to date (the "Certificate of Incorporation"), and declaring said amendment to be advisable. The stockholders of the Corporation duly approved said proposed amendment in accordance with

Section 242 of the General Corporation Law of the State of Delaware at a meeting of stockholders held on June 15, 2005. The resolution setting forth the amendment is as follows:

RESOLVED: That the first paragraph of Article FOURTH of the Certificate of Incorporation be and hereby is amended and restated in its entirety so that the same shall read as follows:

"FOURTH. The total number of shares of all classes of stock which the Corporation shall have authority to issue is (i) Two Hundred Million (200,000,000) shares of Common Stock, $.001 par value per share ("Common Stock"), and (ii) Five Million (5,000,000) shares of Preferred Stock, $.01 par value per share ("Preferred Stock"), which may be issued from time to time in one or more series as set forth in Part B of this Article FOURTH."

IN WITNESS WHEREOF, the Corporation has caused this Certificate of Amendment to be signed by its Chief Executive Officer on this 17th day of June 2005.

HYBRIDON, INC.

/s/ Sudhir Agrawal

Name: Sudhir Agrawal
Title: Chief Executive Officer

CERTIFICATE OF INCREASE

OF

SERIES C JUNIOR PARTICIPATING PREFERRED STOCK

OF

HYBRIDON, INC.

(Pursuant to Section 151(g) of the Delaware General Corporation Law)

Hybridon, Inc., a corporation organized and existing under the Delaware General Corporation Law (the "Corporation") does hereby certify:

FIRST: In a Certificate of Designations filed with the Secretary of State of the State of Delaware on December 10, 2001, pursuant to Section 151 of the Delaware General Corporation Law, the Corporation was authorized to issue 100,000 shares of Series C Junior Participating Preferred Stock as a series of the Corporation's authorized Preferred Stock, par value $.01 per share;

SECOND: In a Certificate of Increase filed with the Secretary of State of the State of Delaware on December 4, 2003, pursuant to Section 151 of the Delaware General Corporation Law, the number of authorized shares of the Corporation's Series C Junior Participating Preferred Stock was increased from 100,000 to 150,000;

THIRD: In a Certificate of Increase filed with the Secretary of State of the State of Delaware on March 24, 2005, pursuant to Section 151 of the Delaware General Corporation Law, the number of authorized shares of the Corporation's Series C Junior Participating Preferred Stock was increased from 150,000 to 185,000; and

FOURTH: The board of directors of the Corporation, by resolution adopted March 15, 2005, duly authorized and directed that, effective as of June 15, 2005, the number of authorized shares of the Corporation's Series C Junior Participating Preferred Stock be increased from 185,000 shares to 200,000 shares.

IN WITNESS WHEREOF, the Corporation has caused this Certificate of Increase to be signed by its duly authorized officer this 21st day of June 2005.

By: /s/ Robert G. Andersen

Name: Robert G. Andersen
Title: Chief Financial Officer

CERTIFICATE OF OWNERSHIP AND MERGER
MERGING
IDERA PHARMACEUTICALS, INC.
(A DELAWARE CORPORATION)
INTO
HYBRIDON, INC.
(A DELAWARE CORPORATION)

Pursuant to Section 253 of the General Corporation Law of the State of Delaware, Hybridon, Inc., a corporation organized and existing under and by virtue of the General Corporation Law of the State of Delaware (the "Corporation"), does hereby certify:

FIRST: That the Corporation was incorporated on May 25, 1989, pursuant to the General Corporation Law of the State of Delaware.

SECOND: That the Corporation owns all of the outstanding shares of the capital stock of Idera Pharmaceuticals, Inc., a corporation incorporated on August 24, 2005, pursuant to the General Corporation Law of the State of Delaware (the "Subsidiary").

THIRD: That on September 9, 2005, the Board of Directors of the Corporation, acting by written consent in accordance with Section 141(f) of the General Corporation Law of the State of Delaware, duly adopted the following resolutions and determined to merge the Subsidiary into the Corporation and change the Corporation's corporate name to "Idera Pharmaceuticals, Inc." on the conditions set forth in such resolutions:

RESOLVED: That, the Corporation shall, pursuant to Section 253 of the Delaware Code, merge into itself Idera Pharmaceuticals, Inc., a wholly owned subsidiary of the Corporation (the "Subsidiary"), and shall assume all of the Subsidiary's liabilities and obligations (the "Merger"); and that upon the effectiveness of the Merger, the Corporation's corporate name shall be changed to "Idera Pharmaceuticals, Inc."

RESOLVED: That the Corporation, as the sole stockholder of the Subsidiary, be and hereby is authorized to take such actions as are necessary or appropriate to effect the Merger.

RESOLVED: That the Chief Executive Officer and the Chief Financial Officer of the Corporation (the "Proper Officers") be, and either acting singly, hereby is authorized and directed in the name and on behalf of the Corporation to prepare, execute and file with the Secretary of State of the State of Delaware a Certificate of Ownership and Merger setting forth a copy of the resolutions to merge the Subsidiary into the Corporation and to assume the liabilities and obligations of said Subsidiary and to change the Corporation's corporate name to "Idera Pharmaceuticals, Inc." upon the effectiveness of the Merger; and that the execution and filing thereof be conclusive evidence of such approval and the authorization therefor by the Board of Directors of the Corporation.

FOURTH: That the Merger of Subsidiary into the Corporation be effective as of September 12, 2005 at 4:01 p.m. (ET).

IN WITNESS WHEREOF, the Corporation has caused this Certificate to be

signed by its authorized officer this 12th day of September, 2005.

HYBRIDON, INC.

By: /s/ Sudhir Agrawal

Name: Sudhir Agrawal
Title: Chief Executive Officer and President

CERTIFICATE OF AMENDMENT
TO THE
RESTATED CERTIFICATE OF INCORPORATION
OF
IDERA PHARMACEUTICALS, INC.

Idera Pharmaceuticals, Inc. (hereinafter called the "Corporation"), organized and existing under and by virtue of the General Corporation Law of the State of Delaware, does hereby certify as follows:

By action of the Board of Directors of the Corporation at a meeting held on April 12, 2006, the Board of Directors of the Corporation duly adopted a resolution, pursuant to Section 242 of the General Corporation Law of the State of Delaware, setting forth an amendment to the Restated Certificate of Incorporation of the Corporation, as amended to date (the "Certificate of Incorporation"), and declaring said amendment to be advisable. The stockholders of the Corporation duly approved said proposed amendment in accordance with Section 242 of the General Corporation Law of the State of Delaware at a meeting of stockholders held on June 7, 2006. The resolution setting forth the amendment is as follows:

RESOLVED: That the first paragraph of Article FOURTH of the Certificate of Incorporation be and hereby is amended and restated in its entirety so that the same shall read as follows:

"FOURTH. That, effective at 5:00 p.m., eastern time, on the filing date of this Certificate of Amendment of Restated Certificate of Incorporation, as amended, (the "Effective Time"), a one-for-eight reverse stock split of the Corporation's Common Stock (as defined below) shall become effective, pursuant to which each eight shares of Common Stock outstanding and held of record by each stockholder of the Corporation (including treasury shares) immediately prior to the Effective Time shall be reclassified and combined into one share of Common Stock automatically and without any action by the holder thereof upon the Effective Time and shall represent one share of Common Stock from and after the Effective Time. No fractional shares of Common Stock shall be issued as a result of such reclassification and combination. In lieu of any fractional shares to which the stockholder would otherwise be entitled, the Corporation shall pay cash equal to such fraction multiplied by the average of the high and low trading prices of the Common Stock on the American Stock Exchange during regular trading hours for the five trading days immediately preceding the Effective Time.

The total number of shares of all classes of stock which the Corporation shall have authority to issue is (i) Forty Million (40,000,000) shares of Common Stock, $.001 par value per share ("Common Stock"), and (ii) Five Million (5,000,000) shares of Preferred Stock, $.01 par value per share ("Preferred Stock"), which may be issued from time to time in one or more series as set forth in Part B of this Article FOURTH."

IN WITNESS WHEREOF, the Corporation has caused this Certificate of Amendment to be signed by its duly authorized officer this 29th day of June 2006.

IDERA PHARMACEUTICALS, INC.

By: /s/ Robert G. Andersen

Robert G. Andersen
Chief Financial Officer,
Vice President Operations

CERTIFICATE OF AMENDMENT
TO THE
RESTATED CERTIFICATE OF INCORPORATION
OF
IDERA PHARMACEUTICALS, INC.

Idera Pharmaceuticals, Inc. (hereinafter called the "Corporation"), organized and existing under and by virtue of the General Corporation Law of the State of Delaware, does hereby certify as follows:

By action of the Board of Directors of the Corporation at a meeting held on March 18, 2008, the Board of Directors of the Corporation duly adopted a resolution, pursuant to Section 242 of the General Corporation Law of the State of Delaware, setting forth an amendment to the Restated Certificate of Incorporation of the Corporation, as amended to date (the "Certificate of Incorporation"), and declaring said amendment to be advisable. The stockholders of the Corporation duly approved said proposed amendment in accordance with Section 242 of the General Corporation Law of the State of Delaware at a meeting of stockholders held on June 4, 2008. The resolution setting forth the amendment is as follows:

RESOLVED: That the first paragraph of Article FOURTH of the Certificate of Incorporation be and hereby is amended and restated in its entirety so that the same shall read as follows:

"FOURTH. The total number of shares of all classes of stock which the Corporation shall have authority to issue is (i) Seventy Million (70,000,000) shares of Common Stock, $.001 par value per share ("Common Stock"), and (ii) Five Million (5,000,000) shares of Preferred Stock, $.01 par value per share ("Preferred Stock"), which may be issued from time to time in one or more series as set forth in Part B of this Article FOURTH."

IN WITNESS WHEREOF, the Corporation has caused this Certificate of Amendment to be signed by its duly authorized officer this 2nd day of July 2008.

IDERA PHARMACEUTICALS, INC.

By: /s/ Louis J. Arcudi, III

Name: Louis J. Arcudi, III
Title: Chief Financial Officer

EXHIBIT 31.1

CERTIFICATION OF CHIEF EXECUTIVE OFFICER PURSUANT TO EXCHANGE ACT RULES 13a-14 AND 15d-14, AS ADOPTED PURSUANT TO SECTION 302 OF SARBANES-OXLEY ACT OF 2002

I, Sudhir Agrawal, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Idera Pharmaceuticals, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15(d)-15(f)) for the registrant and have:

a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

/s/ SUDHIR AGRAWAL
Sudhir Agrawal
Chief Executive Officer

Dated: August 1, 2008

EXHIBIT 31.2

CERTIFICATION OF CHIEF FINANCIAL OFFICER PURSUANT TO EXCHANGE ACT RULES 13a-14 AND 15d-14, AS ADOPTED PURSUANT TO SECTION 302 OF SARBANES-OXLEY ACT OF 2002

I, Louis J. Arcudi, III certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Idera Pharmaceuticals, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15(d)-15(f)) for the registrant and have:

a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions

about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

/s/ LOUIS J. ARCUDI, III
Louis J. Arcudi, III
Chief Financial Officer

Dated: August 1, 2008

EXHIBIT 32.1

CERTIFICATION OF CHIEF EXECUTIVE OFFICER PURSUANT TO 18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report on Form 10-Q of Idera Pharmaceuticals, Inc. (the "Company") for the period ended June 30, 2008 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), the undersigned, Sudhir Agrawal, Chief Executive Officer of the Company, hereby certifies, pursuant to 18 U.S.C. Section 1350, that:

(1) the Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

A signed original of this written statement has been provided to Idera Pharmaceuticals, Inc. and will be retained by Idera Pharmaceuticals, Inc. and furnished to the Securities and Exchange Commission or its staff upon request.

/s/ SUDHIR AGRAWAL
Sudhir Agrawal
Chief Executive Officer

Date: August 1, 2008

EXHIBIT 32.2

CERTIFICATION OF CHIEF FINANCIAL OFFICER PURSUANT TO 18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report on Form 10-Q of Idera Pharmaceuticals, Inc. (the "Company") for the period ended June 30, 2008 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), the undersigned, Louis J. Arcudi, Chief Financial Officer of the Company, hereby certifies, pursuant to 18 U.S.C. Section 1350, that:

(1) the Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

A signed original of this written statement has been provided to Idera Pharmaceuticals, Inc. and will be retained by Idera Pharmaceuticals, Inc. and furnished to the Securities and Exchange Commission or its staff upon request.

/s/ Louis J. Arcudi, III
Louis J. Arcudi, III
Chief Financial Officer

Date: August 1, 2008