
**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**
Washington, D.C. 20549

FORM 8-K

CURRENT REPORT

**Pursuant to Section 13 or 15(d) of the
Securities Exchange Act of 1934**

Date of Report (Date of earliest event reported): December 1, 2006

HARVARD BIOSCIENCE, INC.

(Exact name of registrant as specified in charter)

Delaware
(State or Other Jurisdiction
of Incorporation)

000-31923
(Commission File Number)

04-3306140
(IRS Employer
Identification No.)

84 October Hill Road, Holliston, MA 01746
(Address of Principal Executive Offices) (Zip Code)

(508) 893-8999
(Registrant's telephone number, including area code)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (see General Instruction A.2. below):

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
 - Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
 - Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
 - Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))
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Item 1.01 Entry Into a Material Definitive Agreement.

Item 2.03 Creation of a Direct Financial Obligation or an Obligation under an Off-Balance Sheet Arrangement of a Registrant.

On December 1, 2006, Harvard Bioscience, Inc. (the “Company”) entered into the Second Amendment to the Revolving Credit Loan Agreement (“Amendment”) with the lenders that are signatories thereto (“Lenders”) and Brown Brothers Harriman & Co. (“BBH”). The Amendment amended the terms of the Company’s current \$20 million credit facility, by allowing borrowing of up to \$10 million in Eurocurrency and extending the maturity date from January 1, 2007 to December 1, 2009. As a part of the Amendment, the lenders under the credit facility also consented to the sale of the Company’s capital equipment business; provided that it is closed on or before March 31, 2007, all cash proceeds are used to prepay the credit facility and certain other conditions are met.

The credit facility bears interest at either (1) the base rate announced by BBH from time to time, (2) the London Interbank Offered Rate (“LIBOR”) or (3) the Eurocurrency base rate, plus, in the case of LIBOR or the Eurocurrency base rate, a margin of 2.5% or 2.75% depending on the Company’s debt service leverage ratio. The Company will also pay a 0.25% or 0.375% fee on the unused portion of the credit facility depending on its leverage ratio. Under the credit facility, the Company is subject to certain customary covenants, including, but not limited to, being in compliance with financial covenants relating to maximum leverage, minimum debt service coverage and minimum working capital. The credit facility also contains limitations on the Company’s ability to incur additional indebtedness and requires creditor approval for acquisitions funded with cash, promissory notes and/or other consideration in excess of \$6 million and for acquisitions funded solely with equity in excess of \$10 million. If the Company is not in compliance with these covenants, breaches any material representation or warranty in the credit facility, defaults in any payment due under the credit facility or any other indebtedness of \$500,000 or more, fails to discharge within a specified time period a judgment against the Company that is reasonably likely to have a material adverse affect on the Company or ceases to be solvent or if certain other bankruptcy events occur, then the credit facility agent may declare all of the amounts drawn on the \$20 million facility immediately due and payable.

Item 9.01 Financial Statements and Exhibits.

(d) Exhibits.

<u>Exhibit Number</u>	<u>Title</u>
10.1	Second Amendment to the Revolving Credit Loan Agreement dated as of December 1, 2006, by and among Harvard Bioscience, Inc., the Lenders that are signatories thereto and Brown Brothers Harriman & Co.

SIGNATURES

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

HARVARD BIOSCIENCE, INC.

Date: December 6, 2006

By: /s/ Bryce Chicoyne

Bryce Chicoyne
Chief Financial Officer

EXHIBIT INDEX

<u>Exhibit Number</u>	<u>Description</u>
10.1	Second Amendment to the Revolving Credit Loan Agreement dated as of December 1, 2006, by and among Harvard Bioscience, Inc., the Lenders that are signatories thereto and Brown Brothers Harriman & Co.

SECOND AMENDMENT

SECOND AMENDMENT dated as of December 1, 2006 (this "Second Amendment") by and among HARVARD BIOSCIENCE, INC., a Delaware corporation (the "Borrower"); the lenders identified on the signature pages hereto (individually, a "Lender" and collectively, the "Lenders"); and Brown Brothers Harriman & Co., as agent for the Lenders (in such capacity, together with its successors in such capacity, the "Agent").

The Borrower, the Lenders and the Agent are parties to a Revolving Credit Loan Agreement dated as of November 21, 2003 (as amended by a First Amendment dated March 14, 2006 and heretofore modified and in effect on the date hereof, the "Loan Agreement"), pursuant to which the Lenders have agreed to make certain revolving credit loans to the Borrower. The Borrower, Lenders and Agent wish to extend the maturity date under the Loan Agreement to December 1, 2009 and amend the Loan Agreement in certain other respects, all on the terms and conditions hereinafter set forth.

NOW, THEREFORE, in consideration of the foregoing and the mutual covenants herein contained, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties signatory hereto agree as follows:

1. Definitions. Except as otherwise defined in this Second Amendment, terms defined in the Loan Agreement are used herein as defined therein.

2. Amendments. Subject to the satisfaction of the conditions precedent specified in Section 4 below, but effective as of the date hereof, the Loan Agreement shall be amended as follows:

(a) In order to give effect to the extension of the Maturity Date,

(i) the first sentence of Section 1.1 of the Loan Agreement shall be amended to read in its entirety as follows:

"1.1. Recitals; Maximum Line Commitment. The Borrower wishes to establish a revolving credit facility (the "Line of Credit") with the Lenders in an aggregate principal amount at any one time outstanding not in excess of Twenty Million Dollars (\$20,000,000) (the "Maximum Line Commitment"), to expire December 1, 2009 (the "Maturity Date");" and

(ii) the definition of Maturity Date appearing in Section 9 of the Loan Agreement is hereby amended by deleting such definition in its entirety, and inserting in lieu thereof the following:

"Maturity Date: has the meaning specified in subsection 1.1."

(b) Section 1.2(b) Mechanics of Revolving Credit Loans is hereby deleted in its entirety and the following is inserted in lieu thereof:

(b) Mechanics of Revolving Credit Loans. Each Revolving Credit Loan shall be made by the Lenders, severally in accordance with their respective Commitments and in such amounts (not in excess of the Maximum Line Commitment) as the Borrower shall request. Revolving Credit Loans shall be effected at the principal banking office of the Agent at 40 Water Street, Boston, Massachusetts 02109-3661, and shall be made at such times as the Borrower may request upon one (1) Banking Day's prior notice to the Agent in the case of any borrowing for which interest is calculated using the Base Rate (collectively, "Base Rate Loans") and three (3) Banking Days' prior notice in the case of any borrowing (x) for which interest is calculated using the LIBOR Rate (collectively, "LIBOR Portions") or (y) which is borrowing in Eurocurrency. Each borrowing request for the Revolving Credit Loans which are not in Eurocurrency shall be in the form attached hereto as Exhibit E (the "Borrowing Request"). Each borrowing request for a Eurocurrency Loan ("Eurocurrency Borrowing Request") shall be in the form required in Section 1.2(d)(2) below. Each Borrowing Request and each Eurocurrency Borrowing Request may be sent to the Agent by facsimile. The Lenders will use their best efforts to fund requests for Revolving Credit Loans on the Banking Day requested by the Borrower in accordance with the terms hereof. In the event that notwithstanding its best efforts, the Lenders are unable to fund a requested Revolving Credit Loan on the Banking Day requested by the Borrower in accordance with the terms hereof, the Lenders shall have no liability whatsoever for such failure to fund on the requested Banking Day and will fund such Revolving Credit Loan (a) on the next Banking Day in the case such Revolving Credit Loan accrues interest based upon the Base Rate or the LIBOR Rate and (b) if possible on the next Banking Day in the case of Eurocurrency Loans. The Lenders shall make each Revolving Credit Loan which is not a Eurocurrency Loan hereunder by crediting the amount of such Revolving Credit Loan to the Borrower's operating account (Account No. 8142333) with the Agent (together with any other account from time to time designated by the Borrower for the purpose of effecting Revolving Credit Loans, the "Operating Account"). The Lenders shall make each Revolving Credit Loan which is a Eurocurrency Loan hereunder by crediting the amount of such Eurocurrency Loan, in the Eurocurrency requested, to the applicable Eurocurrency demand deposit account with the Agent.

(c) Section 1.2 Revolving Credit Loans; Reborrowings; Compliance Certificates is hereby amended by adding the following section:

(d) Eurocurrency Borrowings:

(1) Subject to the terms and conditions set forth herein, the Lenders severally agree to make Eurocurrency Loans, from time to time, to the Borrower as provided in Section 1.2(d)(2), on the applicable Banking Day requested by the Borrower in accordance with the terms hereof, in an aggregate principal amount that when added to the principal outstanding of all other outstanding Revolving Credit Loans made by such Lender, not to exceed at any time outstanding such Lender's Commitment; provided however, that after giving effect to any Eurocurrency Loan, the total principal amount outstanding of all Eurocurrency Loans shall not exceed the Eurocurrency Loan Limit.

(2) For each borrowing in Eurocurrency and each continuation of a borrowing in Eurocurrency the Borrower shall provide to the Agent a Eurocurrency Borrowing Request which shall constitute the Borrower's irrevocable notice to the Agent and shall be appropriately completed and signed by the chief financial officer or other senior officer of the Borrower. A Eurocurrency Borrowing Request may not be given by telephone. Each Eurocurrency Borrowing Request must be received by the Agent not later than 11:00 a.m. Boston time. Each borrowing of or continuation of Eurocurrency Loans shall be in a principal amount of €500,000 or 500,000 Sterling or a whole multiple of €250,000 or 250,000 Sterling in excess thereof. Each Eurocurrency Borrowing Request shall specify (i) whether the Borrower is requesting a Eurocurrency Loan, or a continuation of a Eurocurrency Loan, (ii) the requested date of the borrowing or continuation, as the case may be, (iii) the principal amount of Eurocurrency Loans to be borrowed or continued, (iv) the duration of the Eurocurrency Interest Period with respect thereto and (v) the Eurocurrency requested. If the Borrower fails to give a timely Eurocurrency Borrowing Request requesting a continuation, then the applicable Eurocurrency Loans shall not be continued and at the expiration of the applicable Eurocurrency Interest Period shall become Base Rate Loans. If the Borrower requests a borrowing of, or continuation of, Eurocurrency Loans in any such Eurocurrency Borrowing Request, but fails to specify a Eurocurrency Interest Period, it will be deemed to have specified a Eurocurrency Interest Period of one month. After giving effect to all Eurocurrency Loans and all continuations thereof, there shall not be more than three Eurocurrency Interest Periods in effect with request to Eurocurrency Loans.

(3) The Borrower may, upon written notice ("Eurocurrency Notice of Prepayment") to the Agent, at any time or from time to time voluntarily prepay Eurocurrency Loans, in whole or in part, without premium or penalty, provided that (i) such notice must be received by the Agent not later than 11:00 a.m. Boston time and shall specify the date and the amount of such prepayment three Banking Days prior to any date of prepayment; and (ii) any prepayment shall be in a principal amount of €500,000 or 500,000 Sterling or a whole multiple of €250,000 or 250,000 Sterling in excess thereof or, if less, the entire principal amount thereof then outstanding; provided, further that that if a Eurocurrency Loan is prepaid on any day other than the last day of the Eurocurrency Interest Period applicable thereto, the Borrower shall also pay the Eurocurrency Premium together with all other amounts due therefor under Section 2. If any such Eurocurrency Notice of Prepayment is given, the amount specified in such Eurocurrency Notice of Prepayment shall be due and payable on the date specified therein, together with accrued interest to such date on the amount prepaid and the other amounts required to be paid hereunder at such time in connection therewith.

(d) Section 1.4 Interest; Applicable Margins is hereby deleted in its entirety and the following is inserted in lieu thereof:

1.4 Interest; Applicable Margins.

(a) The Revolving Credit Loans shall bear interest (computed on the basis of the actual number of days elapsed over a 360-day year) on the unpaid principal amount thereof until paid in full at the rate or rates per annum determined as follows:

(i) The per annum rate for any portion of the outstanding principal balance of the Revolving Credit Notes which is not then subject to a LIBOR Option and which is not a Eurocurrency Loan shall be equal to the Applicable Base Rate Margin (as hereinafter defined in subsection 1.4(c)) plus the Base Rate;

(ii) The per annum rate for any LIBOR Portion shall be equal to the Applicable LIBOR Margin (as hereinafter defined in subsection 1.4(c)) plus the LIBOR Rate; and

(iii) The per annum rate for any Eurocurrency Loan shall be equal to the Applicable Eurocurrency Margin (as hereinafter defined in subsection 1.4(c)) plus the Eurocurrency Rate.

(b) Interest on any portion of the Revolving Credit Notes (i) accruing based upon the Base Rate shall be payable monthly in arrears on the first day of each month, commencing on the first such date next succeeding the date of issuance of the Revolving Credit Notes, (ii) accruing based upon the LIBOR Rate shall be payable on the earlier to occur of (x) the last day of the LIBOR Period applicable to such LIBOR Portion or (y) the 90th day of such LIBOR Period, and at maturity (whether by acceleration or otherwise) and (iii) accruing based upon the Eurocurrency Rate shall be payable on the earlier to occur of (x) the last day of the Eurocurrency Interest Period applicable to such Eurocurrency Loan or (y) the 90th day of such Eurocurrency Interest Period, and at maturity (whether by acceleration or otherwise). Each change in the rate of interest payable on any portion of the outstanding principal balance of the Revolving Credit Notes which is not then subject to a LIBOR Option and which is not a Eurocurrency Loan shall take effect simultaneously with the corresponding change in the Base Rate. Notwithstanding anything contained herein or in any other Loan Document to the contrary, in no event shall the amount paid or agreed to be paid by the Borrower as interest on the Revolving Credit Loans exceed the highest lawful rate permissible under any law applicable thereto.

(c) Applicable Margin. For the purpose of this subsection 1.4, the "Applicable Margin" shall be determined as follows:

(i) subject to the provisions of subparagraph (iii) hereof, from and after each Interest Adjustment Date until the next Interest Adjustment Date, the Applicable Margin for Base Rate Revolving Credit Loans (the "Applicable Base Rate Margin"), for Revolving Credit Loans subject to a LIBOR Option (the "Applicable LIBOR Margin") and for Eurocurrency Loans (the "Applicable Eurocurrency Margin") shall be the respective amounts set forth in the following table opposite the

applicable ratio of outstanding Total Funded Debt to Adjusted EBITDA:

<u>Ratio of Outstanding Total Funded Debt to Adjusted EBITDA (for the most recently concluded period of four consecutive fiscal quarters)</u>	<u>Applicable Base Rate Margin</u>	<u>Applicable LIBOR Margin and Applicable Eurocurrency Margin</u>
Greater than or equal to 1.00:1.00 but less than or equal to 2.00:1.00	0%	2.75%
Less than 1.00:1.00	0%	2.50%

(ii) As used herein, the term “Interest Adjustment Date” shall mean (A) the first day of the first month after the date on which each of the quarterly compliance certificates (together with quarterly unaudited financial statements for such quarter) required to be delivered under subsection 5.1 (the “Required Financial Statements”) with respect to the then most recently ended quarter were due, if the foregoing table indicates an upward adjustment of the Applicable Margin, or (B) the later of such date or the first day of the first month after the date that all of the Required Financial Statements for such quarter shall have been received by the Agent, if the foregoing table indicates a downward adjustment of the Applicable Margin.

(iii) The determination of the Applicable Margin hereunder as of any Interest Adjustment Date shall be based on unaudited quarterly financial statements and compliance certificates as provided above, provided, that in the event of any discrepancy between computations based upon any compliance certificates and the related audited financial statements furnished pursuant to subsection 5.1 (the “Audited Financial Statements”) the computation based upon the Audited Financial Statements shall govern (retroactive to the most recent Interest Adjustment Date). In the event of a retroactive correction in the determination of the Applicable Margin in favor of the Lenders, the amount of interest thereby overdue and payable by the Borrower shall be paid to the Agent for the account of each Lender in accordance with and proportionate to such Lender’s Commitment within five (5) Banking Days after the date of such retroactive correction. Notwithstanding any of the foregoing, upon any upward adjustment of the Applicable Margin, there shall be no subsequent downward adjustment of the Applicable Margin until the first day of the first month after the ratio of outstanding Total Funded Debt to Adjusted EBITDA would result in such downward adjustment as of the end of a subsequent fiscal quarter. Notwithstanding anything to the contrary set forth in this Agreement, no downward adjustment of the Applicable Margin

shall occur if, at the time such downward adjustment would otherwise be made, there shall exist any Event of Default, provided that such downward adjustment shall be made on the first day of the first month after the date on which any Event of Default preventing such downward adjustment shall have been cured in accordance with Section 12, assuming that no other Event of Default exists at the time of such downward adjustment.

(e) Section 1.5 Fees (a) Unused Line Fee is hereby amended by adding the following as a last sentence to such section:

“For purposes of such calculation, all Eurocurrency Loans shall be calculated in their Dollar Equivalent”

(f) Section 2 LIBOR Provisions is hereby deleted in its entirety and the following is inserted in lieu thereof:

Section 2. LIBOR Provisions; Eurocurrency Provisions.

2.1 (a) LIBOR Option. Subject to the provisions of this Section 2, the Borrower shall have the right to have the interest on all or any portion of the principal amount of the Revolving Credit Loans based on a LIBOR Rate.

(b) Eurocurrency. All Eurocurrency Loans shall bear interest based on the Eurocurrency Rate.

2.2 Certain Definitions. As used herein, the following terms have the following respective meanings:

“Banking Day”: (i) when used with respect to the LIBOR Option or a Eurocurrency Loan, a day on which dealings may be effected in deposits of US dollars in the London interbank foreign currency deposits market or the purchase of Eurocurrency in the applicable Eurocurrency market and on which banks may conduct business in London, England and Boston, Massachusetts, and (ii) when used with respect to the other provisions of this Agreement, any day excluding Saturday and Sunday and excluding any other day which shall be in Boston, Massachusetts, a legal holiday or a day on which banking institutions are authorized by law to close.

“Eurocurrency Premium”: with respect to the prepayment of any Eurocurrency Loan prior to the end of the Eurocurrency Interest Period applicable thereto, an amount equal to the product of (i) the excess, if any, of the original Eurocurrency Rate on the amount so prepaid over the Eurocurrency Rate of interest on Eurocurrency deposits, for the applicable Eurocurrency, in effect on the date of such prepayment and having a maturity date approximating the last Banking Day of the applicable Eurocurrency Interest Period, multiplied by (ii) the principal amount so prepaid, multiplied by (iii) a fraction, the numerator of which is the number of days remaining in the related Eurocurrency Interest Period and the denominator of which is 360. If the result of clause (i) is less than or equal to zero, there shall be no Eurocurrency Premium.

“Eurocurrency Base Rate”: for any Eurocurrency Interest Period with respect to any Eurocurrency Loan:

(a) the rate per annum equal to the rate determined by the Agent to be the offered rate that appears on page 3750 of the Telerate screen (or any successor thereto) (or such other page of the Telerate as is customary for the Euro or Sterling) that displays an average British Bankers Association Interest Settlement Rate for deposits in Euro (for delivery on the first day of such Interest Period) if a Euro denominated loan and for deposits in Sterling (for delivery on the first day of such Interest Period) if a Sterling denominated loan with a term equivalent to such Interest Period, determined as of approximately 11:00 a.m., London time, two (2) Banking Days prior to the first day of such Eurocurrency Interest Period for a Euro denominated Loan and on the first day of such Eurocurrency Interest Period if a Sterling denominated Loan, or

(b) if the rate referenced in the preceding clause (a) does not appear on such page or service or such page or service shall not be available, the rate per annum equal to the rate determined by the Agent to be the offered rate on such other page or other service that displays an average British Bankers Association Interest Settlement Rate for deposits in Euro (for delivery on the first day of such Interest Period) if a Euro denominated loan and for deposits in Sterling (for delivery on the first day of such Interest Period) if a Sterling denominated loan with a term equivalent to such Eurocurrency Interest Period, determined as of approximately 11:00 a.m., London time, two (2) Banking Days prior to the first day of such Eurocurrency Interest Period for a Euro denominated loan and on the first day of such Eurocurrency Interest Period if a Sterling denominated loan, or

(c) if the rates referenced in the preceding clauses (a) and (b) are not available, the rate per annum determined by the Agent as the rate of interest at which deposits in Euro or Sterling, as the case may be, for delivery on the first day of such Eurocurrency Interest Period in the same day funds in the approximate amount of the Eurocurrency Loan being made, continued or converted by the Agent and with a term equivalent to such Eurocurrency Interest Period that would be offered to the Agent for the applicable Eurocurrency in the London interbank Eurocurrency market at its request at approximately 11:00 a.m., London time, two (2) Banking Days prior to such Eurocurrency Interest Period for a Euro denominated loan and on the first day of such Interest Period if a Sterling denominated loan.

“Eurocurrency Rate”: for any Eurocurrency Interest Period with respect to any Eurocurrency Loan, a rate per annum determined by the Agent pursuant to the following formula:

$$\frac{\text{Eurocurrency Base Rate}}{1.00 - \text{Eurocurrency Reserve Percentage}}$$

The determination of the Eurocurrency Rate by the Agent shall be conclusive in the absence of manifest error.

“Eurocurrency Reserve Percentage”: for any day during any Eurocurrency Interest Period, the reserve percentage (expressed as a decimal, carried out to five decimal places) in effect on such day, whether or not applicable to any Lender, under regulations issued from time to time by the FRB (or any other Governmental Authority having jurisdiction with respect thereto) for determining the maximum reserve requirement (including any emergency, supplemental or other marginal reserve requirement) with respect to eurocurrency funding (currently referred to as “Eurocurrency liabilities”). The Eurocurrency Rate for each outstanding Eurocurrency Loan shall each be adjusted automatically as of the effective date of any change in the Eurocurrency Reserve Percentage. The determination of the Eurocurrency Reserve Percentage by the Agent shall be conclusive in the absence of manifest error.

“Eurocurrency Interest Period”: means as to each Eurocurrency Loan the period commencing on the date such Eurocurrency Loan is disbursed or converted to or continued as a Eurocurrency Loan, and ending on the date 30, 60 or 90 days thereafter, as selected by the Borrower in its Eurocurrency Borrowing Request, provided that:

(i) any Eurocurrency Interest Period that would otherwise end on a day that is not a Banking Day shall be extended to the next succeeding Banking Day unless, in the case of a Eurocurrency Loan such Banking Day falls in another calendar month, in which case such Eurocurrency Interest Period shall end on the next preceding Banking Day;

(ii) any Eurocurrency Interest Period pertaining to a Eurocurrency Loan that begins on the last Banking Day of a calendar month (or on a day for which there is no numerically corresponding day in the calendar month at the end of such Eurocurrency Interest Period) shall end on the last Banking Day of the calendar month at the end of such Eurocurrency Interest Period; and

(iii) no Eurocurrency Interest Period shall extend beyond the Maturity Date.

“FRB” means the Board of Governors of the Federal Reserve System of the United States.

“Legal Requirement”: any requirement imposed upon the Agent or any Lender by any law of the United States of America or the United Kingdom or by any regulation, order, interpretation, ruling or official directive (whether or not having the force of law) of the Board, the Bank of England or any other board, central bank or governmental or administrative agency, institution or authority of the United States of America, the United Kingdom or any political subdivision of either thereof.

Lender Tax: in relation to any LIBOR Portion and any Eurocurrency Loan and the applicable LIBOR Rate or Eurocurrency Rate, any tax, levy, impost, duty, deduction, withholding or other charges of whatever nature required by any Legal Requirement (i) to be paid by the Lenders and/or (ii) to be withheld or deducted from any payment otherwise required hereby to be made by the Borrower to the Lenders, provided that the term “Lender Tax” shall not include any taxes imposed upon the net

income of the Lenders by the United States of America, the United Kingdom, any Participating Member States, or any political subdivision of any of the foregoing.

“LIBOR Option”: the option granted pursuant to this Section 2 to have the interest on all or any portion of the principal amount of the Loans based on a LIBOR Rate.

“LIBOR Period”: any period, selected as provided below in this Section 2, of 30, 60 or 90 days, commencing on any Banking Day; provided, however, that no LIBOR Period with respect to any LIBOR Portion shall extend beyond the Maturity Date. At the commencement of the LIBOR Period, the Agent shall notify the Borrower of the termination date of such LIBOR Period. If any LIBOR Period so selected would otherwise end on a date which is not a Banking Day, such LIBOR Period shall instead end on the next preceding or succeeding Banking Day as determined by the Agent in accordance with the then current banking practice in London. Each determination by the Agent of any LIBOR Period shall, in the absence of manifest error, be conclusive, and at the Borrower’s request the Agent shall demonstrate the basis for such determination.

“LIBOR Portion”: that portion of the Revolving Credit Loans specified in a LIBOR Request (including any portion of such Revolving Credit Loans which are being borrowed by the Borrower concurrently with such LIBOR Request) which is not less than \$100,000 and is an integral multiple of \$100,000, and which, as of the date of the LIBOR Request specifying such LIBOR Portion, has met the conditions for basing interest on the LIBOR Rate in subsection 2.3 hereof and the LIBOR Period of which has commenced and not terminated.

“LIBOR Premium”: With respect to the prepayment of any LIBOR Portion of any Revolving Credit Loans prior to the end of the applicable LIBOR Period, an amount equal to the product of (i) the excess, if any, of the original LIBOR Rate on the amount so prepaid over the LIBOR Rate of interest on Eurodollar deposits in effect on the date of such prepayment and having a maturity date approximating the last Banking Day of the applicable LIBOR Period, multiplied by (ii) the principal amount so prepaid, multiplied by (iii) a fraction, the numerator of which is the number of days remaining in the related LIBOR Period and the denominator of which is 360. If the result of clause (i) is less than or equal to zero, there shall be no LIBOR Premium.

“LIBOR Rate”: with respect to any LIBOR Portion for the related LIBOR Period, an interest rate per annum (rounded upwards, if necessary, to the next higher 1/8 of 1%) equal to the product of (a) the Base LIBOR Rate (as hereinafter defined) and (b) Statutory Reserves. For purposes of this definition, the term “Base LIBOR Rate” shall mean the rate (rounded to the nearest 1/8 of 1% or, if there is no nearest 1/8 of 1%, the next higher 1/8 of 1%) at which deposits of US dollars approximately equal in principal amount to the LIBOR Portion and for a maturity equal to the applicable LIBOR Period are offered to the Agent in the London interbank foreign currency deposits market at approximately 11:00 a.m., London time (or, if such rate is not then offered to the Agent, at the rate (rounded as provided above) at which deposits of US dollars approximately equal in

principal amount to the LIBOR Portion and for a maturity equal to the applicable LIBOR Period are offered on the Telerate (page 3750) or any successor page), three (3) Banking Days prior to the commencement of such LIBOR Period, for delivery on the first day of such LIBOR Period. Each determination by the Agent of any LIBOR Rate shall, in the absence of manifest error, be conclusive, and at the Borrower's request, the Agent shall demonstrate the basis for such determination. Promptly upon determining the LIBOR Rate for an applicable LIBOR Period, the Agent shall give written notice of such LIBOR Rate to the Borrower and, if requested by the Borrower, shall provide reasonable details demonstrating the basis for such LIBOR Rate determination.

"LIBOR Request": notice in writing (or by telephonic communication confirmed by telex, telecopy or other facsimile transmission on the same day as the telephone request) from the Borrower to the Agent requesting that interest on a LIBOR Portion be based on the LIBOR Rate, specifying: (i) the first day of the LIBOR Period, (ii) the length of the LIBOR Period consistent with the definition of that term, and (iii) a dollar amount of the LIBOR Portion consistent with the definition of that term.

"Statutory Reserves": a fraction (expressed as a decimal), the numerator of which is the number one and the denominator of which is the number one minus the aggregate of the maximum reserve percentages (including, without limitation, any marginal, special, emergency or supplemental reserves), expressed as a decimal, established by the Board and any other banking authority to which any Lender is subject for Eurocurrency Liabilities (as defined in Regulation D of the Board). Such reserve percentages shall include, without limitation, those imposed under such Regulation D. LIBOR Portions of the Revolving Credit Loans shall be deemed to constitute Eurocurrency Liabilities and as such shall be deemed to be subject to such reserve requirements without benefit of or credit for proration, exceptions or offsets which may be available from time to time to the Lenders under such Regulation D. Statutory Reserves shall be adjusted automatically on and as of the effective date of any change in any reserve percentage.

2.3 Conditions for Basing Interest on the LIBOR Rate or the Eurocurrency Rate. Upon the condition that:

(a) The Agent shall have received a LIBOR Request or a Eurocurrency Borrowing Request, as applicable, from the Borrower, at least three (3) Banking Days prior to the first day of the applicable LIBOR Period or the Eurocurrency Interest Period requested, as applicable;

(b) There shall have occurred no change in applicable law which would make it unlawful for the Agent to obtain deposits of US dollars in the London interbank foreign currency deposits market with respect to any request for a LIBOR Portion or to obtain Eurocurrency in any applicable Eurocurrency market with respect to any Eurocurrency Loan;

(c) As of the date of the LIBOR Request or the Eurocurrency Borrowing Request, as applicable, and the first day of the LIBOR Period or the Eurocurrency Interest Period, as applicable, there shall exist no Default or Event of Default; and

(d) The Agent shall not have determined in good faith that it is unable to determine the LIBOR Rate or the Eurocurrency Rate, as applicable, in respect of the requested LIBOR Period or in respect of the requested Eurocurrency Interest Period, as applicable, or that it is unable to obtain deposits of US dollars in the London interbank foreign currency deposits market or obtain Eurocurrency, as applicable, in the applicable amounts and for the requested LIBOR Period or the Eurocurrency Interest Period; then the interest on the LIBOR Portion specified in the LIBOR Request during the LIBOR Period specified in the LIBOR Request will be based on the applicable LIBOR Rate or the interest on the Eurocurrency Loan specified in the Eurocurrency Borrowing Request during the Eurocurrency Interest Period specified in the Eurocurrency Borrowing Request will be based on the applicable Eurocurrency Rate.

2.4 Indemnification for Funding and Other Losses. Each LIBOR Request and each Eurocurrency Borrowing Request shall be irrevocable and binding on the Borrower, provided that the Borrower may specify in any such LIBOR Request a maximum LIBOR Rate which they will accept for the related LIBOR Period and the LIBOR Option elected in such LIBOR Request shall not become effective if the applicable LIBOR Rate determined by the Agent shall exceed such specified maximum. Without limiting the generality of subsection 2.5, the Borrower hereby agrees to indemnify the Agent and Lenders against any loss or expense incurred by the Agent or any Lender as a result of any failure on the part of the Borrower (so long as such failure is through no fault of the Agent or Lenders) to fulfill, on or before the date specified in any LIBOR Request or any Eurocurrency Borrowing Request, as applicable, the applicable conditions set forth in this Agreement, including, without limitation, any loss (including loss of anticipated profits) or expense incurred by reason of the liquidation or redeployment of deposits or other funds acquired by the Agent or any Lender to fund or maintain the requested LIBOR Portion or any Eurocurrency Loan when interest on such LIBOR Portion or Eurocurrency Loan, as applicable, as a result of such failure on the part of the Borrower, is not based on the applicable LIBOR Rate or Eurocurrency Rate, as applicable, for the requested LIBOR Period or Eurocurrency Interest Period.

2.5 Change in Applicable Laws, Regulations, etc. If any Legal Requirement shall make it unlawful for any Lender to fund through the purchase of US dollar deposits any LIBOR Portion or to fund by obtaining the applicable Eurocurrency, or otherwise to give effect to its obligations as contemplated hereby, or shall impose on any Lender any costs based on or measured by the excess above a specified level of the amount of a category of deposits or other liabilities of any Lender which includes deposits by reference to which the LIBOR Rate or the Eurocurrency Rate is determined as provided herein or a category of extensions of credit or other assets of any Lender which includes any LIBOR Portion or any Eurocurrency Loan or shall impose on any Lender any restrictions on the amount of such a category of liabilities or assets which such Lender may hold, (a) the Lenders by notice thereof to the Borrower may terminate the LIBOR Option or the Borrower's ability to borrow Eurocurrency, as applicable, (b) any LIBOR Portion or any Eurocurrency Loan subject thereto shall immediately bear interest thereafter at the rate provided for (with respect to Revolving Credit Loans not subject to a LIBOR Option or which is not a Eurocurrency Loan) in subsection 1.4, and (c) the Borrower shall indemnify the Lenders against any loss, penalty or expense incurred by the Lenders by reason of the liquidation or redeployment of deposits or other funds acquired by the Lenders, to fund or maintain such LIBOR Portion or such Eurocurrency Loan, as applicable, if and to

the extent such loss, penalty or expense is caused by the nature of the business of the Borrower and its Subsidiaries or the locations and jurisdictions where the Borrower or its Subsidiaries are operating. Promptly after becoming aware of the occurrence of any event or condition described in this subsection 2.5, the affected Lender(s) shall give written notice thereof to the Borrower and shall provide reasonable details setting forth the basis for its determination and such other information as shall be reasonably requested by Borrower to confirm the affected Lenders' determination and computations. A certificate of an officer of such Lender setting forth the amount of such loss, penalty or expense, and the basis therefor shall, in the absence of manifest error, be conclusive.

2.6 Lender Taxes. It is the understanding of the Borrower and the Lenders that the Lenders shall receive payments of amounts of principal of and interest on the Notes (including but not limited to interest with respect to the LIBOR Portions from time to time subject to a LIBOR Option or any Eurocurrency Loan) free and clear of, and without deduction for, any Lender Taxes. If (a) any Lender shall be subject to any such Lender Tax in respect of any such LIBOR Portion or Eurocurrency Loan or part thereof or (b) the Borrower shall be required to withhold or deduct any such Lender Tax from any such amount, and (c) such Lender Tax shall not have existed as of the date of the applicable LIBOR Request or Eurocurrency Borrowing Request, the LIBOR Rate applicable to such LIBOR Portion and the Eurocurrency Rate applicable to such Eurocurrency Loan, as applicable, shall be adjusted by any such Lender to reflect all additional costs incurred by such Lender in connection with the payment by such Lender or the withholding by the Borrower of such Lender Tax and the Borrower shall provide each such Lender with a statement detailing the amount of any such Lender Tax actually paid by the Borrower. Determination by any affected Lender of the amount of such costs shall, in the absence of manifest error, be conclusive. Promptly upon obtaining knowledge of any such circumstance set forth above, the Lender shall give written notice of such determination to the Borrower and shall provide reasonable details and facts demonstrating the basis for its determination and shall provide such other information as shall be reasonably requested by the Borrower to permit the Borrower to confirm Lender's computations and determination. If after any such adjustment, any part of any Lender Tax paid by a Lender is subsequently recovered by such Lender, the Lender shall reimburse the Borrower to the extent of the amount so recovered. A certificate of an officer of the Lender setting forth the amount of such recovery and the basis therefor shall, in the absence of manifest error, be conclusive, and at the Borrower's request, the Lender shall demonstrate the basis of such determination.

(g) Section 3.11 of the Loan Agreement is hereby amended by deleting the following sentence in its entirety:

"No consent of stockholders of the Borrower is necessary in order to authorize the execution, delivery or performance of this Agreement or the Loan Documents, or the issuance of the Notes other than those consents which have been obtained as of the Closing Date."

(h) Subsection 6.1(f) is hereby amended by deleting the text therein contained and inserting the following in lieu thereof:

"(f) Indebtedness in respect of promissory notes issued in connection with any Permitted Acquisition and secured as permitted by subparagraph (k) of subsection 6.2;"

(i) Subsection 6.3 is hereby amended by adding the following subsection (k):

“(k) Usual and customary indemnification agreements in any purchase and sale agreement and in any other usual and customary agreement, document or instrument executed with respect to the disposition of the Capital Equipment Business Segment.”

(j) Subsection 6.8 of the Loan Agreement is hereby amended by adding the following thereto:

“Notwithstanding the foregoing, the Agent and Lenders consent to the sale by the Borrower and its Subsidiaries of its Capital Equipment Business Segment, provided, that the following conditions are each satisfied on the date of such sale:

(i) all cash proceeds of such sale are used by the Borrower to prepay Revolving Credit Loans as required by subsection 5.10;

(ii) the sale is closed on or before March 31, 2007;

(iii) the sale is an asset sale for which the Borrower incurs no liabilities other than usual and customary indemnification arrangements in any purchase and sale agreement and in any other usual and customary document, agreement or instrument executed with respect to the disposition of the Capital Equipment Business Segment;

(iv) there are cash proceeds derived from such sale; and

(v) such sale is on an arms length basis for fair market value.

The Agent, the Lenders and the Borrower hereby agree that the proceeds of the sale of the Capital Equipment Business Segment shall not be included in the \$2,000,000 sale, lease and other dispositions permitted under section 6.8(d) hereof.”

(k) Amendment to Subsection 6.17(A). Subsection 6.17(A) of the Loan Agreement is hereby amended by deleting “thirty (30)” appearing therein and inserting in lieu thereof “twenty (20)”.

(l) Section 7.2 of the Loan Agreement shall be amended to read in its entirety as follows:

“7.2. Minimum Fixed Charge Coverage Ratio. As of the last day of any fiscal quarter, the Borrower will not permit the ratio of (a) consolidated Adjusted EBITDA of the Borrower and its Subsidiaries for the four-quarter period ending on the last day of such fiscal quarter, minus aggregate cash capital expenditures for the four-quarter period ending on the last day of such fiscal quarter, minus cash taxes paid and minus amounts paid in connection with any stock buy back program for the four-quarter period ending on the last day such fiscal quarter, to (b) the current portion of Funded Debt as of the last day of such fiscal quarter, plus (without duplication) Interest Expense for such four-quarter period ending on the last day of such fiscal quarter to be less than 1.5:1.0.”

(m) Amendment to Subsection 7.3. Subsection 7.3 of the Loan Agreement is hereby amended by deleting the first paragraph thereof (i.e., everything from the caption to “Eligible Accounts”) in its entirety, and inserting in lieu thereof the following:

“Minimum Working Capital. As of the last day of any fiscal quarter, the Borrower will not permit its Working Capital to be less than the aggregate outstanding principal balance of the Revolving Credit Loans. As used herein, the term “Working Capital” means an amount equal to the sum of (i) one hundred percent (100%) of the Borrower’s and its Subsidiaries’ cash and cash equivalents on deposit, plus (ii) eighty-five percent (85%) of the Borrower’s and its Subsidiaries’ Eligible Accounts (as defined below) plus (iii) the lesser of (a) an amount equal to forty percent (40%) of the Borrower’s and its Subsidiaries’ Eligible Inventory (as defined below) and (b) \$8,500,000. For purposes of computing Working Capital hereunder after application of the forty percent (40%) formula as set forth in clause (iii) above, the Borrower shall not include more than \$4,250,000 of Eligible Inventory maintained at any one warehouse, distribution center or other real property leased by the Borrower or any Subsidiary in the calculation thereof. As used herein:”

(n) Section 9 of the Loan Agreement shall be amended by adding the following subsection (i):

“and (i) for purposes of calculating the financial covenants and of determining any amounts outstanding under Section 1 and 2 hereof, all Eurocurrency Loans shall be calculated in their Dollar Equivalent.”

(o) Section 9 of the Loan Agreement shall be amended by adding the following new definitions (to the extent not already included in said Section 9) and inserting the same in the appropriate alphabetical order and amending in their entirety the following definitions (to the extent already included in said Section 9):

“Adjusted EBITDA: means for any period, EBITDA for such period after adjusting for (a) non-cash stock compensation expense, (b) restructuring charges related to Permitted Acquisitions contemplated at the time of such Permitted Acquisition and mutually agreed upon by the Borrower and the Agent, (c) acquired in-process research and development expense, (d) fair value

adjustments resulting from purchase price allocation related to Permitted Acquisitions and (e) other non-recurring exceptional items of income or expense mutually agreed upon by the Borrower and the Agent including non-cash expenses related to discontinuing the operations of the Borrower's and/or its Subsidiaries Capital Equipment Business Segment. For any period after the commencement of which the Borrower or any of its Subsidiaries shall have (x) consummated the acquisition of a Person (or part thereof) in a Permitted Acquisition in accordance with Section 6.17(A) or (y) made the disposition of the Capital Equipment Business Segment, EBITDA shall be determined on a pro forma basis as if (i) such Person (or part thereof) was acquired or (ii) such disposition was made at the beginning of such period and after giving effect to any adjustments (including, without limitation, operating and expense reductions and other synergistic benefits) acceptable to the Agent; provided that the Borrower shall have delivered to the Lenders acceptable financial statements of any such Person (or part thereof) referred to in (x) above."

"Board" the Board of Governors of the Federal Reserve System of the United States.

"Capital Equipment Business Segment" the business of developing, manufacturing, selling and marketing large scientific instruments engaged in by the Borrower and the following Subsidiaries: Genomic Solutions Inc. (US), Genomic Solutions Acquisitions Inc (US), Genomic Solutions Limited (UK), Genomic Solutions Acquisition Limited (UK), Cartesian Technologies Inc (US), Cartesian Technologies Europe Limited (UK), Genomic Solutions CAD Inc (US), Genomic Solutions Canada, Union Biometrica Inc (US), Union Biometrica GmbH (Germany), and MAIA Scientific NV(Belgium).

"Dollar Equivalent" for any amount, at the time of determination thereof, (a) if such amount is expressed in Dollars, such amount, (b) if such amount is expressed in Euro, the equivalent of such amount in Dollars determined by using the rate of exchange quoted by the Agent in London at 11:00 a.m. London time, on the date of determination, to major banks in London for the spot purchase in the London foreign exchange market of such amount of Dollars with Euro, and (c) if such amount is expressed in Sterling, the equivalent of such amount in Dollars determined by using the rate of exchange quoted by the Agent in London at 11:00 a.m. London time, on the date of determination, to major banks in London for the spot purchase in the London foreign exchange market of such amount of Dollars with Sterling.

"Euro" the single currency of the Participating Member States.

"Eurocurrency" Euro or Sterling.

"Eurocurrency Loan(s)" a loan denominated in Eurocurrency.

"Eurocurrency Borrowing Request" a written request for (a) a Eurocurrency borrowing or (b) the continuation of a Eurocurrency Loan pursuant to Section 1.2(d), which, if in writing, shall be substantially in the form of Exhibit 1.2(d)(2).

“Eurocurrency Loan Limit” a Dollar Equivalent of up to \$10,000,000 of Eurocurrency Loans. The Eurocurrency Loan Limit is part of, and not in addition to, the Maximum Line Commitment.

“Eurocurrency Notice of Prepayment” See Section 1.2(d)(3).

“First Amendment” The First Amendment dated as of March 14, 2006 among the Borrower, the Lenders party thereto and the Agent.

“Loan Documents” shall mean collectively, this Agreement, the Notes, the Pledge Agreement, the Subsidiary Guaranties, the First Amendment, the Second Amendment and any and all financing statements, agreements, instruments and certificates now or hereafter related hereto or thereto or executed in connection herewith or therewith, all as amended from time to time.

“Participating Member States” means the member states of the European Communities that adopt or have adopted the Euro as their lawful currency in accordance with the legislation of the European Union relating to the European Monetary Union.

“Second Amendment” The Second Amendment dated as of December 1, 2006 among the Borrower, the Lenders party thereto and the Agent.

“Sterling” means pounds sterling as lawful currency of the United Kingdom of Great Britain and Northern Ireland.

(p) Schedules 3.2, 3.8, 3.9, 3.10, 3.13, 3.16, 3.21, 3.24, 3.26 and 3.27 to the Loan Agreement shall be deleted and replaced in its/their entirety with such corresponding Schedules attached hereto.

3. Representations and Warranties. The Borrower represents and warrants to the Lenders that the representations and warranties of the Borrower and its Subsidiaries set forth in the Loan Agreement and in each other Loan Document are true and correct in all material respects on the date hereof as if made on and as of the date hereof and as if each reference therein to “this Agreement” or the “Loan Agreement” or the like included reference to this Second Amendment and the Loan Agreement as amended hereby (except to the extent that such representations and warranties expressly relate to an earlier date or are affected by the consummation of transactions permitted under the Loan Agreement, and except that references to financial statements shall be deemed to refer to the most recent audited financial statements delivered to the Agent pursuant to Section 5.1(a) of the Loan Agreement).

4. Conditions Precedent. The amendments to the Loan Agreement set forth in Section 2 hereof and the limited waiver provided in Section 10 hereof, shall become effective, as of the date hereof, upon satisfaction of the following conditions precedent:

(a) The Agent shall have received the following documents, each of which shall be satisfactory to the Agent in form and substance:

(i) This Second Amendment, duly executed by each of the parties hereto and duly acknowledged by each Subsidiary organized under the laws of any state of the United States of America.

(ii) Certified copies of the charter and bylaws (or equivalent documents) of the Borrower and each Subsidiary organized under the laws of any state of the United States of America thereof (or, in the alternative, a certificate to the effect that none of such documents has been modified since delivery thereof on the Closing Date pursuant to the Loan Agreement) and of all corporate (or equivalent) authority for the Borrower (including without limitation, board of director resolutions or equivalent authorization and evidence of the incumbency of officers for the Borrower) with respect to the execution, delivery and performance of this Second Amendment, the Loan Agreement as amended hereby and the other Loan Documents and the transactions contemplated by the Loan Agreement as amended hereby and the other Loan Documents.

(iii) A certificate dated as of the date hereof, signed by the Chief Executive Officer, Chief Financial Officer or such other executive officer of the Borrower as may be reasonably acceptable to the Agent, to the effect set forth in Sections 4(b), (c) and (d) hereof.

(iv) Reserved.

(v) Such other documents as the Agent or any Lender may reasonably request.

(b) The representations and warranties in Section 3 hereof shall be true and correct in all material respects.

(c) No Default or Event of Default shall have occurred and be continuing on the date hereof, nor shall any Default or Event of Default result from the consummation of the transactions contemplated herein.

(d) Since the date of the most recently delivered audited financial statements of the Borrower and its Subsidiaries, no event or condition shall have occurred or exist which is reasonably likely to have a Material Adverse Effect.

(e) The Borrower shall have paid to the Agent, for account of the Lenders on a *pro rata* basis, an amendment fee in an aggregate amount of \$30,000.

(f) The Borrower shall have paid in full all invoiced costs and expenses (including reasonable attorneys' fees) incurred on behalf of the Agent in connection with this Second Amendment.

5. Effect on Loan Documents. The Loan Agreement (as amended hereby) and the other Loan Documents (as amended on the date hereof) shall be and remain in full force and effect in accordance with their terms and hereby are ratified and confirmed in all respects. Except as expressly set forth herein or in any amendment to any other Loan Document executed or delivered on the date hereof, the execution, delivery, and performance of this Second Amendment shall not operate as a waiver or an amendment of any

right, power, or remedy of the Agent or any Lender under the Loan Agreement or any other Loan Document, as in effect prior to the date hereof. Each of the Borrower and each Subsidiary thereof hereby ratifies and confirms in all respects all of its obligations and any prior grant of a security interest under the Loan Agreement (as amended hereby) and the other Loan Documents to which it is a party.

6. No Novation; Entire Agreement. This Second Amendment evidences solely the amendment of the terms and provisions of the obligations of the Borrower and its Subsidiaries under the Loan Documents and is not a novation or discharge thereof. There are no other understandings, express or implied, among the Borrower, its Subsidiaries, the Agent and the Lenders regarding the subject matter hereof or thereof.

7. Choice of Law. The validity of this Second Amendment, its construction, interpretation and enforcement, and the rights of the parties hereunder, shall be determined under, governed by, and construed in accordance with the laws of The Commonwealth of Massachusetts without regard to conflicts of laws principles.

8. Counterparts; Facsimile Execution. This Second Amendment may be executed in any number of counterparts and by different parties and separate counterparts, each of which when so executed and delivered shall be deemed an original, and all of which, when taken together, shall constitute one and the same instrument. Delivery of an executed counterpart of a signature page to this Second Amendment by facsimile shall be as effective as delivery of a manually executed counterpart of this Second Amendment. Any party delivering an executed counterpart of this Second Amendment by facsimile also shall deliver a manually executed counterpart of this Second Amendment but the failure to deliver a manually executed counterpart shall not affect the validity, enforceability, and binding effect of this Second Amendment.

9. Construction. This Second Amendment is a Loan Document. This Second Amendment and the Loan Agreement shall be construed collectively and in the event that any term, provision or condition of any of such documents is inconsistent with or contradictory to any term, provision or condition of any other such document, the terms, provisions and conditions of this Second Amendment shall supersede and control the terms, provisions and conditions of the Loan Agreement. Upon and after the effectiveness of this Second Amendment, each reference in the Loan Agreement to “this Agreement”, “hereunder”, “herein”, “hereof” or words of like import referring to the Loan Agreement, and each reference in the other Loan Documents to “the Loan Agreement”, “thereunder”, “therein”, “thereof” or words of like import referring to the Loan Agreement, shall mean and be a reference to the Loan Agreement as modified and amended hereby and by the First Amendment.

10. Limited Waiver. Section 5.2 of the Loan Agreement requires the Borrower to, among other things, maintain the existence and business of each of its Subsidiaries. The Borrower permitted the dissolution of its Subsidiary, Genomic Solutions KK (“Genomic”) which action caused an Event of Default to occur. The Agent and the Lenders hereby waive the occurrence of the Event of Default which arose from the dissolution of Genomic. By the Agent and the Lenders providing the foregoing waiver, they are not agreeing to provide any waivers for any other Event of Default in the future.

IN WITNESS WHEREOF, the parties hereto have caused this Second Amendment to be executed as of the date first above written.

HARVARD BIOSCIENCE, INC.

By: /s/ Bryce Chicoyne

Name: Bryce Chicoyne

Title: CFO

BROWN BROTHERS HARRIMAN & CO.,
as a Lender and as Agent for the Lenders

By: /s/ Robert D. Hazard

Name: Robert D. Hazard

Title: Vice President

BANK OF AMERICA, N.A.
as successor to

FLEET NATIONAL BANK,
as a Lender

By: /s/ Peter McCarthy

Name: Peter McCarthy

Title: SVP

ACKNOWLEDGED:

HBIO SECURITIES CORP.

By: /s/ Bryce Chicoyne
Name: Bryce Chicoyne
Title: Assistant Secretary

HOEFER, INC.

By: /s/ Bryce Chicoyne
Name: Bryce Chicoyne
Title: Assistant Secretary

WARNER INSTRUMENTS LLC

By: /s/ Bryce Chicoyne
Name: Bryce Chicoyne
Title: Assistant Secretary

KD SCIENTIFIC, INC.

By: /s/ Bryce Chicoyne
Name: Bryce Chicoyne
Title: Assistant Secretary

UNION BIOMETRICA, INC.

By: /s/ Bryce Chicoyne
Name: Bryce Chicoyne
Title: Assistant Secretary

GENOMIC SOLUTIONS INC.

By: /s/ Bryce Chicoyne
Name: Bryce Chicoyne
Title: Assistant Secretary

CARTESIAN TECHNOLOGIES, INC.

By: /s/ Bryce Chicoyne
Name: Bryce Chicoyne
Title: Assistant Secretary

GENOMIC SOLUTIONS CANADA, INC.

By: /s/ Bryce Chicoyne
Name: Bryce Chicoyne
Title: Assistant Secretary

HARVARD APPARATUS FSC, INC.

By: /s/ Bryce Chicoyne
Name: Bryce Chicoyne
Title: Assistant Secretary