UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, DC 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): January 12, 2010

Luna Innovations Incorporated

(Exact name of registrant as specified in its charter)

Delaware	**000-52008**	**54-1560050**
(State or other jurisdiction of incorporation)	**(Commission File Number)**	**(IRS Employer Identification No.)**

1 Riverside Circle, Suite 400
Roanoke, Virginia 24016
(Address of principal executive offices, including zip code)

540-769-8400
(Registrant's telephone number, including area code)

(Former name or former address, if changed since last report)

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))

Item 1.01. Entry Into a Material Definitive Agreement.

On January 12, 2010, Luna Innovations Incorporated ("Luna") entered into a Securities Purchase and Exchange Agreement (the "Exchange Agreement") with Carilion Clinic, a Virginia non-profit, non-stock corporation ("Carilion"), in which Carilion agreed to exchange (the "Exchange") all outstanding Senior Convertible Promissory Notes of Luna (the "Convertible Notes") held by Carilion for (i) 1,321,514 newly-issued shares of Series A Convertible Preferred Stock, with a par value of $.001 per share (the "Preferred Stock"), and (ii) a warrant (the "New Warrant") to purchase 356,000 shares of common stock of Luna ("Common Stock") with an exercise price of $2.50 per share. Luna also agreed to reduce the exercise price to $2.50 per share of an existing warrant to acquire 10,000 shares of Common Stock (the "Existing Warrant," and together with the New Warrant, the "Warrants") and to extend the expiration date of such Existing Warrant to December 31, 2020. As of the date of the Exchange, the outstanding principal balance of the Convertible Notes was $5.0 million, and the aggregate balance of accrued interest was $1.2 million. Luna and Carilion consummated the Exchange on January 13, 2010.

In connection with the closing of the Exchange, Luna and Carilion also agreed to amend the existing Amended and Restated Investor Rights Agreement dated December 30, 2005, between such parties to, among other things, provide Carilion certain registration rights with respect to the shares of Common Stock that may be issued upon conversion of the Preferred Stock and upon exercise of the Warrants (as amended, the "IRA").

Carilion is a beneficial owner of Luna's Common Stock, and Edward G. Murphy, M.D. is currently the President and Chief Executive Officer of Carilion and is also a director of Luna.

The foregoing descriptions of the Exchange Agreement, the Existing Warrant, the New Warrant, and the IRA (collectively, the "Transaction Documents"), which are attached hereto as Exhibits 10.1, 10.2, 10.3, and 10.4, respectively, do not purport to be complete, are qualified by the text thereof, and are incorporated herein by reference. The Exchange Agreement, which contains certain representations and warranties by Luna and Carilion, is not intended to provide any other factual information about Luna or Carilion. The assertions embodied in those representations and warranties were made for purposes of the Exchange Agreement and are subject to qualifications and limitations agreed to by the respective parties in connection with negotiating the terms of the Exchange Agreement. In addition, certain representations and warranties were made as of a specific date, may be subject to a contractual standard of materiality different from what might be viewed as material to stockholders, or may have been used for purposes of allocating risk between the respective parties rather than establishing matters as facts. Accordingly, investors should not rely on the representations and warranties in the Exchange Agreement as characterizations of the actual state of facts about Luna or Carilion. Investors should read the Transaction Documents together with all other information that Luna discloses in publicly filed reports and statements with the Securities and Exchange Commission (the "SEC").

Item 3.02 Unregistered Sales of Equity Securities.

See Item 1.01 above, which is incorporated herein by reference, for a summary of the material terms of the Exchange, including the date of sale and the title and amount of securities sold. The Preferred Stock has a stated value per share of $4.69159 (the "Stated Value") with an aggregate liquidation preference of all shares of such Preferred Stock equal to $6.2 million upon issuance (the "Liquidation Preference"). Each share of Preferred Stock is convertible into shares of Common Stock of Luna, initially on a one-to-one basis, based on a conversion rate equal to the quotient of the Stated Value divided by a conversion price per share of $4.69159 (the "Conversion Price"). The Conversion Price is subject to certain customary terms for adjustment, including in the event of any stock splits, consolidations or the like, or the declaration and payment by Luna of stock dividends in respect of the Common Stock. The foregoing terms of conversion are set forth in the Certificate of Designations (as defined in Item 3.03 below). The shares of the Preferred Stock and the Warrants were offered and sold in a transaction exempt from registration pursuant to Sections 3(a)(9) and 4(2) of the Securities Act of 1933, as amended (the "Securities Act"), and Rule 506 of Regulation D as promulgated by the SEC under the Securities Act.

Item 3.03 Material Modification to Rights of Security Holders.

On and effective as of January 12, 2010, Luna amended its current Amended and Restated Certificate of Incorporation (the "Certificate of Incorporation") upon filing a Certificate of Designations with the Secretary of the State of Delaware (the "Certificate of Designations"), which sets forth the rights, preferences and privileges of the Preferred Stock. See Item 1.01 and Item 3.02 above, which are incorporated herein by reference, for a summary of the material terms of the Exchange and of the title, rights, preferences and privileges of the Preferred Stock. The Preferred Stock accrues cumulative dividends for each share of Preferred Stock at a rate of six percent (6%) of the Stated Value per annum. Dividends are payable in shares of Common Stock based on the quotient of the aggregate dollar amount of accrued, unpaid dividends, divided by the Conversion Price. The accrual of dividends is subject to termination upon satisfaction of certain conditions set forth in the Certificate Designations. Other than certain customary protective provisions, the Preferred Stock does not have voting rights. The Preferred Stock with respect to dividends and rights upon liquidation, winding up or dissolution shall rank senior to the Common Stock and to any other series of preferred stock established by Luna's Board of Directors. In the event dividends are declared and paid on the Common Stock (or any other class of capital stock), an equivalent dividend shall be paid on each share of the Preferred Stock. The shares of Common Stock issuable upon conversion of the Preferred Stock have voting and other rights as set forth in Luna's Certificate of Incorporation. The foregoing description of the Certificate of Designations, which is attached hereto as Exhibit 3.1, does not purport to be complete and is qualified by the text thereof and is incorporated herein by reference.

Item 5.03 Amendments to Articles of Incorporation or Bylaws; Change in Fiscal Year.

See Item 3.02 and Item 3.03 above, which are incorporated herein by reference, with respect to the effective date of the amendment of Luna's Certificate of Incorporation, and for a description of the material provisions adopted by such amendment pursuant to the filing of the Certificate of Designations to designate the rights, preferences and privileges of the Preferred Stock.

Forward-Looking Statements

Certain statements in this Current Report on Form 8-K may include information that constitutes "forward-looking statements" made pursuant to the safe harbor provision of the Private Securities Litigation Reform Act of 1995. Statements that describe Luna's business strategy, goals, prospects, opportunities, outlook, plans or intentions, including the potential termination of accrued dividends under the terms set forth in the Certificate of Designations, are also forward looking statements. Actual results may differ materially from the expectations expressed in such forward-looking statements as a result of various factors, including risks and uncertainties set forth in Luna's periodic reports and other filings with the SEC. Such filings are available at the SEC's website at http://www.sec.gov, and at Luna's website at http://www.lunainnovations.com. The statements made in this Current Report on Form 8-K are based on information available to Luna as of the date of this Current Report on Form 8-K and Luna undertakes no obligation to update any of the forward-looking statements after the date of this Current Report on Form 8-K.

Item 9.01. Financial Statements and Exhibits.

(d) Exhibits

Exhibit No.	Description
3.1	Certificate of Designations of the Series A Convertible Preferred Stock.
10.1	Securities Purchase and Exchange Agreement, dated January 12, 2010, by and between Luna Innovations Incorporated and Carilion Clinic.*
10.2	Warrant No. 1, dated January 13, 2010.
10.3	Warrant No. 2, dated January 13, 2010.
10.4	Amended and Restated Investor Rights Agreement, dated January 13, 2010, by and among Luna Innovations Incorporated, Carilion Clinic, and certain stockholders of Luna Innovations Incorporated.

* Schedules and exhibits have been omitted. Luna undertakes to furnish supplemental copies of any of the omitted schedules and exhibits upon request by the Securities and Exchange Commission.

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 hereunto duly authorized.

Luna Innovations Incorporated

By: /S/ TALFOURD H. KEMPER, JR.

Talfourd H. Kemper, Jr.
Vice President and General Counsel

Date: January 14, 2010

EXHIBIT INDEX

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LUNA INNOVATIONS INCORPORATED

CERTIFICATE OF DESIGNATIONS
OF
SERIES A CONVERTIBLE PREFERRED STOCK

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

Luna Innovations Incorporated, a Delaware corporation (the "**Corporation**"), in accordance with the provisions of Section 103 of the Delaware General Corporation Law (the "**DGCL**") does hereby certify that, in accordance with Section 141(c) of the DGCL, the following resolution was duly adopted by the Board of Directors of the Corporation as of January 11, 2010:

RESOLVED, that the Board of Directors of the Corporation pursuant to authority expressly vested in it by the provisions of the Amended and Restated Certificate of Incorporation of the Corporation, hereby authorizes the issuance of a series of Preferred Stock designated as the Series A Convertible Preferred Stock, par value $0.001 per share, of the Corporation and hereby fixes the designation, number of shares, powers, preferences, rights, qualifications, limitations and restrictions thereof (in addition to any provisions set forth in the Certificate of Incorporation of the Corporation which are applicable to the Preferred Stock of all classes and series) as follows:

SERIES A CONVERTIBLE PREFERRED STOCK

1. Designation, Amount and Par Value. The following series of Preferred Stock shall be designated as the Corporation's Series A Convertible Preferred Stock (the "**Series A Preferred Stock**"), and the number of shares so designated shall be 1,321,514. Each share of Series A Preferred Stock shall have a par value of $0.001 per share. The "**Stated Value**" for each share of Series A Preferred Stock shall equal $4.69159.

2. Definitions. In addition to the terms defined elsewhere in this Certificate of Designations the following terms have the meanings indicated:

"**Business Day**" means any day other than Saturday, Sunday, any day which shall be a federal legal holiday in the United States or any day on which banking institutions in The State of New York are authorized or required by law or other governmental action to close.

"**Calendar Quarter**" means each of the following periods: the period beginning on and including January 1 and ending on and including March 31; the period beginning on and including April 1 and ending on and including June 30; the period beginning on and including July 1 and ending on and including September 30; and the period beginning on and including October 1 and ending on and including December 31.

"**Closing Price**" means the last reported publicly traded price of the Corporation's Common Stock at the closing of trading during a Trading Day on the Company's applicable Trading Market.

"**Common Share**" means one share of the Common Stock.

"**Common Stock**" means the common stock of the Corporation, par value $0.001 per share, and any securities into which such common stock may hereafter be reclassified.

"**Conversion Notice**" has the meaning set forth in Section 7.

"**Conversion Price**" means initially $4.69159, subject to adjustment in accordance with Section 9.

"**Conversion Rate**" means, for each share of Series A Preferred Stock, the result of the quotient of (i) the Stated Value, divided by (ii) the Conversion Price.

"**Dividends**" has the meaning set forth in Section 3.

"**Dividend Date**" has the meaning set forth in Section 3.

"**Dividend Rate**" has the meaning set forth in Section 3.

"**Dividend Shares**" has the meaning set forth in Section 3.

"**Equity Conditions**" means, with respect to a specified issuance of Common Stock, that each of the following conditions is satisfied: (i) the number of authorized but unissued and otherwise unreserved shares of Common Stock is sufficient for such issuance; (ii) the Common Stock is listed or quoted (and is not suspended from trading) on the Trading Market and such shares of Common Stock are approved for listing upon issuance; and (iii) the conversion of the Series A Preferred Stock is permitted by the Trading Market and all other applicable laws, rules and regulations.

"**Exchange Act**" means the Securities Exchange Act of 1934, as amended.

"**Fundamental Transaction**" means the occurrence of any of the following in one or a series of related transactions: (i) a merger or consolidation of the Corporation or any Subsidiary or a sale of all or substantially all of the assets of the Corporation in one or a series of related transactions, unless following such transaction or series of transactions, the holders of the Corporation's securities prior to the first such transaction continue to hold at least half of the voting rights or voting equity interests in of the surviving entity or acquirer of such assets; or (ii) a recapitalization, reorganization or other transaction involving the Corporation or any Subsidiary that constitutes or results in a transfer of more than one half of the voting rights or voting equity interests in the Corporation.

"**Holder**" means any holder of Series A Preferred Stock.

"**Junior Securities**" means the Common Stock and all other equity or equity equivalent securities of the Corporation.

"**Liquidation Event**" means (i) any liquidation, dissolution or winding up of the Corporation, either voluntary or involuntary, or (ii) the closing of a Fundamental Transaction.

"**Optional Conversion**" has the meaning set forth in Section 7.

"**Original Issue Date**" means the date of the first issuance of any shares of the Series A Preferred Stock, regardless of the number of transfers of any particular shares of Series A Preferred Stock and regardless of the number of certificates that may be issued to evidence shares of Series A Preferred Stock.

"**Person**" means any individual or corporation, partnership, trust, incorporated or unincorporated association, joint venture, limited liability company, joint stock company, government (or an agency or subdivision thereof) or other entity of any kind.

"**Purchase Agreement**" means the Securities Purchase and Exchange Agreement, dated as of January 12, 2010, between the Corporation and the purchaser of the Series A Preferred Stock, as may be amended from time to time.

"**Registration Rights**" means the registration rights set forth in the Registration Rights Agreement.

"**Registration Rights Agreement**" means the Amended and Restated Investor Rights Agreement dated as of the Original Issue Date, by and among the Corporation, certain stockholders of the Corporation and the purchaser of the Series A Preferred Stock, as may be amended from time to time.

"**Required Holders**" means the Holders of shares of Series A Preferred Stock representing at least a majority of the aggregate shares of Series A Preferred Stock then outstanding.

"**Rule 144**" means Rule 144 promulgated by the Commission pursuant to the Securities Act, as such Rule may be amended from time to time, or any similar rule or regulation hereafter adopted by the Securities and Exchange Commission having substantially the same effect as such Rule.

"**Series A Preferred Stock**" has the meaning set forth in Section 1.

"**Securities**" means, collectively, the Series A Preferred Stock and the Underlying Shares issued or issuable pursuant to the Purchase Agreement.

"**Securities Act**" means the Securities Act of 1933, as amended.

"**Stockholder Approval**" means the approval by the holders of a majority of the Company's Common Stock of the issuance of all the Securities as contemplated by the Transaction Documents.

"**Subsidiary**" means any "significant subsidiary" of the Corporation as defined in Rule 1-02(w) of Regulation S-X promulgated by the Commission.

"**Trading Day**" means (i) a day on which the Common Stock is traded on a Trading Market (other than the OTC Bulletin Board), or (ii) if the Common Stock is not listed or quoted on a Trading Market (other than the OTC Bulletin Board), a day on which the Common Stock is traded in the over-the-counter market, as reported by the OTC Bulletin Board, or (iii) if the Common Stock is not listed or quoted on any Trading Market, a day on which the Common Stock is quoted in the over-the-counter market as reported by the Pink Sheets LLC (or any similar organization or agency succeeding to its functions of reporting prices); provided, that in the event that the Common Stock is not listed or quoted as set forth in (i), (ii) and (iii) hereof, then Trading Day shall mean a Business Day.

"**Trading Market**" means whichever of the New York Stock Exchange, the American Stock Exchange, the NASDAQ Global Select Market, the NASDAQ Global Market, the NASDAQ Capital Market or OTC Bulletin Board on which the Common Stock is listed or quoted for trading on the date in question.

"**Transaction Documents**" means the Purchase Agreement, the Registration Rights Agreement, the Warrants, the Certificate of Designations, and all schedules and exhibits attached hereto and any other documents or agreements executed or delivered in connection with the transactions contemplated under the Purchase Agreement and thereunder.

"**Underlying Shares**" means the shares of Common Stock issuable upon conversion of the shares of Series A Preferred Stock and in satisfaction of any other obligation of the Corporation to issue shares of Common Stock pursuant to the Transaction Documents.

"**Warrants**" means the warrants issued to the Holder pursuant to the Purchase Agreement.

3. Dividends. The Series A Preferred Stock shall accrue cumulative dividends ("**Dividends**") for each share of Series A Preferred Stock at the rate of six percent (6%) of the Stated Value per annum (the "**Dividend Rate**"). Dividends on the shares of Series A Preferred Stock shall commence accruing on the Original Issue Date and shall be computed on the basis of a 360-day year consisting of twelve 30-day months and shall be payable in arrears for each Calendar Quarter on the first day of the succeeding Calendar Quarter during the period beginning on the Original Issue Date (each, a "**Dividend Date**") with the first Dividend Date being April 1, 2010. Dividends accrued during a partial Calendar Quarter shall be appropriately pro rated by the actual number of days such Dividends accrued during such Calendar Quarter. Dividends shall not be payable in cash but shall be payable only in fully paid and non-assessable shares of

Common Stock ("**Dividend Shares**"), unless a Liquidation Event occurs, in which case, the Dividend Shares shall be payable in cash as provided in Section 4 herein. The number of Dividend Shares payable in respect of each share of Series A Preferred Stock on any Dividend Date shall be equal to the quotient obtained by dividing (i) the cumulative aggregate balance of accrued but unpaid Dividends on such share of Series A Preferred Stock as of such Dividend Date (the "**Dividend Balance**"), by (ii) the Conversion Price. The accrual of Dividends shall terminate ("**Dividend Termination**") on the earlier of the conversion of the Series A Preferred Stock into Common Stock or at any time after December 31, 2012, provided that: (a) the Closing Price of the Company's Common Stock at the time of the proposed termination has been greater than one hundred ten percent (110%) of the Conversion Price, subject to adjustment pursuant to Section 9, for the immediately preceding 30 consecutive Trading Days (the "**Dividend Termination Event**"), and (b) the Company has delivered written notice of the Dividend Termination Event ("**Dividend Termination Notice**") to Holder. Upon satisfaction of the conditions for a Dividend Termination Event, Dividend Termination shall occur on the last day of the month in which the Dividend Termination Notice is provided. In connection with the issuance of Dividend Shares on a Dividend Date, the Corporation shall upon written request of the Holder, (i) provided the Corporation's designated transfer agent (the "**Transfer Agent**") is participating in The Depository Trust Company ("**DTC**") Fast Automated Securities Transfer Program, credit such aggregate number of shares of Common Stock to which the Holder shall be entitled to the Holder's or its designee's balance account with DTC through its Deposit Withdrawal Agent Commission system, within two (2) Business Days of the applicable Dividend Date, or (Y) if the Transfer Agent is not participating in the DTC Fast Automated Securities Transfer Program, issue and deliver to such Holder, a certificate, registered in the name of the Holder or its designee, for the number of shares of Common Stock to which the Holder shall be entitled within three (3) Business Days of the applicable Dividend Date. The Dividend Balance shall be appropriately reduced by the issuance of any Dividend Shares to the Holder. In addition to payment of the foregoing Dividends, in the event dividends are declared and paid on the Common Stock (or any other class of capital stock of the Corporation), an equivalent dividend shall be paid on each share of Series A Preferred Stock.

4. Registration of Issuance and Ownership of Series A Preferred Stock. The Corporation shall register the issuance and ownership of shares of the Series A Preferred Stock, upon records to be maintained by the Corporation or its Transfer Agent for that purpose (the "**Series A Preferred Stock Register**"), in the name of the record Holders thereof from time to time. The Corporation may deem and treat the registered Holder of shares of Series A Preferred Stock as the absolute owner thereof for the purpose of any conversion hereof or any distribution to such Holder, and for all other purposes, absent actual notice to the contrary.

5. Registration of Transfers. The Corporation shall register the transfer of any shares of Series A Preferred Stock in the Series A Preferred Stock Register, upon surrender of certificates evidencing such Shares to the Corporation at its address specified herein. Upon any such registration or transfer, a new certificate evidencing the shares of Series A Preferred Stock so transferred shall be issued to the transferee and a new certificate evidencing the remaining portion of the shares not so transferred, if any, shall be issued to the transferring Holder.

6. Liquidation.

(a) In the event of any Liquidation Event, the Holders of Series A Preferred Stock shall be entitled to receive, prior and in preference to any distribution of any of the assets or surplus funds of the Corporation to the holders of Junior Securities by reason of their ownership thereof, an amount per share in cash equal to the sum of (i) Stated Value for each share of Series A Preferred Stock then held by them, plus (ii) the aggregate dollar amount of all accrued but unpaid Dividends on such Series A Preferred Stock as of the date of such event (such sum, the "**Series A Stock Liquidation Preference**"). If, upon the occurrence of a Liquidation Event, the assets and funds thus distributed among the holders of the Series A Preferred Stock shall be insufficient to permit the payment to such Holders of the full Series A Stock Liquidation Preference, then the Holders of the Series A Preferred Stock shall share ratably in any such distribution of the assets and funds of the Corporation in proportion to the aggregate Series A Stock Liquidation Preference that would otherwise be payable to each of such Holders.

(b) After the Holders have been paid the full Series A Stock Liquidation Preference to which they are entitled, the Holders will have no right or claim to any of the assets or funds of the Corporation, and any remaining assets and funds shall be shares ratably among the holders of Common Stock.

(c) The Corporation shall provide written notice of any Liquidation Event to each record Holder not less than forty-five (45) days prior to the payment date or effective date thereof, provided that such information shall be made known to the public prior to or in connection with such notice being provided to the Holders.

(d) In the event that, immediately prior to the closing of a Liquidation Event the cash distributions required by Section 6(a) have not been made, the Corporation shall forthwith either: (i) cause such closing to be postponed until such time as such cash distributions have been made, or (ii) cancel such transaction, in which event the rights, preferences and privileges of the holders of the Series A Preferred Stock shall revert to and be the same as such rights, preferences and privileges existing immediately prior to the date of the first notice by the Corporation delivered pursuant to Section 6(c).

7. Conversion. At the option of any Holder, each share of Series A Preferred Stock held by such Holder may be converted into that number of shares of Common Stock equal to the Conversion Rate. A Holder may convert shares of Series A Preferred Stock into Common Stock pursuant to this paragraph at any time and from time to time after the Original Issue Date, by delivering to the Corporation a conversion notice (the "**Conversion Notice**"), in the form attached hereto as Exhibit A, appropriately completed and duly signed, and the date any such Conversion Notice is delivered to the Corporation (as determined in accordance with the notice provisions hereof) is a "**Conversion Date**."

8. Mechanics of Conversion.

(a) The number of Underlying Shares issuable upon any conversion of each share of Series A Preferred Stock shall equal the Conversion Rate.

(b) Upon conversion of any shares of Series A Preferred Stock, the Corporation shall promptly (but in no event later than three (3) Trading Days after the Conversion Date) issue or cause to be issued and cause to be delivered to or upon the written order of the Holder and in such name or names as the Holder may designate a certificate for the Underlying Shares issuable upon such conversion. The Holder agrees to the imprinting of a restrictive legend on any such certificate evidencing any of the Underlying Shares, until such time as the Underlying Shares are no longer required to contain such legend or any other legend. Certificates evidencing the Underlying Shares shall not be required to contain such legend or any other legend (i) while a registration statement covering the resale of the Underlying Shares is effective under the Securities Act, (ii) following any sale of such Underlying Shares pursuant to Rule 144 if the Holder Provides the Corporation with a legal opinion reasonably acceptable to the Corporation to the effect that the Underlying Shares can be sold under Rule 144, (iii) if the Underlying Shares are eligible for sale under Rule 144 without any volume limitation, or (iv) if the Holder provides the Corporation with a legal opinion reasonably acceptable to the Corporation to the effect that the legend is not required under applicable requirements of the Securities Act (including controlling judicial interpretations and pronouncements issued by the Staff of the SEC). The Holder, or any Person so designated by the Holder to receive Underlying Shares, shall be deemed to have become holder of record of such Underlying Shares as of the Conversion Date. If the shares are then not required to bear a restrictive legend, the Corporation shall, upon request of the Holder, deliver Underlying Shares hereunder electronically through The Depository Trust Corporation ("**DTC**") or another established clearing corporation performing similar functions, and shall credit the number of shares of Common Stock to which the Holder shall be entitled to the Holder's or its designee's balance account with DTC through its Deposit Withdrawal Agent Commission System.

(c) A Holder shall deliver the original certificate(s) evidencing the Series A Preferred Stock being converted in connection with the conversion of such Series A Preferred Stock. Upon surrender of a certificate following one or more partial conversions, the Corporation shall promptly deliver to the Holder a new certificate representing the remaining shares of Series A Preferred Stock.

(d) The Corporation's obligations to issue and deliver Underlying Shares upon conversion of Series A Preferred Stock in accordance with the terms hereof are absolute and unconditional, irrespective of any action or inaction by any Holder to enforce the same, any waiver or consent with respect to any provision hereof, the recovery of any judgment against any Person or any action to enforce the same, or any setoff, counterclaim, recoupment, limitation or termination, or any breach or alleged breach by any Holder or any other Person of any obligation to the Corporation or any violation or alleged violation of law by any Holder or any other Person, and irrespective of any other circumstance which might otherwise limit such obligation of the Corporation to any Holder in connection with the issuance of such Underlying Shares.

9. Certain Adjustments. The Conversion Price is subject to adjustment from time to time as set forth in this Section 9.

(a) Stock Dividends and Splits. If the Corporation, at any time while Series A Preferred Stock is outstanding, (i) pays a stock dividend on its Common Stock or otherwise makes a distribution on any class of capital stock that is payable in shares of Common Stock

(other than Dividends paid pursuant to Section 3 in respect of the Series A Preferred Stock); (ii) subdivides outstanding shares of Common Stock into a larger number of shares, or (iii) combines outstanding shares of Common Stock into a smaller number of shares, then in each such case the applicable Conversion Price for Series A Preferred Stock shall be multiplied by a fraction of which the numerator shall be the number of shares of Common Stock outstanding immediately before such event and of which the denominator shall be the number of shares of Common Stock outstanding immediately after such event. Any adjustment made pursuant to clause (i) of this paragraph shall become effective immediately after the record date for the determination of stockholders entitled to receive such dividend or distribution, and any adjustment pursuant to clause (ii) or (iii) of this paragraph shall become effective immediately after the effective date of such subdivision or combination.

(b) Pro Rata Distributions. If the Corporation, at any time while Series A Preferred Stock is outstanding, distributes or pays as a dividend to holders of Common Stock (i) evidences of its indebtedness, (ii) any security (other than a distribution of Common Stock covered by the preceding paragraph), (iii) rights or warrants to subscribe for or purchase any security, or (iv) any other asset (including, without limitation, cash) (in each case, "**Distributed Property**"), then in each such case the Corporation shall simultaneously deliver to each Holder the Distributed Property that each such Holder would have been entitled to receive in respect the number of Underlying Shares then issuable pursuant to Section 7 above had the Holder been the record holder of such Underlying Shares immediately prior to the applicable record or payment date.

(c) Fundamental Transactions. If the Corporation, at any time while Series A Preferred Stock is outstanding, effects any Fundamental Transaction, then upon any subsequent conversion of Series A Preferred Stock, each Holder shall have the right to receive, for each Underlying Share that would have been issuable upon such conversion absent such Fundamental Transaction, the same kind and amount of securities, cash or property as it could have been entitled to receive upon the occurrence of such Fundamental Transaction if it had been, immediately prior to such Fundamental Transaction, the holder of one share of Common Stock (the "**Alternate Consideration**"). For purposes of any such conversion, the determination of the applicable Conversion Price for the Series A Preferred Stock shall be appropriately adjusted to apply to such Alternate Consideration based on the amount of Alternate Consideration issuable in respect of one share of Common Stock in such Fundamental Transaction, and the Corporation shall apportion the Conversion Price among the Alternate Consideration in a reasonable manner reflecting the relative value of any different components of the Alternate Consideration. If holders of Common Stock are given any choice as to the securities, cash or property to be received in a Fundamental Transaction, then each Holder shall be given the same choice as to the Alternate Consideration it receives upon any conversion of Series A Preferred Stock following such Fundamental Transaction. To the extent necessary to effectuate the foregoing provisions, any successor to the Corporation or surviving entity in such Fundamental Transaction shall issue to the Holder a new series of preferred stock consistent with the foregoing provisions and evidencing the Holders' right to convert such preferred stock into Alternate Consideration. The terms of any agreement pursuant to which a Fundamental Transaction is effected shall include terms requiring any such successor or surviving entity to comply with the provisions of this paragraph (c) and insuring that the Series A Preferred Stock (or any such replacement security) will be similarly adjusted upon any subsequent transaction analogous to a Fundamental Transaction.

(d) Calculations. All calculations under this Section 9 shall be made to the nearest cent or the nearest 1/100th of a share, as applicable. The number of shares of Common Stock outstanding at any given time shall not include shares owned or held by or for the account of the Corporation, and the disposition of any such shares shall be considered an issue or sale of Common Stock.

(e) Notice of Adjustments. Upon the occurrence of each adjustment pursuant to this Section 9, the Corporation at its expense will promptly compute such adjustment in accordance with the terms hereof and prepare a certificate describing in reasonable detail such adjustment and the transactions giving rise thereto, including all facts upon which such adjustment is based. Upon written request, the Corporation will promptly deliver a copy of each such certificate to each Holder and to the Corporation's Transfer Agent.

(f) Notice of Corporation Events. If the Corporation (i) declares and pays a dividend (other than a Dividend pursuant to Section 3 above) or effects any other distribution of cash, securities or other property in respect of its Common Stock, including without limitation any granting of rights or warrants to subscribe for or purchase any capital stock of the Corporation or any Subsidiary, (ii) authorizes or approves, enters into any agreement contemplating or solicits stockholder approval for any Fundamental Transaction or (iii) authorizes the voluntary dissolution, liquidation or winding up of the affairs of the Corporation, then the Corporation shall deliver to each Holder a notice describing the material terms and conditions of such transaction, at least twenty (20) calendar days prior to the applicable record or effective date on which a Person would need to hold Common Stock in order to participate in or vote with respect to such transaction.

10. Voting; Protective Provisions. Except as otherwise provided herein or as required by applicable law, the Holders of the Series A Preferred Stock shall have no voting rights. Notwithstanding anything of the foregoing to the contrary in this Section 10, the consent of the holders of a majority of the outstanding shares of Series A Preferred Stock shall be required for any action which: (i) changes the rights, preferences or privileges of the Series A Preferred Stock, or amends, alters or repeals any provision of the Corporation's Amended and Restated Certificate of Incorporation or the By-Laws of the Company, including by merger or consolidation, in a manner that adversely affects the rights, preferences or privileges of the Series A Preferred Stock; (ii) increases or decreases the authorized number of shares of any class or series of capital stock including, without limitation, the Series A Preferred Stock; or (iii) creates or issues any class or series of capital stock (including any security convertible into or exercisable for any capital stock) which ranks superior to or *pari passu* with the Series A Preferred Stock in any respect.

11. Priority. The Series A Preferred Stock, whether now or hereafter issued, shall, with respect to dividend rights (other than the right to receive additional shares of Series A Preferred Stock pursuant to Section 14) and rights on liquidation, winding up or dissolution, whether voluntary or involuntary, rank senior to the Common Stock of the Corporation and to any other series of Preferred Stock established hereafter by the Board of Directors the terms of

which shall specifically provide that such series shall rank junior to the Series A Preferred Stock with respect to dividend rights and rights on liquidation, winding up or dissolution. The Corporation shall not, without the prior approval of Holders of at least a majority of the shares of Series A Preferred Stock then outstanding, voting as a separate class, issue any additional shares of the Series A Preferred Stock, or create any other class or series of capital stock that ranks senior to or on a parity with the Series A Preferred Stock.

12. Charges, Taxes and Expenses. Issuance of certificates for shares of Series A Preferred Stock and for Underlying Shares issued on conversion of (or otherwise in respect of) the Series A Preferred Stock shall be made without charge to the Holders for any issue or transfer tax, withholding tax, transfer agent fee or other incidental tax or expense in respect of the issuance of such certificates, all of which taxes and expenses shall be paid by the Corporation. The Holder shall be responsible for all other tax liability that may arise as a result of holding or transferring the Series A Preferred Stock or receiving Underlying Shares in respect of the Series A Preferred Stock.

13. Replacement Certificates. If any certificate evidencing Series A Preferred Stock or Underlying Shares is mutilated, lost, stolen or destroyed, or a Holder fails to deliver such certificate as may otherwise be provided herein, the Corporation shall issue or cause to be issued in exchange and substitution for and upon cancellation thereof, or in lieu of and substitution for such certificate, a new certificate, but only upon receipt of evidence reasonably satisfactory to the Corporation of such loss, theft or destruction (in such case) and, in each case, customary and reasonable indemnity, if requested. Applicants for a new certificate under such circumstances shall also comply with such other reasonable regulations and procedures and pay such other reasonable third-party costs as the Corporation may prescribe.

14. Reservation of Underlying Shares. The Corporation covenants that it shall at all times reserve and keep available out of the aggregate of its authorized but unissued and otherwise unreserved Common Stock, solely for the purpose of enabling it to issue Underlying Shares as required hereunder, the number of Underlying Shares which are then issuable and deliverable upon the conversion of (and otherwise in respect of) all outstanding Series A Preferred Stock (taking into account the adjustments of Section 9), free from preemptive rights or any other contingent purchase rights of persons other than the Holder. The Corporation covenants that all Underlying Shares so issuable and deliverable shall, upon issuance in accordance with the terms hereof, be duly and validly authorized, issued and fully paid and nonassessable. The Corporation covenants that it shall satisfy subparagraph (i) of the Equity Conditions and shall use its best efforts to satisfy each of subparagraphs (ii) and (iii) of the Equity Conditions. The Corporation has reserved from its duly authorized capital stock the maximum number of shares of Common Stock issuable upon conversion of the Series A Preferred Stock.

15. Fractional Shares. The Corporation shall not be required to issue or cause to be issued fractional Common Shares on conversion of Series A Preferred Stock or in payment of any Dividend. If any fraction of a Common Share would, except for the provisions of this Section, be issuable upon conversion of Series A Preferred Stock or in payment of any Dividend, the number of Common Shares to be issued will be rounded up to the nearest whole share.

16. Notices. Any and all notices or other communications or deliveries hereunder (including without limitation any Conversion Notice) shall be in writing and shall be deemed given and effective on the earliest of (i) the date of transmission, if such notice or communication is delivered via facsimile at the facsimile number specified in this Section prior to 4:30 p.m. (New York City time) on a Trading Day, (ii) the next Trading Day after the date of transmission, if such notice or communication is delivered via facsimile at the facsimile number specified in this Section on a day that is not a Trading Day or later than 4:30 p.m. (New York City time) on any Trading Day, (iii) the Trading Day following the date of mailing, if sent by nationally recognized overnight courier service, or (iv) upon actual receipt by the party to whom such notice is required to be given. The addresses for such communications shall be: (i) if to the Corporation, to 1 Riverside Circle, Suite 400, Roanoke, VA 24016, Attention: Chief Financial Officer, or (ii) if to a Holder, to the address or facsimile number appearing on the Corporation's stockholder records or such other address or facsimile number as such Holder may provide to the Corporation in accordance with this Section.

17. Miscellaneous.

(a) The headings herein are for convenience only, do not constitute a part of this Certificate of Designations and shall not be deemed to limit or affect any of the provisions hereof.

(b) No provision of this Certificate of Designations may be amended, except in a written instrument signed by the Corporation and Holders of at least a majority of the shares of Series A Preferred Stock then outstanding. Any of the rights of the Holders of Series A Preferred Stock set forth herein, including any Equity Conditions or any other similar conditions for the Holders' benefit, may be waived by the affirmative vote of Holders of at least a majority of the shares of Series A Preferred Stock then outstanding. No waiver of any default with respect to any provision, condition or requirement of this Certificate of Designations shall be deemed to be a continuing waiver in the future or a waiver of any subsequent default or a waiver of any other provision, condition or requirement hereof, nor shall any delay or omission of either party to exercise any right hereunder in any manner impair the exercise of any such right.

IN WITNESS WHEREOF, Luna Innovations Incorporated has caused this Certificate of Designations to be duly executed as of this 12th day of January, 2010.

LUNA INNOVATIONS INCORPORATED

By: /s/ Kent A. Murphy
Name: Kent A. Murphy
Title: Chief Executive Officer

EXHIBIT A

FORM OF CONVERSION NOTICE

(To be executed by the registered Holder in order to convert shares of Series A Preferred Stock)

The undersigned hereby elects to convert the number of shares of Series A Convertible Preferred Stock indicated below into shares of common stock, par value $0.001 per share (the "**Common Stock**"), of Luna Innovations Incorporated, a Delaware corporation (the "**Corporation**"), according to the conditions hereof, as of the date written below.

Date to Effect Conversion

Number of shares of Series A Preferred Stock owned prior to Conversion

Number of shares of Series A Preferred Stock to be Converted

Stated Value of shares of Series A Preferred Stock to be Converted

Number of shares of Common Stock to be Issued

Applicable Conversion Price

Number of shares of Series A Preferred Stock subsequent to Conversion

Name of Holder

By: _____

Name: _____

Title: _____

Exhibit 10.1

Execution Copy

SECURITIES PURCHASE AND EXCHANGE AGREEMENT

THIS SECURITIES PURCHASE AND EXCHANGE AGREEMENT, dated as of January 12, 2010 (this "**Agreement**"), by and between Luna Innovations Incorporated, a Delaware corporation with headquarters located at One Riverside Circle, Suite 400, Roanoke, VA 24016 (the "**Company**"), and Carilion Clinic, a Virginia non-profit, non-stock corporation (the "**Investor**").

RECITALS

A. The Company and the Investor are executing and delivering this Agreement in reliance upon exemptions from registration afforded by (i) Section 4(2) of the Securities Act of 1933, as amended (the "**Securities Act**"), and Rule 506 of Regulation D ("**Regulation D**") as promulgated by the United States Securities and Exchange Commission (the "**SEC**") under the Securities Act, and (ii) Section 3(a)(9) of the Securities Act.

B. The Company has authorized a new series of convertible preferred shares of the Company designated as Series A Convertible Preferred Stock, par value $0.001 per share, the terms of which are set forth in the certificate of designations for such series of preferred shares (the "**Certificate of Designations**") in the form attached hereto as Exhibit A (together with any convertible preferred shares issued in replacement thereof in accordance with the terms thereof, the "**Preferred Shares**"), which Preferred Shares shall be convertible under certain conditions, into shares of the Company's common stock, $0.001 par value per share (the "**Common Stock**"), in accordance with the terms of the Certificate of Designations. The shares of Common Stock issued upon conversion of the Preferred Shares are referred to herein, collectively, as the "**Conversion Shares**."

C. The Investor wishes to exchange (the "**Exchange**"**)**, upon the terms and conditions stated in this Agreement, all of the outstanding Convertible Promissory Notes (the "**Notes**") issued pursuant to the Class C Common Stock and Note Purchase Agreement dated December 30, 2005 between the Company and Investor for 1,321,514 Preferred Shares such that all outstanding principal under the Notes would be treated as retired and all accrued and unpaid interest under the Notes would be treated as paid in full. In addition, as part of the Exchange, the Company will also issue to the Investor new warrants (the "**New Warrants**"), in substantially the form attached hereto as Exhibit B, to purchase an aggregate of an additional 356,000 shares of Common Stock with an exercise price of $2.50 per share. The exercise price of the existing warrants currently held by the Investor (the "**Existing Warrants**," together with the New Warrants, the "**Warrants**") to purchase 10,000 shares of the Company's Common Stock shall be amended to reduce the exercise price of such Existing Warrants to $2.50 per share and to extend the expiration date of such Existing Warrants to December 31, 2020 (the shares of Common Stock issuable upon exercise of or otherwise pursuant to the Warrants issued to the Investor, collectively, the "**Warrant Shares**").

D. The Preferred Shares, the Conversion Shares, the Warrants and the Warrant Shares issued or issuable pursuant to this Agreement are collectively referred to herein as the "**Securities**."

E. The parties expect that the United States Bankruptcy Court for the Western District of Virginia (the "**Bankruptcy Court**") will grant an order approving the *First Amended Joint Plan of Reorganization of Luna Innovations Incorporated and Luna Technologies, Inc*, dated December 18, 2009 (as it may be further amended, and together with the Exhibits thereto, the "**Plan**"), for emergence from the Company's current bankruptcy proceeding under Chapter 11 of the Bankruptcy Code (as hereinafter defined).

NOW, THEREFORE, IN CONSIDERATION of the foregoing recitals and mutual promises, representations, warranties, and covenants contained in this Agreement, and for other good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, the Company and the Investor agree as follows:

ARTICLE I
DEFINITIONS

1.1 Definitions. In addition to the terms defined elsewhere in this Agreement, the following terms have the meanings indicated:

"**8-K Filing**" has the meaning set forth in Section 4.5.

"**Affiliate**" means any Person that, directly or indirectly through one or more intermediaries, controls or is controlled by or is under common control with a Person, as such terms are used in and construed under Rule 144 under the Securities Act.

"**Agreement**" has the meaning set forth in the Preamble.

"Bankruptcy Code" means the United States Bankruptcy Code, 11 U.S.C. §§ 101 *et seq.*, as amended, or any successor thereto, and any rules and regulations promulgated thereunder.

"**Bankruptcy Court**" has the meaning set forth in the Recitals.

"**Best Efforts**" means the efforts that a prudent person desirous of achieving a result would use in similar circumstances to ensure that such result is achieved as expeditiously as practical unless such efforts would result in a Material Adverse Effect on the Company, provided all costs and expenses that will be necessary for the Company to incur in order to satisfy its obligations under the Registration Rights Agreement pursuant to a request to register shares of Common Stock pursuant to the Investor's rights under the Registration Rights Agreement shall not be deemed, in and of itself, to be a Material Adverse Effect on the Company.

"**Board of Directors**" means the board of directors of the Company.

"**Business Day**" means any day other than Saturday, Sunday, any day which shall be a federal legal holiday in the United States or any day on which banking institutions in The State of New York are authorized or required by law or other governmental action to close.

"**Certificate of Designations**" has the meaning set forth in the Recitals.

"**Closing**" means the closing of the purchase and sale of the Securities pursuant to Article II.

"**Closing Date**" means such date as soon as practicable following the Plan Effective Date.

"**Company**" has the meaning set forth in the Recitals.

"**Company Counsel**" means Proskauer Rose LLP, counsel to the Company.

"**Company Disclosure Schedule**" means the disclosure schedule dated the date hereof regarding this Agreement that has been provided by the Company to the Investor.

"**Common Stock**" has the meaning set forth in the Recitals.

"**Convertible Securities**" means any stock or securities (other than Options) convertible into or exercisable or exchangeable for Common Stock.

"**Conversion Shares**" has the meaning set forth in the Recitals.

"**Disclosure Materials**" means the SEC Reports, the Agreement and the Company Disclosure Schedule.

"**Effective Date**" means the date that the Registration Statement is first declared effective by the SEC.

"**Equity Incentive Plans**" mean the Company's 2003 Stock Plan, the 2006 Equity Incentive Plan, and any other compensation plan approved by the Company's Board of Directors or Compensation Committee pursuant to which Options or Common Stock may be issued to the Company's directors, officers, employees or persons who provide services to the Company.

"**Exchange Act**" means the Securities Exchange Act of 1934, as amended.

"**Existing Warrants**" has the meaning set forth in the Recitals.

"**GAAP**" means generally accepted accounting principles in the United States.

"**Indebtedness**" has the meaning set forth in Section 3.1(o).

"**Investor**" has the meaning set forth in the Preamble.

"**Lien**" means any lien, charge, claim, security interest, encumbrance or, with respect to any security, any purchase option, call or similar right.

"**Losses**" means any and all losses, claims, damages, liabilities, settlement costs and expenses, including, without limitation, reasonable attorneys' fees.

"**Material Adverse Effect**" means a material adverse change or any material development involving a prospective adverse change, in or adversely affecting the management, financial position, stockholders' equity or results of operations of the Company, provided, an order approving the Plan shall not be deemed to be a Material Adverse Effect.

"**Material Permits**" has the meaning set forth in Section 3.1(n).

"**New Warrants**" has the meaning set forth in the Recitals.

"**Options**" means any outstanding rights, warrants or options to subscribe for or purchase Common Stock or Convertible Securities.

"Person" means an individual, a limited liability company, a partnership, joint venture, a corporation, a trust, an unincorporated organization, a government or any department or agency thereof and any other legal entity.

"**Plan**" has the meaning set forth in the Recitals.

"**Plan Effective Date**" means the effective date of the Plan following an order by the Bankruptcy Court approving the Plan.

"**Preferred Shares**" has the meaning set forth in the Recitals.

"**Proceeding**" means an action, claim, suit, investigation or proceeding (including, without limitation, a partial proceeding, such as a deposition), whether commenced or threatened in writing.

"**Prospectus**" means the prospectus included in the Registration Statement (including, without limitation, a prospectus that includes any information previously omitted from a prospectus filed as part of an effective registration statement in reliance upon Rule 430A promulgated under the Securities Act), as amended or supplemented by any prospectus supplement, with respect to the terms of the offering of any portion of the Registrable Securities covered by the Registration Statement, and all other amendments and supplements to the Prospectus including post-effective amendments, and all material incorporated by reference or deemed to be incorporated by reference in such Prospectus.

"Registrable Securities" means (i) the Conversion Shares issued or issuable upon conversion of the Preferred Shares, (ii) the Warrant Shares issued or issuable upon exercise of the Warrants and (iii) any share capital of the Company issued or issuable, with respect to the Conversion Shares, the Preferred Shares, the Warrant Shares or the Warrants as a result of any share split, share dividend, recapitalization, exchange or similar event or otherwise, without regard to any limitations on conversions of the Preferred Shares or exercises of the Warrants.

"**Registration Rights Agreement**" means the Amended and Restated Investor Rights Agreement between the Company and Investor and certain stockholders of the Company in the form attached hereto as Exhibit G.

"**Registration Statement**" means each registration statement required to be filed pursuant to the Registration Rights Agreement, including (in each case) the Prospectus,

amendments and supplements to such registration statement or Prospectus, including pre- and post-effective amendments, all exhibits thereto, and all material incorporated by reference or deemed to be incorporated by reference in such registration statement.

"**Regulation D**" has the meaning set forth in the Recitals.

"**Rule 144**" and "**Rule 424**" means Rule 144 and Rule 424, respectively, promulgated by the SEC pursuant to the Securities Act, as such Rules may be amended from time to time, or any similar rule or regulation hereafter adopted by the SEC having substantially the same effect as such Rule.

"SEC" has the meaning set forth in the Recitals.

"**SEC Reports**" means such reports required to be filed by the Company under the Exchange Act, including pursuant to Section 13(a) or 15(d) thereof, together with any materials filed or furnished by the Company under the Exchange Act.

"**Securities**" has the meaning set forth in the Recitals.

"**Securities Act**" has the meaning set forth in the Recitals.

"**Short Sales**" has the meaning set forth in Section 3.2(i).

"**Subsidiary**" means any direct or indirect subsidiary of the Company that is a "significant subsidiary" as defined in Rule 1-07(w) of Regulation S-X promulgated by the SEC.

"**Trading Day**" means (i) a day on which the Common Stock is traded on a Trading Market (other than the OTC Bulletin Board), or (ii) if the Common Stock is not listed or quoted on a Trading Market (other than the OTC Bulletin Board), a day on which the Common Stock is traded in the over-the-counter market, as reported by the OTC Bulletin Board, or (iii) if the Common Stock is not listed or quoted on any Trading Market, a day on which the Common Stock is quoted in the over-the-counter market as reported by the Pink Sheets LLC (or any similar organization or agency succeeding to its functions of reporting prices); provided, that in the event that the Common Stock is not listed or quoted as set forth in (i), (ii) and (iii) hereof, then Trading Day shall mean a Business Day.

"**Trading Market**" means whichever of the New York Stock Exchange, the American Stock Exchange, the NASDAQ Global Select Market, the NASDAQ Global Market, the NASDAQ Capital Market or OTC Bulletin Board on which the Common Stock is listed or quoted for trading on the date in question.

"**Transaction**" has the meaning set forth in Section 3.2(i).

"Transaction Documents" means this Agreement, the Registration Rights Agreement, the Warrants, the Certificate of Designations, the Transfer Agent Instructions, and all schedules and exhibits attached hereto.

"**Transfer Agent**" means The American Stock Transfer & Trust Company, or any successor transfer agent for the Company.

"**Transfer Agent Instructions**" means, with respect to the Company, the irrevocable Transfer Agent Instructions, in the form of Exhibit E, executed by the Company and delivered to and acknowledged in writing by the Transfer Agent.

"**Warrants**" has the meaning set forth in the Recitals.

"**Warrant Shares**" has the meaning set forth in the Recitals.

ARTICLE II
PURCHASE, SALE AND EXCHANGE

2.1 Closing. Subject to the terms and conditions set forth in this Agreement, at the Closing the Company shall issue and sell to the Investor, and the Investor shall purchase from the Company, (i) 1,321,514 Preferred Shares at a price per share of $4.69159, and (ii) New Warrants to purchase an additional 356,000 shares of Common Stock at an exercise price of $2.50 per share of Common Stock. The Securities shall be issued by the Company to Investor in consideration for the Exchange of all outstanding Notes held by Investor. Investor agrees that upon consummation of such Exchange that all outstanding principal and all accrued and unpaid interest due under the Notes shall be treated as paid in full. In addition, as part of the Exchange, the Company and Investor shall amend the terms of the Existing Warrants to reduce the exercise price of such Existing Warrants to $2.50 per share of Common Stock and to extend the expiration date of such Existing Warrants to December 31, 2020. The date and time of the Closing shall be as soon as practicable following the Plan Effective Date. The Closing shall take place at the offices of the Company's Counsel at 1001 Pennsylvania Ave. NW, Suite 400 South, Washington, DC, 20004-2533.

2.2 Closing Deliveries.

(a) At or immediately prior to the Closing, the Company shall deliver or cause to be delivered to the Investor the following:

(i) a copy of the Company's Transfer Agent Instructions in substantially the form attached hereto as Exhibit E;

(ii) a certificate representing the Preferred Shares duly executed by the Company's authorized executive officers;

(iii) a warrant agreement for the New Warrants, issued in the name of the Investor, pursuant to which the Investor shall have the right to acquire 356,000 Warrant Shares, registered in the name of the Investor, in substantially the form attached hereto as Exhibit B;

(iv) an amended and restated warrant agreement for the Existing Warrants with a reduction of the exercise price of such Existing Warrants to $2.50 per share of Common Stock;

(v) a Registration Rights Agreement in the form attached hereto as Exhibit G for execution by all requisite parties to such agreement pursuant to which the Company covenants to Investor to register the resale of the Registrable Securities pursuant to the terms and conditions of the Registration Rights Agreement;

(vi) a certificate of the Secretary of the Company, dated as of the Closing Date, (a) certifying the resolutions adopted by the Board of Directors of the Company approving the transactions contemplated by this Agreement and the other Transaction Documents and the issuance of the Securities, (b) certifying the current versions of the certificate of incorporation, as amended, and by-laws of the Company, and (c) certifying as to the signatures and authority of persons signing the Transaction Documents and related documents on behalf of the Company;

(vii) a certificate of the Chief Executive Officer or Chief Financial Officer of the Company, dated as of the Closing Date, certifying to the fulfillment of the conditions specified in Section 5.1(a) and (b); and

(viii) a legal opinion of Company Counsel, substantially in the form of Exhibit F signed by Company Counsel and delivered to the Investor.

(b) At or immediately prior to the Closing, the Company and Investor shall deliver, cause to be delivered or otherwise shall effect, as may be applicable, the following:

(i) The Investor shall deliver to the Company all original Notes and all original Existing Warrants marked “cancelled”;

(ii) The Company and the Investor shall execute and enter into all Transaction Documents; and

(iii) The Company shall adopt and file with the Secretary of State of Delaware on or before the Closing the Certificate of Designations in the form attached hereto as Exhibit A.

ARTICLE III
REPRESENTATIONS AND WARRANTIES

3.1 Representations and Warranties of the Company. Except as set forth in the Company Disclosure Schedule delivered herewith and dated as of the date hereof, or as disclosed in a document filed by the Company with the SEC and publicly available prior to the date hereof, the Company represents and warrants to the Investor:

(a) Subsidiaries. Except as set forth on the Company Disclosure Schedule, the Company owns or controls, directly or indirectly, all of the capital stock or comparable equity interests of each Subsidiary free and clear of any Lien, and all issued and outstanding shares of capital stock or comparable equity interest of each Subsidiary are validly issued and are fully paid, non-assessable and free of preemptive and similar rights; and the Company owns or controls, directly or indirectly, only the corporations, partnerships, limited liability

partnerships, limited liability companies, associations or other entities as set forth on the Company Disclosure Schedule (each, a "**Subsidiary**").

(b) Organization and Qualification. The Company and each Subsidiary is an entity duly organized, validly existing and in good standing under the laws of the jurisdiction of its incorporation, with the requisite legal authority to own and use its properties and assets and to carry on its business as currently conducted. Except as set forth on the Company Disclosure Schedule, neither the Company nor any Subsidiary is in violation of any of the provisions of its respective certificate or articles of incorporation, bylaws, Certificate of Designations or other organizational or charter documents. The Company and each Subsidiary is duly qualified to do business and is in good standing as a foreign corporation or other entity in each jurisdiction in which the nature of the business conducted or property owned by it makes such qualification necessary, except where the failure to be so qualified or in good standing, as the case may be, would not, individually or in the aggregate, have or reasonably be expected to result in a Material Adverse Effect.

(c) Authorization; Enforcement. The Company has the requisite corporate power and authority to enter into and to consummate the transactions contemplated by each of the Transaction Documents to which it is a party and otherwise to carry out its obligations hereunder and thereunder. The execution and delivery of each of the Transaction Documents to which it is a party by the Company and the consummation by it of the transactions contemplated hereby and thereby have been duly authorized by all necessary corporate action on the part of the Company and no further consent or action is required by the Company, its Board of Directors or its stockholders. Each of the Transaction Documents to which it is a party has been (or upon delivery will be) duly executed by the Company and is, or when delivered in accordance with the terms hereof, will constitute, the valid and binding obligation of the Company enforceable against the Company in accordance with its terms, except (i) as limited by general equitable principles and applicable bankruptcy, insolvency, reorganization, receivership, fraudulent conveyance or transfer, preferential transfer, moratorium and other laws of general application affecting enforcement of creditors' rights generally, (ii) as limited by laws relating to the availability of specific performance, injunctive relief or other equitable remedies, regardless of whether such enforcement is considered in a proceeding in equity or at law, and (iii) insofar as indemnification and contribution provisions may be limited by applicable law.

(d) No Conflicts. The execution, delivery and performance of the Transaction Documents to which the Company is a party by the Company and the consummation by the Company of the transactions contemplated hereby and thereby (including, without limitation, the issuance of the Preferred Shares and the Warrants, and the reservation for issuance of the Conversion Shares and Warrant Shares) do not, and will not, (i) conflict with or violate any provision of the Company's or any Subsidiary's certificate or articles of incorporation, bylaws or other organizational or charter documents, (ii) conflict with, or constitute a default (or an event that with notice or lapse of time or both would become a default) under, or give to others any rights of termination, amendment, acceleration or cancellation (with or without notice, lapse of time or both) of, any agreement, credit facility, debt or other instrument (evidencing a Company or Subsidiary debt or otherwise) or other understanding to which the Company or any Subsidiary is a party or by which any property or asset of the Company or any Subsidiary is bound, or affected, except to the extent that such conflict, default,

termination, amendment, acceleration or cancellation right would not reasonably be expected to have a Material Adverse Effect, or (iii) result in a violation of any law, rule, regulation, order, judgment, injunction, decree or other restriction of any court or governmental authority to which the Company or any Subsidiary is subject (including, assuming the accuracy of the representations and warranties of the Investor set forth in Section 3.2 hereof, federal and state securities laws and regulations and the rules and regulations of any self-regulatory organization to which the Company or its securities are subject, including all applicable Trading Markets), or by which any property or asset of the Company or any Subsidiary are bound or affected, except to the extent that such violation would not reasonably be expected to have a Material Adverse Effect.

(e) The Securities. The Securities are duly authorized and, when issued and paid for in accordance with the applicable Transaction Documents, will be duly and validly issued, fully paid and nonassessable, free and clear of all taxes, Liens and charges with respect to the issue thereof and will not be subject to preemptive or similar rights of stockholders (other than those imposed by the Investor), and the Preferred Shares shall be entitled to the rights and preferences set forth in the Certificate of Designations. The Company has reserved from its duly authorized capital stock the maximum number of shares of Common Stock issuable upon exercise of the Warrants and the conversion of the Preferred Shares.

(f) Capitalization. The approximate aggregate number of shares and type of all authorized, issued and outstanding classes of capital stock, options and other securities of the Company (whether or not presently convertible into or exercisable or exchangeable for shares of capital stock of the Company) as of the date hereof is set forth on the Company Disclosure Schedule. All outstanding shares of capital stock are duly authorized, validly issued, fully paid and nonassessable and have been issued in compliance in all material respects with all applicable securities laws. Except for Options or Common Stock issued pursuant to the Company's Equity Incentive Plans or as set forth on the Company Disclosure Schedule, the Company did not have outstanding at December 31, 2009 any other Options, script rights to subscribe to, calls or commitments of any character whatsoever relating to, or securities, rights or obligations convertible into or exercisable or exchangeable for, or entered into any agreement giving any Person any right to subscribe for or acquire, any Preferred Shares or shares of Common Stock, or securities or rights convertible, exercisable or exchangeable into shares of Common Stock (other than the Preferred Shares and Warrants). Except as set forth on the Company Disclosure Schedule, and except for customary adjustments as a result of stock dividends, stock splits, combinations of shares, reorganizations, recapitalizations, reclassifications or other similar events, there are no anti-dilution or price adjustment provisions contained in any security issued by the Company (or in any agreement providing rights to security holders) and the issuance and sale of the Securities will not obligate the Company to issue Preferred Shares or shares of Common Stock or other securities to any Person (other than the Investor) and will not result in a right of any holder of securities to adjust the exercise, conversion, exchange or reset price under such securities. To the knowledge of the Company, except as disclosed in the SEC Reports and any Schedules 13D or 13G filed with the SEC pursuant to Rule 13d-1 of the Exchange Act by reporting persons or as set forth on the Company Disclosure Schedule, no Person or group of related Persons beneficially owns (as determined pursuant to Rule 13d-3 under the

Exchange Act), or has the right to acquire, by agreement with or by obligation binding upon the Company, beneficial ownership of in excess of 5% of the outstanding Common Stock. To the Company's knowledge and based on (i) the publicly disclosed beneficial ownership of the Investor's outstanding shares of the Company's Common Stock as of December 29, 2009, which the Company believes to be equal to 2,228,198 shares, (ii) the 1,321,514 shares of Common Stock that will be issuable upon conversion of the Preferred Shares immediately following the Exchange, (iii) the 366,000 shares of Common Stock issuable upon exercise of the Warrants, on the one hand, and based upon (i) the total outstanding shares of the Company's Common Stock as of December 29, 2009, which amount was equal to 11,351,967, (ii) the total number of shares of the Company's Common Stock issuable upon exercise of the Company's outstanding options as of December 29, 2009, which amount was equal to 4,603,006 shares as of December 31, 2009, (iii) the 1,321,514 shares of Common Stock that will be issuable upon conversion of the Preferred Shares immediately following the Exchange, (iv) the 356,000 shares of Common Stock issuable upon exercise of the New Warrants, and (v) and approximately 1,247,330 shares of Common Stock to be issued to Hansen Medical, Inc in connection with the Plan, on the other hand, the Company believes that the Investor will beneficially own approximately 20.74% of the Company's Common Stock, on a fully diluted, "as converted" basis immediately following the closing of the Exchange (assuming the accuracy of the foregoing assumptions).

(g) Material Changes; Undisclosed Events, Liabilities or Developments; Solvency. Since the date of the last Form 10-Q filed with the SEC, except as disclosed in the SEC Reports or as set forth on the Company Disclosure Schedule, (i) there has been no event, occurrence or development that, individually or in the aggregate, has had or that would result in a Material Adverse Effect, (ii) the Company has not incurred any material liabilities other than (A) trade payables and accrued expenses incurred in the ordinary course of business consistent with past practice and (B) liabilities not required to be reflected in the Company's financial statements pursuant to GAAP or required to be disclosed in filings made with the SEC, (iii) the Company has not altered its method of accounting or changed its auditors, except as disclosed in its SEC Reports, (iv) the Company has not declared or made any dividend or distribution of cash or other property to its stockholders, in their capacities as such, or purchased, redeemed or made any agreements to purchase or redeem any shares of its capital stock, and (v) the Company has not issued any equity securities to any officer, director or Affiliate, except pursuant to the Company's Equity Incentive Plan, as amended.

(h) Absence of Litigation. Except as disclosed in the SEC Reports or as set forth on the Company Disclosure Schedule, there is no action, suit, claim, or Proceeding, or, to the Company's knowledge, inquiry or investigation, before or by any court, public board, government agency, self-regulatory organization or body pending or, to the knowledge of the Company, threatened against or affecting the Company or any Subsidiary that could, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect.

(i) No General Solicitation; Placement Agent's Fees. Neither the Company, nor any of its Affiliates, nor any Person acting on its or their behalf, has engaged in any form of general solicitation or general advertising (within the meaning of Regulation D) in connection with the offer or sale of the Securities. The Company shall be responsible for the payment of any placement agent's fees, financial advisory fees, or brokers' commission (other than for persons engaged by the Investor or its investment advisor) relating to or

arising out of the issuance of the Securities pursuant to this Agreement. The Company shall pay, and hold the Investor harmless against, any liability, loss or expense (including, without limitation, reasonable attorney's fees and out-of-pocket expenses) arising in connection with any such claim for fees arising out of the issuance of the Securities pursuant to this Agreement.

(j) Private Placement; Investment Company; U.S. Real Property Holding Corporation. Neither the Company nor any of its Affiliates nor, any Person acting on the Company's behalf has, directly or indirectly, at any time within the past six months, made any offer or sale of any security or solicitation of any offer to buy any security under circumstances that would (i) eliminate the availability of the exemption from registration under Regulation D under the Securities Act in connection with the offer and sale by the Company of the Securities as contemplated hereby or (ii) cause the offering of the Securities pursuant to the Transaction Documents to be integrated with prior offerings by the Company for purposes of any applicable law, regulation or stockholder approval provisions, including, without limitation, under the rules and regulations of any Trading Market. Assuming the accuracy of the representations and warranties of the Investor set forth in Section 3.2, no registration under the Securities Act is required for the offer and sale of the Securities by the Company to the Investor as contemplated hereby. The sale and issuance of the Securities hereunder does not contravene the rules and regulations of any Trading Market on which the Common Stock is listed or quoted.

(k) Registration Rights. Except (i) as set forth in the Registration Rights, and (ii) as otherwise set forth on the Company Disclosure Schedule, the Company has not granted or agreed to grant to any Person any rights (including "piggy-back" registration rights) to have any securities of the Company registered with the SEC or any other governmental authority that have not expired or been satisfied or waived.

(l) Application of Takeover Protections. The Company and its Board of Directors have taken all necessary action, if any, to render inapplicable any control share acquisition, business combination, poison pill (including any distribution under a rights agreement) or other similar anti-takeover provision under the Company's charter documents or the laws of its state of incorporation that is or could become applicable to any of the Investor as a result of the Investor and the Company fulfilling their obligations or exercising their rights under the Transaction Documents, including, without limitation, as a result of the Company's issuance of the Securities and the Investor's ownership of the Securities.

(m) Acknowledgment Regarding Investor's Purchase of Securities. Based upon the assumption that the transactions contemplated by this Agreement are consummated in all material respects in conformity with the Transaction Documents, the Company acknowledges and agrees that the Investor is acting solely in the capacity of an arm's length purchaser with respect to the Transaction Documents and the transactions contemplated hereby and thereby. The Company further acknowledges that the Investor is not acting as a financial advisor or fiduciary of the Company (or in any similar capacity) with respect to this Agreement and the transactions contemplated hereby and any advice given by any Investor or any of their respective representatives or agents in connection with the Transaction Documents and the transactions contemplated hereby and thereby is merely incidental to the Investor's purchase of the Securities. The Company further represents to the Investor that

the Company's decision to enter into this Agreement has been based solely on the independent evaluation of the transactions contemplated hereby by the Company and its advisors and representatives.

(n) Regulatory Permits. The Company and each Subsidiary possesses all certificates, authorizations and permits issued by the appropriate federal, state, local or foreign regulatory authorities necessary to conduct their respective businesses as presently conducted and described in the SEC Reports ("**Material Permits**"), except where the failure to possess such permits is described in the SEC Reports or does not, individually or in the aggregate, have or reasonably be expected to result in a Material Adverse Effect, and neither the Company nor any Subsidiary has received any written notice of proceedings relating to the revocation or modification of any Material Permit.

(o) Indebtedness. Except as disclosed in the SEC Reports or as set forth on the Company Disclosure Schedule, neither the Company nor any Subsidiary (i) has any outstanding Indebtedness (as defined below), (ii) is in violation in any material respect of any term of or is in default in any material respect under any contract, agreement or instrument relating to any Indebtedness, except where such violations and defaults would not result, individually or in the aggregate, in a Material Adverse Effect, or (iii) is a party to any contract, agreement or instrument relating to any Indebtedness, the performance of which, in the judgment of the Company's officers, has or is expected to have a Material Adverse Effect. For purposes of this Agreement: (x) "Indebtedness" of any Person means, without duplication (A) all indebtedness for borrowed money, (B) all reimbursement or payment obligations with respect to letters of credit, surety bonds and other similar instruments, (C) all obligations evidenced by notes, bonds, debentures or similar instruments, including obligations so evidenced incurred in connection with the acquisition of property, assets or businesses, and (E) all indebtedness referred to in clauses (A) through (E) above secured by (or for which the holder of such Indebtedness has an existing right, contingent or otherwise, to be secured by) any mortgage, lien, pledge, charge, security interest or other encumbrance upon or in any property or assets (including accounts and contract rights) owned by any Person, even though the Person which owns such assets or property has not assumed or become liable for the payment of such indebtedness.

3.2 Representations and Warranties of the Investor. The Investor hereby represents and warrants to the Company as follows:

(a) Organization; Authority. The Investor is an entity duly organized, validly existing and in good standing under the laws of the jurisdiction of its organization with the requisite corporate, partnership or other power and authority to enter into and to consummate the transactions contemplated by the Transaction Documents and otherwise to carry out its obligations hereunder and thereunder. The purchase by the Investor of the Securities hereunder has been duly authorized by all necessary corporate, partnership or other action on the part of the Investor. This Agreement has been duly executed and delivered by the Investor and constitutes the valid and binding obligation of the Investor, enforceable against it in accordance with its terms, except (i) as limited by general equitable principles and applicable bankruptcy, insolvency, reorganization, moratorium and other laws of general application affecting enforcement of creditors' rights generally, (ii) as limited by laws relating to the availability of specific performance, injunctive relief or other equitable remedies and (iii) insofar as indemnification and contribution provisions may be limited by applicable law.

(b) No Public Sale or Distribution. The Investor is (i) acquiring the Preferred Shares and the New Warrants, (ii) upon conversion of the Preferred Shares will acquire the Conversion Shares, and (iii) upon exercise of the Warrants will acquire the Warrant Shares issuable upon exercise thereof, in each case in the ordinary course of business for its own account and not with a view towards, or for resale in connection with, the public sale or distribution thereof, except pursuant to sales registered under the Securities Act or under an exemption from such registration and in compliance with applicable federal and state securities laws, and the Investor does not have a present arrangement to effect any distribution of the Securities to or through any person or entity; provided, however, that by making the representations herein, the Investor does not agree to hold any of the Securities for any minimum or other specific term and reserves the right to dispose of the Securities at any time in accordance with or pursuant to a registration statement or an exemption under the Securities Act.

(c) Investor Status. At the time the Investor was offered the Securities, it was, at the date hereof it is, on the date which it exercises any Warrants and on the date which it converts any Preferred Shares it will be, an "accredited investor" as defined in Rule 501(a) under the Securities Act or a "qualified institutional buyer" as defined in Rule 144A(a) under the Securities Act. The Investor is not a registered broker dealer registered under Section 15(a) of the Exchange Act, or a member of FINRA, Inc. or an entity engaged in the business of being a broker dealer. Except as otherwise disclosed in writing to the Company on Exhibit C-2 (attached hereto) on or prior to the date of this Agreement, the Investor is not affiliated with any broker dealer registered under Section 15(a) of the Exchange Act, or a member of FINRA, Inc. or an entity engaged in the business of being a broker dealer.

(d) General Solicitation. The Investor is not purchasing the Securities as a result of any advertisement, article, notice or other communication regarding the Securities published in any newspaper, magazine or similar media, broadcast over television or radio, disseminated over the Internet or presented at any seminar or any other general solicitation or general advertisement.

(e) Experience of the Investor. The Investor, either alone or together with its representatives has such knowledge, sophistication and experience in business and financial matters so as to be capable of evaluating the merits and risks of the prospective investment in the Securities, and has so evaluated the merits and risks of such investment. The Investor understands that it must bear the economic risk of this investment in the Securities indefinitely, and is able to bear such risk and is able to afford a complete loss of such investment.

(f) Access to Information. The Investor acknowledges that it has reviewed the Disclosure Materials and has been afforded: (i) the opportunity to ask such questions as it has deemed necessary of, and to receive answers from, representatives of the Company concerning the terms and conditions of the offering of the Securities and the merits and risks of investing in the Securities; (ii) access to information (other than material non-public information about the Company) and each Subsidiary and their respective financial

condition, results of operations, business, properties, management and prospects sufficient to enable it to evaluate its investment; and (iii) the opportunity to obtain such additional information that the Company possesses or can acquire without unreasonable effort or expense that is necessary to make an informed investment decision with respect to the investment. Neither such inquiries nor any other investigation conducted by or on behalf of the Investor or its representatives or counsel shall modify, amend or affect the Investor's right to rely on the truth, accuracy and completeness of the Disclosure Materials and the Company's representations and warranties contained in the Transaction Documents. The Investor acknowledges receipt of copies of the SEC Reports.

(g) No Governmental Review. The Investor understands that no United States federal or state agency or any other government or governmental agency has passed on or made any recommendation or endorsement of the Securities or the fairness or suitability of the investment in the Securities nor have such authorities passed upon or endorsed the merits of the offering of the Securities.

(h) No Conflicts. The execution, delivery and performance by the Investor of this Agreement and the consummation by the Investor of the transactions contemplated hereby will not (i) result in a violation of the organizational documents of the Investor or (ii) conflict with, or constitute a default (or an event which with notice or lapse of time or both would become a default) under, or give to others any rights of termination, amendment, acceleration or cancellation of, any agreement, indenture or instrument to which the Investor is a party, or (iii) result in a violation of any law, rule, regulation, order, judgment or decree (including federal and state securities laws) applicable to the Investor, except in the case of clauses (ii) and (iii) above, for such that are not material and do not otherwise affect the ability of the Investor to consummate the transactions contemplated hereby.

(i) Prohibited Transactions; Confidentiality. Neither the Investor, directly or indirectly, nor Person acting on behalf of or pursuant to any understanding with the Investor, has engaged in any purchases or sales (including, without limitation, any Short Sales involving any of the Company's securities) in the securities, including derivatives, of the Company (a "**Transaction**") since the time that the Investor was first contacted by the Company or any other Person regarding an investment in the Company. The Investor covenants that neither it nor any Person acting on its behalf or pursuant to any understanding with the Investor will engage, directly or indirectly, in any Transactions in the securities of the Company (including Short Sales) prior to the time the transactions contemplated by this Agreement are publicly disclosed. **"Short Sales"** include, without limitation, all "short sales" as defined in Rule 200 promulgated under Regulation SHO under the Exchange Act and all types of direct and indirect stock pledges, forward sale contracts, options, puts, calls, short sales, swaps, derivatives and similar arrangements (including on a total return basis), and sales and other transactions through non-U.S. broker-dealers or foreign regulated brokers.

(j) Restricted Securities; Reliance on Exemptions. The Investor understands that the Securities are being offered and sold to it in reliance on specific exemptions from the registration requirements of United States federal and state securities laws and, thus, are characterized as "restricted securities" under the U.S. federal securities laws inasmuch as they are being acquired from the Company in a transaction not involving a public offering

and that under such laws and applicable regulations such securities may be resold without registration under the Securities Act only in certain limited circumstances. The Investor further understands that the Company is relying in part upon the truth and accuracy of, and the Investor's compliance with, the representations, warranties, agreements, acknowledgments and understandings of the Investor set forth herein in order to determine the availability of such exemptions and the eligibility of the Investor to acquire the Securities.

(k) Legends. It is understood that, except as provided in Section 4.1(b) of this Agreement, certificates evidencing such Securities may bear the legend set forth in Section 4.1(b).

(l) No Legal, Tax or Investment Advice. The Investor understands that nothing in this Agreement or any other materials presented by or on behalf of the Company to the Investor in connection with the purchase of the Securities constitutes legal, tax or investment advice. The Investor has consulted such legal, tax and investment advisors as it, in its sole discretion, has deemed necessary or appropriate in connection with its purchase of the Securities.

ARTICLE IV
OTHER AGREEMENTS OF THE PARTIES

4.1 Transfer Restrictions.

(a) The Investor covenants that the Securities will only be disposed of pursuant to an effective registration statement under, and in compliance with the requirements of, the Securities Act or pursuant to an available exemption from the registration requirements of the Securities Act, and in compliance with any applicable state securities laws. In connection with any transfer of Securities other than pursuant to an effective registration statement or to the Company, or pursuant to Rule 144, the Company may require the transferor to provide to the Company an opinion of counsel selected by the transferor, the form and substance of which opinion shall be reasonably satisfactory to the Company, to the effect that such transfer does not require registration under the Securities Act. Notwithstanding the foregoing, the Company hereby consents to and agrees to register on the books of the Company and with its Transfer Agent, without any such legal opinion, except to the extent that the transfer agent requests such legal opinion, any transfer of Securities by the Investor to an Affiliate of the Investor, provided that the transferee certifies to the Company that it is an "accredited investor" as defined in Rule 501(a) under the Securities Act and provided that such Affiliate does not request any removal of any existing legends on any certificate evidencing the Securities.

(b) The Investor agrees to the imprinting, until no longer required by this Section 4.1(b), of the following legend on any certificate evidencing any of the Securities:

THE SECURITIES REPRESENTED HEREBY HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "ACT"), OR UNDER THE SECURITIES LAWS OF CERTAIN STATES. THESE SECURITIES MAY NOT BE OFFERED, SOLD OR

OTHERWISE TRANSFERRED, PLEDGED OR HYPOTHECATED EXCEPT AS PERMITTED UNDER THE AMENDED AND RESTATED INVESTOR RIGHTS AGREEMENT, THE ACT AND APPLICABLE STATE SECURITIES LAWS PURSUANT TO REGISTRATION OR AN EXEMPTION THEREFROM. THE ISSUER OF THESE SECURITIES MAY REQUIRE AN OPINION OF COUNSEL SATISFACTORY TO THE ISSUER THAT SUCH OFFER, SALE OR TRANSFER, PLEDGE OR HYPOTHECATION OTHERWISE COMPLIES WITH THE ACT AND ANY APPLICABLE STATE SECURITIES LAWS. THESE SECURITIES MAY BE PLEDGED IN CONNECTION WITH A BONA FIDE MARGIN ACCOUNT WITH A REGISTERED BROKER-DEALER OR OTHER LOAN WITH A FINANCIAL INSTITUTION THAT IS AN "ACCREDITED INVESTOR" AS DEFINED IN RULE 501(a) UNDER THE SECURITIES ACT OR OTHER LOAN SECURED BY SUCH SECURITIES.

Certificates evidencing the Preferred Shares and the Warrant Shares shall not be required to contain such legend or any other legend (i) while a registration statement (including the Registration Statement) covering the resale of the Preferred Shares and the Warrant Shares is effective under the Securities Act, (ii) following any sale of such Securities pursuant to Rule 144 if the holder provides the Company with a legal opinion reasonably acceptable to the Company to the effect that the Securities can be sold under Rule 144, (iii) if the Securities are eligible for sale without any volume limitation under Rule 144, or (iv) if the holder provides the Company with a legal opinion reasonably acceptable to the Company to the effect that the legend is not required under applicable requirements of the Securities Act (including controlling judicial interpretations and pronouncements issued by the Staff of the SEC). The Company shall cause its counsel to issue the legal opinion included in the Transfer Agent Instructions to the Transfer Agent on the Effective Date. Following the Effective Date and provided the registration statement referred to in clause (i) above is then in effect, or at such earlier time as a legend is no longer required for certain Securities, the Company will, no later than three Trading Days following the delivery by the Investor to the Company or the Transfer Agent (if delivery is made to the Transfer Agent a copy shall be contemporaneously delivered to the Company) of (i) a legended certificate representing such Securities (and, in the case of a requested transfer, endorsed or with stock powers attached, signatures guaranteed, and otherwise in form necessary to affect transfer), and (ii) an opinion of counsel to the extent required by Section 4.1(a), deliver or cause to be delivered to the Investor a certificate representing such Securities that is free from all restrictive and other legends. The Company may not make any notation on its records or give instructions to the Transfer Agent that enlarge the restrictions on transfer set forth in this Section.

(c) The Company will not object to and shall permit (except as prohibited by law) the Investor to pledge or grant a security interest in some or all of the Securities in connection with a bona fide margin agreement with a registered broker-dealer or grant a security interest in some or all of the Securities to a financial institution that is an "accredited investor" as defined in Rule 501(a) under the Securities Act and who agrees to be bound by the provisions of this Agreement, and if required under the terms of such arrangement, the Company will not object to and shall permit (except as prohibited by law) the Investor to transfer pledged or secured Securities to the pledgees or secured parties. Except as required by law, such a pledge or

transfer would not be subject to approval of the Company, no legal opinion of the pledgee, secured party or pledgor shall be required in connection therewith (but such legal opinion shall be required in connection with a subsequent transfer or foreclosure following default by the Purchaser transferee of the pledge), and no notice shall be required of such pledge. The Investor acknowledges that the Company shall not be responsible for any pledges relating to, or the grant of any security interest in, any of the Securities or for any agreement, understanding or arrangement between the Investor and any pledgee or secured party. At the Investor's expense, the Company will execute and deliver such reasonable documentation as a pledgee or secured party of Securities may reasonably request in connection with a pledge or transfer of the Securities, including the preparation and filing of any required prospectus supplement under Rule 424(b)(3) of the Securities Act or other applicable provision of the Securities Act to appropriately amend the list of Selling Stockholders thereunder. Provided that the Company is in compliance with the terms of this Section 4.1(c), the Company's indemnification obligations pursuant to the Registration Rights Agreement shall not extend to any Proceeding or Losses arising out of or related to this Section 4.1(c).

4.2 Furnishing of Information. Until the date that the Investor owning Preferred Shares or Warrant Shares may sell all of them without any volume limitation under Rule 144 of the Securities Act (or any successor provision), the Company covenants to use its commercially reasonable efforts to timely file (or obtain extensions in respect thereof and file within the applicable grace period) all reports required to be filed by the Company after the date hereof pursuant to the Exchange Act.

4.3 Integration. The Company and its Subsidiaries shall not, and shall use their commercially reasonable efforts to ensure that no Affiliate thereof shall, sell, offer for sale or solicit offers to buy or otherwise negotiate in respect of any security (as defined in Section 2 of the Securities Act) that would be integrated with the offer or sale of the Securities in a manner that would require the registration under the Securities Act of the sale of the Securities to the Investor or that would be integrated with the offer or sale of the Securities for purposes of the rules and regulations of any Trading Market.

4.4 Reservation of Securities. The Company shall maintain a reserve from its duly authorized capital stock for issuance pursuant to the Transaction Documents in such amount as may be required to fulfill its obligations to issue such Securities under the Transaction Documents. In the event that at any time the then authorized shares of Common Stock are insufficient for the Company to satisfy its obligations to issue such Securities under the Transaction Documents, the Company shall promptly take such actions as may be required to increase the number of authorized shares.

4.5 Securities Laws Disclosure; Publicity. The Company shall issue a press release disclosing all material terms of the transactions contemplated hereby and shall file a Current Report on Form 8-K with the SEC (the "**8-K Filing**") describing the terms of the transactions contemplated by the Transaction Documents and including as exhibits to such Current Report on Form 8-K the Transaction Documents and the form of Warrants, in the form required by the Exchange Act. Thereafter, the Company shall timely file any filings and notices required by the SEC or applicable law with respect to the transactions contemplated hereby and provide copies thereof to the Investor promptly after filing. Except as herein provided, neither the Company nor any Subsidiary shall publicly disclose the name of the Investor, or include the name of the

Investor in any press release without the prior written consent of the Investor (which consent shall not be unreasonably withheld or delayed), unless otherwise required by law, regulatory authority or Trading Market. Neither the Company nor any Subsidiary shall, nor shall any of their respective officers, directors, employees and agents, provide the Investor with any material nonpublic information regarding the Company or any Subsidiary from and after the issuance of the above referenced press release without the express written consent of the Investor.

4.6 Listing Approval. The Company covenants to use Best Efforts to obtain qualification and approval by the NASDAQ Stock Market LLC of all of the shares of Common Stock issuable upon conversion of the Preferred Shares and issuable upon exercise of the Warrants for listing on the NASDAQ Capital Market, and any other Trading Market upon which the Company's Common Stock is listed and is publicly traded.

4.7 Extension of Property Lease. The Company shall enter into an extension of the existing Amended Lease, dated July 20, 2006, by and between Carilion Medical Center and the Company (the "**Property Lease**") on customary and reasonable terms that are mutually acceptable to the Company and the Investor. The extension of the term of the Property Lease shall be through December 31, 2015 with all terms consistent with existing terms and conditions, except that the Company agrees to waive Section 2A "Tenant's Right to Terminate the Lease." The Company and Investor shall execute such extension of the Property Lease no later than March 31, 2010.

ARTICLE V
CONDITIONS

5.1 Conditions Precedent to the Obligations of the Investor. The obligation of the Investor to acquire Securities at the Closing is subject to the satisfaction or waiver by the Investor, at or before the Closing, of each of the following conditions:

(a) Representations and Warranties. The representations and warranties of the Company contained herein shall be true and correct in all material respects as of the date when made and as of the Closing as though made on and as of such date (except such representations and warranties that are made of a specific date shall be true and correct at Closing as of such specific date);

(b) Performance. The Company shall have performed, satisfied and complied in all material respects with all covenants, agreements and conditions required by the Transaction Documents to be performed, satisfied or complied with by it at or prior to the Closing, in all cases subject to the Company's rights and obligations as a Chapter 11 debtor and debtor-in-possession (each term as defined in the Bankruptcy Code);

(c) No Material Adverse Effect. As of the Closing Date, there will have been (i) since the Company's unaudited financial statements for the quarter ended September 30, 2009, no Material Adverse Effect and (ii) no litigation commenced which, if successful, would have a Material Adverse Effect on the Company or its business or which would challenge the transactions contemplated hereby;

(d) Qualifications. All authorizations, approvals or permits, if any, of any governmental authority or regulatory body of the United States, of any state or any material agreement of the Company for the lawful issuance and sale of the Securities pursuant to this Agreement shall be duly obtained and effective as of the Closing;

(e) Closing Documents. All closing documents and certificates required to be delivered by the Company shall have been delivered to the Investor on or before the Closing Date;

(f) Confirmation of Plan. The confirmation of the Plan by the Bankruptcy Court and occurrence of the Plan Effective Date shall have occurred; and

(g) Hansen Settlement Documents. The Hansen Settlement Documents (as defined in the Plan) shall have become effective.

(h) Opinion of Company's Legal Counsel. The Investor shall have obtained, to its reasonable satisfaction, an opinion from Company's outside legal counsel that the Preferred Shares and Warrants (A) have been duly and validly authorized for issuance by all necessary corporate action by the Company and (B) when issued and sold by the Company against consideration therefore pursuant to the terms of this Agreement, the Preferred Shares and Warrants will be validly issued, fully paid and non-assessable.

(i) NASDAQ Listing. The issuance of the Preferred Shares and Warrants shall comply with the listing requirements of the NASDAQ capital market.

5.2 Conditions Precedent to the Obligations of the Company. The obligation of the Company to sell the Securities at the Closing is subject to the satisfaction or waiver by the Company, at or before the Closing, of each of the following conditions:

(a) Representations and Warranties. The representations and warranties of the Investor contained herein shall be true and correct in all material respects as of the date when made and as of the Closing Date as though made on and as of such date (except such representations and warranties that are made of a specific date shall be true and correct at Closing as of such specific date);

(b) Performance. The Investor shall have performed, satisfied and complied in all material respects with all covenants, agreements and conditions required by the Transaction Documents to be performed, satisfied or complied with by the Investor at or prior to the Closing;

(c) Opinion of Company's Legal Counsel. The Company shall have obtained, to its reasonable satisfaction, an opinion from Company's outside legal counsel that the Preferred Shares and Warrants (A) have been duly and validly authorized for issuance by all necessary corporate action by the Company and (B) when issued and sold by the Company against consideration therefore pursuant to the terms of this Agreement, the Preferred Shares and Warrants will be validly issued, fully paid and non-assessable;

(d) Closing Documents. All closing documents and certificates required to be delivered by the Investor shall have been delivered to the Company on or before the Closing Date;

(e) Confirmation of Plan. The confirmation of the Plan by the Bankruptcy Court and occurrence of the Plan Effective Date shall have occurred; and

(f) Hansen Settlement Documents. The Hansen Settlement Documents (as defined in the Plan) shall have become effective.

(g) NASDAQ Listing. The issuance of the Preferred Shares and Warrants shall comply with the listing requirements of the NASDAQ capital market.

ARTICLE VI
MISCELLANEOUS

6.1 Termination. This Agreement may be terminated by the Company or the Investor, by written notice to the other party, if the Plan Effective Date has not occurred by December 31, 2010.

6.2 Fees and Expenses. Except as expressly set forth in the Transaction Documents to the contrary, the Company shall pay all reasonable and customary closing costs and attorneys' fees of the Investor for preparation of documents and appropriate due diligence review, with all such expenses to be paid at Closing, up to an aggregate maximum of $15,000. Each party shall pay all other fees and expenses of its advisers, counsel, accountants and other experts, if any, and all other expenses incurred by such party incident to the negotiation, preparation, execution, delivery and performance of this Agreement. The Company shall pay all Transfer Agent fees, stamp taxes and other taxes and duties levied in connection with the sale and issuance of the applicable Securities.

6.3 Entire Agreement. The Transaction Documents, together with the exhibits and schedules thereto, contain the entire understanding of the parties with respect to the subject matter hereof and supersede all prior agreements and understandings, oral or written, with respect to such matters, which the parties acknowledge have been merged into such documents, exhibits and schedules. At or after the Closing, and without further consideration, the Company will execute and deliver to the Investor such further documents as may be reasonably requested in order to give practical effect to the intention of the parties under the Transaction Documents.

6.4 Notices. Any and all notices or other communications or deliveries required or permitted to be provided hereunder shall be in writing and shall be deemed given and effective on the earliest of (a) the date of transmission, if such notice or communication is delivered via facsimile or email at the facsimile number or email address specified in this Section prior to 6:30 p.m. (New York City time) on a Trading Day, (b) the next Trading Day after the date of transmission, if such notice or communication is delivered via facsimile or email at the facsimile number or email address specified in this Section on a day that is not a Trading Day or later than 6:30 p.m. (New York City time) on any Trading Day, (c) the Trading Day following the date of

deposit with a nationally recognized overnight courier service, or (d) upon actual receipt by the party to whom such notice is required to be given, in each case, addressed as follows:

if to Investor:

CMC
213 S. Jefferson Street, Suite 720
Roanoke, VA 24011
Attn: Briggs W. Andrews, Esq.
Senior Vice President and General Counsel
F: 540.224.5792

with a copy to:

Woods Rogers PLC
10 South Jefferson Street
Suite 1400
Roanoke, VA 24011
T: 540.983.7600
F: 540.983.7711
Attn: Nicholas C. Conte

if to the Company:

Luna Innovations Incorporated
One Riverside Circle
Suite 400
Roanoke, VA 24016
T: 540.769.8400
F: 540.581.0951
Attn: Scott Graeff

with a copy to:

Proskauer Rose LLP
1001 Pennsylvania Avenue, NW
Suite 400 South
Washington, DC 20004
T: 202.416.6800
F: 202.416.6899
Attn: Trevor J. Chaplick, Esq.

6.5 Amendments; Waivers. No provision of this Agreement may be waived or amended except in a written instrument signed, in the case of an amendment, by the Company and the Investor or, in the case of a waiver, by the party against whom enforcement of any such waiver is sought. No waiver of any default with respect to any provision, condition or requirement of this Agreement shall be deemed to be a continuing waiver in the future or a waiver of any subsequent

default or a waiver of any other provision, condition or requirement hereof, nor shall any delay or omission of any party to exercise any right hereunder in any manner impair the exercise of any such right. Notwithstanding the foregoing, a waiver or consent to depart from the provisions hereof with respect to a matter that relates exclusively to the rights of Investor under Article VI may be given by Investor holding at least a majority of the Registrable Securities to which such waiver or consent relates.

6.6 Construction. The headings herein are for convenience only, do not constitute a part of this Agreement and shall not be deemed to limit or affect any of the provisions hereof. The language used in this Agreement will be deemed to be the language chosen by the parties to express their mutual intent, and no rules of strict construction will be applied against any party.

6.7 Successors and Assigns. This Agreement shall be binding upon and inure to the benefit of the parties and their successors and permitted assigns. The Investor may assign its rights under this Agreement to any Person to whom the Investor assigns or transfers any Securities, provided (i) such transferor agrees in writing with the transferee or assignee to assign such rights, and a copy of such agreement is furnished to the Company after such assignment, (ii) the Company is furnished with written notice of (x) the name and address of such transferee or assignee and (y) the Registrable Securities with respect to which such registration rights are being transferred or assigned, (iii) following such transfer or assignment, the further disposition of such securities by the transferee or assignee is restricted under the Securities Act and applicable state securities laws, (iv) such transferee agrees in writing to be bound, with respect to the transferred Securities, by the provisions hereof that apply to the "Investor" and (v) such transfer shall have been made in accordance with the applicable requirements of this Agreement and with all laws applicable thereto.

6.8 No Third-Party Beneficiaries. This Agreement is intended for the benefit of the parties hereto and their respective successors and permitted assigns and is not for the benefit of, nor may any provision hereof be enforced by, any other Person.

6.9 Governing Law; Venue; Waiver of Jury Trial. With respect to any disputes arising out of or related to this Agreement, the parties consent to the exclusive jurisdiction of, and venue in, the state courts in the City of Roanoke in the Commonwealth of Virginia (or in the event of exclusive federal jurisdiction, the courts of the Western District of Virginia, Roanoke Division). The Company and Investor hereby waive all rights to a trial by jury.

6.10 Survival. The representations and warranties, agreements and covenants contained herein shall survive the Closing.

6.11 Execution. This Agreement may be executed in two or more counterparts, all of which when taken together shall be considered one and the same agreement and shall become effective when counterparts have been signed by each party and delivered to the other party, it being understood that both parties need not sign the same counterpart. In the event that any signature is delivered by facsimile transmission or email attachment, such signature shall create a valid and binding obligation of the party executing (or on whose behalf such signature is executed) with the same force and effect as if such facsimile or email-attached signature page were an original thereof.

6.12 Severability. If any provision of this Agreement is held to be invalid or unenforceable in any respect, the validity and enforceability of the remaining terms and provisions of this Agreement shall not in any way be affected or impaired thereby and the parties will attempt to agree upon a valid and enforceable provision that is a reasonable substitute therefor, and upon so agreeing, shall incorporate such substitute provision in this Agreement.

6.13 Replacement of Securities. If any certificate or instrument evidencing any Securities is mutilated, lost, stolen or destroyed, the Company shall issue or cause to be issued in exchange and substitution for and upon cancellation thereof, or in lieu of and substitution therefor, a new certificate or instrument, but only upon receipt of evidence reasonably satisfactory to the Company of such loss, theft or destruction and the execution by the holder thereof of a customary lost certificate affidavit of that fact and an agreement to indemnify and hold harmless the Company for any losses in connection therewith. The applicants for a new certificate or instrument under such circumstances shall also pay any reasonable third-party costs associated with the issuance of such replacement Securities.

6.14 Remedies. In addition to being entitled to exercise all rights provided herein or granted by law, including recovery of damages, the Investor and the Company will be entitled to seek specific performance under the Transaction Documents. The parties agree that monetary damages may not be adequate compensation for any loss incurred by reason of any breach of obligations described in the foregoing sentence and hereby agree to waive in any action for specific performance of any such obligation (other than in connection with any action for a temporary restraining order) the defense that a remedy at law would be adequate.

6.15 Payment Set Aside. To the extent that the Company makes a payment or payments to the Investor hereunder or the Investor enforces or exercises its rights hereunder, and such payment or payments or the proceeds of such enforcement or exercise or any part thereof are subsequently invalidated, declared to be fraudulent or preferential, set aside, recovered from, disgorged by or are required to be refunded, repaid or otherwise restored to the Company by a trustee, receiver or any other person under any law (including, without limitation, any bankruptcy law, state or federal law, common law or equitable cause of action), then to the extent of any such restoration the obligation or part thereof originally intended to be satisfied shall be revived and continued in full force and effect as if such payment had not been made or such enforcement or setoff had not occurred.

6.16 Adjustments in Share Numbers and Prices. In the event of any stock split, subdivision, dividend or distribution payable in shares of Common Stock (or other securities or rights convertible into, or entitling the holder thereof to receive directly or indirectly shares of Common Stock), combination or other similar recapitalization or event occurring after the date hereof, each reference in any Transaction Document to a number of shares or a price per share shall be amended to appropriately account for such event.

[SIGNATURE PAGES TO FOLLOW]

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be duly executed by their respective authorized signatories as of the date first indicated above.

LUNA INNOVATIONS INCORPORATED

By: /s/ Kent A. Murphy
Name: Kent A. Murphy
Title: CEO

Investor Signature Page

By its execution and delivery of this signature page, the undersigned Investor hereby joins in and agrees to be bound by the terms and conditions of the Agreement and authorizes this signature page to be attached to the Agreement or counterparts thereof.

CARILION CLINIC

By: /s/ G. Robert Vaughn, Jr.
Name: G. Robert Vaughn, Jr.
Title: Asst. Treasurer

Exhibits:

A Form of Certificate of Designations
B Form of Warrant
C Instruction Sheet for Investor
C-1 Stock Certificate Questionnaire
C-2 Registration Statement Questionnaire
C-3 Investor Certificate
D [Intentionally Omitted]
E Company Transfer Agent Instructions
F Opinion of Company Corporate Counsel
G Amended and Restated Investor Rights Agreement

Exhibit 10.2

Execution Copy

THIS WARRANT AND THE UNDERLYING SECURITIES HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "ACT"). THEY MAY NOT BE SOLD, OFFERED FOR SALE, PLEDGED OR HYPOTHECATED IN THE ABSENCE OF AN EFFECTIVE REGISTRATION STATEMENT AS TO SUCH SECURITIES UNDER THE ACT OR AN OPINION OF COUNSEL SATISFACTORY TO THE COMPANY THAT SUCH REGISTRATION IS NOT REQUIRED. THIS WARRANT MUST BE SURRENDERED TO THE COMPANY AS A CONDITION PRECEDENT TO THE SALE, PLEDGE, HYPOTHECATION OR OTHER TRANSFER OF ANY INTEREST IN ANY OF THE SHARES REPRESENTED BY THIS WARRANT.

LUNA INNOVATIONS INCORPORATED

WARRANT TO PURCHASE COMMON STOCK

No. CW-1 **January 13, 2010**

Void After 5 P.M. Eastern Time on December 31, 2020

THIS CERTIFIES THAT, for value received, **Carilion Clinic, formerly known as Carilion Health System**, or assigns, with its principal office at Carilion Roanoke Memorial Hospital, First Floor, 1906 Belleview Ave., Roanoke, Virginia 24033 (the "***Holder***"), is entitled to subscribe for and purchase at the Exercise Price (defined below) from **LUNA INNOVATIONS INCORPORATED**, a Delaware corporation, with its principal office at 1 Riverside Circle, Suite 400, Roanoke, Virginia 24016 (the "***Company***") up to that number of the Exercise Shares of the Common Stock, par value $0.001, of the Company (the "***Common Stock***") determined in accordance with the terms of this Warrant and the attachments hereto (the "***Warrant***").

1. DEFINITIONS. As used herein, the following terms shall have the following respective meanings:

(a) "***Exercise Period***" shall mean the period commencing at 5:00 P.M. Eastern Time on December 31, 2012 and continuing for eight (8) years thereafter.

(b) "***Exercise Price***" shall mean $2.50 per share, subject to adjustment pursuant to Section 5 below.

(c) "***Exercise Shares***" shall mean the 10,000 shares of Common Stock issuable upon exercise of this Warrant, subject to adjustment pursuant to the terms herein, including but not limited to adjustment pursuant to Section 5 below.

2. EXERCISE OF WARRANT.

2.1 Procedure. The rights represented by this Warrant may be exercised in whole or in part at any time during the Exercise Period, by delivery of the following to the Company at its address set forth above (or at such other address as it may designate by notice in writing to the Holder):

(a) An executed Notice of Exercise in the form attached hereto (the "***Notice of Exercise***");

(b) Payment of the Exercise Price either (i) in cash, by wire transfer or by check, (ii) by cancellation of indebtedness, or (iii) by net exercise in accordance with Section 2.2 hereof; and

(c) This Warrant.

Upon the exercise of the rights represented by this Warrant, a certificate or certificates for the Exercise Shares so purchased, in the name of the Holder or persons affiliated with the Holder, if the Holder so designates, shall be issued and delivered to the Holder within a reasonable time after the rights represented by this Warrant shall have been so exercised, and, if this Warrant has not been fully exercised or converted and has not expired, a new Warrant representing the Shares not so acquired shall be issued and delivered to the Holder within a reasonable time after the rights represented by this Warrant shall have been so exercised.

The person in whose name any certificate or certificates for the Exercise Shares are to be issued upon exercise of this Warrant shall be deemed to have become the holder of record of such shares on the date on which this Warrant was surrendered and payment of the Exercise Price was made, irrespective of the date of delivery of such certificate or certificates, except that, if the date of such surrender and payment is a date when the stock transfer books of the Company are closed, such person shall be deemed to have become the holder of such shares at the close of business on the next succeeding date on which the stock transfer books are open.

2.2 Net Exercise. Notwithstanding any provisions herein to the contrary, if the fair market value of one share of the Common Stock is greater than the Exercise Price (at the date of calculation as set forth below), in lieu of exercising this Warrant by payment of cash, the Holder may elect to receive shares equal to the value (as determined below) of this Warrant (or the portion thereof being canceled) by surrender of this Warrant at the principal office of the Company together with the properly completed and endorsed Notice of Exercise, in which event the Company shall issue to the Holder a number of shares of Common Stock computed using the following formula:

$$X = \frac{Y\,(A-B)}{A}$$

Where X = the number of shares of Common Stock to be issued to the Holder

Y = the number of shares of Common Stock purchasable under the Warrant or, if only a portion of the Warrant is being exercised, the portion of the Warrant being canceled (at the date of such calculation)

A = the fair market value of one share of the Common Stock (at the date of such calculation)

B = Exercise Price (as adjusted to the date of such calculation)

For purposes of the above calculation, the fair market value of one share of Common Stock shall mean the average of the closing bid and asked prices of Common Stock quoted in the over-the-counter market in which the Common Stock is traded or the closing price quoted on any exchange on which the Common Stock is listed, whichever is applicable, as published in the Eastern Edition of The Wall Street Journal for the ten (10) trading days prior to the date on which this Warrant is surrendered and payment of the Exercise Price has been paid (or such shorter period of time during which such stock was traded over-the-counter or on such exchange). If the Common Stock is not traded on the over-the-counter market or on an exchange, the fair market value shall be the price per share that the Company could obtain from a willing buyer for Common Stock sold by the Company from authorized but unissued shares, as such price shall be determined in good faith by the Company's Board of Directors.

3. COVENANTS OF THE COMPANY. The Company covenants and agrees that all the Exercise Shares that may be issued upon the exercise of the rights represented by this Warrant will, upon issuance, be validly issued and outstanding, fully paid and nonassessable. The Company further covenants and agrees that the Company will at all times during the Exercise Period have authorized and reserved a sufficient number of shares of its Common Stock to provide for the exercise of the rights represented by this Warrant.

4. REPRESENTATIONS OF HOLDER.

4.1 Acquisition of Warrant for Personal Account. The Holder represents and warrants that it is acquiring the Warrant and the Exercise Shares solely for its account for investment and not with a view to or for sale or distribution of said Warrant or the Exercise Shares or any part thereof. The Holder also represents that the entire legal and beneficial interests of the Warrant and the Exercise Shares the Holder is acquiring is being acquired for, and will be held for, its account only.

4.2 Securities Are Not Registered.

(a) The Holder understands that the Warrant and the Exercise Shares have not been registered under the Securities Act of 1933, as amended (the "***Act***") on the basis that no distribution or public offering of the stock of the Company is to be effected. The Holder realizes that the basis for the exemption may not be present if, notwithstanding its representations, the Holder has a present intention of acquiring the securities for a fixed or determinable period in the future, selling (in connection with a distribution or otherwise), granting any participation in, or otherwise distributing the securities. The Holder has no such present intention.

(b) The Holder recognizes that the Warrant and the Exercise Shares must be held indefinitely unless they are subsequently registered under the Act or an exemption from such registration is available. The Holder recognizes that the Company has no obligation to register the Warrant or the Exercise Shares of the Company, or to comply with any exemption from such registration.

(c) The Holder is aware that neither the Warrant nor the Exercise Shares may be sold pursuant to Rule 144 adopted under the Act unless certain conditions are met, including, among other things, the existence of a public market for the shares, the availability of certain current public information about the Company, the resale following the required holding period under Rule 144 and the number of shares being sold during any three month period not exceeding specified limitations.

4.3 Disposition of Warrant and Exercise Shares.

(a) The Holder further agrees not to make any disposition of all or any part of the Warrant or the Exercise Shares in any event unless and until:

(i) There is then in effect a registration statement under the Act covering such proposed disposition and such disposition is made in accordance with said registration statement;

(ii) The Holder shall have notified the Company of the proposed disposition and shall have furnished the Company with a detailed statement of the circumstances surrounding the proposed disposition, and if reasonably requested by the Company, the Holder shall have furnished the Company with an opinion of counsel, reasonably satisfactory to the Company, for the Holder to the effect that such disposition will not require registration of such Warrant or the Exercise Shares under the Act or any applicable state securities laws; or

(iii) The Company shall have received a letter secured by the Holder from the Securities and Exchange Commission stating that no action will be recommended to the Commission with respect to the proposed disposition.

(b) The Holder understands and agrees that all certificates evidencing the shares to be issued to the Holder may bear the following legend:

THE SECURITIES REPRESENTED HEREBY HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE “ACT”), OR UNDER THE SECURITIES LAWS OF CERTAIN STATES. THESE SECURITIES MAY NOT BE OFFERED, SOLD OR OTHERWISE TRANSFERRED, PLEDGED OR HYPOTHECATED EXCEPT AS PERMITTED UNDER THE AMENDED AND RESTATED INVESTOR RIGHTS AGREEMENT, THE ACT AND APPLICABLE STATE SECURITIES LAWS PURSUANT TO REGISTRATION OR AN EXEMPTION THEREFROM. THE ISSUER OF THESE SECURITIES MAY REQUIRE AN OPINION OF COUNSEL SATISFACTORY TO THE ISSUER THAT SUCH OFFER, SALE OR TRANSFER, PLEDGE OR HYPOTHECATION OTHERWISE COMPLIES WITH THE ACT AND ANY APPLICABLE STATE SECURITIES LAWS. THESE SECURITIES MAY BE PLEDGED IN CONNECTION WITH A

BONA FIDE MARGIN ACCOUNT WITH A REGISTERED BROKER-DEALER OR OTHER LOAN WITH A FINANCIAL INSTITUTION THAT IS AN "ACCREDITED INVESTOR" AS DEFINED IN RULE 501(a) UNDER THE SECURITIES ACT OR OTHER LOAN SECURED BY SUCH SECURITIES.

5. ADJUSTMENT OF EXERCISE SHARES AND EXERCISE PRICE.

(a) Stock Splits, Combinations, etc. In the event of changes in the outstanding Common Stock of the Company by reason of stock dividends, split-ups, recapitalizations, reclassifications, combinations or exchanges of shares, separations, reorganizations, liquidations, or the like, the number and class of shares available under the Warrant in the aggregate and the Exercise Price shall be correspondingly adjusted to give the Holder of the Warrant, on exercise for the same aggregate Exercise Price, the total number, class, and kind of shares as the Holder would have owned had the Warrant been exercised prior to the event and had the Holder continued to hold such shares until after the event requiring adjustment. The form of this Warrant need not be changed because of any adjustment in the number of the Exercise Shares subject to this Warrant. The foregoing provisions of this Section 5(a) shall similarly apply to successive stock dividends, split-ups, recapitalizations, reclassifications, combinations or exchanges of shares, separations, reorganizations, liquidations, or the like and to the stock or securities of any other entity that are at the time receivable upon the exercise of this Warrant.

(b) Merger, Sale of Assets, etc. If at any time while this Warrant, or any portion hereof, is outstanding and unexpired there shall occur (i) the sale, conveyance, exchange, license or other transfer of all or substantially all of the intellectual property or assets of the Company, (ii) any acquisition of the Company by means of a consolidation, stock exchange, merger or other form of corporate reorganization of the Company with any other corporation in which the Company's stockholders prior to the consolidation or merger own less than a majority of the voting securities of the surviving entity or (iii) any transaction or series of related transactions following which the Company's stockholders prior to such transaction or series of related transactions own less than a majority of the voting securities of the Company (collectively, a "***Change of Control***"), this Warrant shall cease to represent the right to receive the Exercise Shares and shall automatically and without further action represent the right to receive upon exercise of this Warrant, during the period specified herein and upon payment of the Exercise Price then in effect, the number of shares of stock or other securities or property offered to the Company's holders of Common Stock in connection with such Change of Control that a holder of the shares deliverable upon exercise of this Warrant would have been entitled to receive in such Change of Control if this Warrant had been exercised immediately before such Change of Control, subject to further adjustment as provided in this Section 5. The foregoing provisions of this Section 5(b) shall similarly apply to successive reorganizations, consolidations, mergers, sales and transfers and to the stock or securities of any other entity that are at the time receivable upon the exercise of this Warrant. If the per share consideration payable to the holder hereof in connection with any such transaction is in a form other than cash or marketable securities, then the value of such consideration shall be determined in good faith by the Company's Board of Directors. In all events, appropriate adjustment (as determined in good faith by the Company's Board of Directors) shall be made in the application of the provisions of

this Warrant with respect to the rights and interests of the Holder after the transaction, to the end that the provisions of this Warrant shall be applicable after that event, as near as reasonably may be, in relation to any shares or other property deliverable after that event upon exercise of this Warrant.

6. FRACTIONAL SHARES. No fractional shares shall be issued upon the exercise of this Warrant as a consequence of any adjustment pursuant hereto. All Exercise Shares (including fractions) issuable upon exercise of this Warrant may be aggregated for purposes of determining whether the exercise would result in the issuance of any fractional share. If, after aggregation, the exercise would result in the issuance of a fractional share, the Company shall, in lieu of issuance of any fractional share, pay the Holder otherwise entitled to such fraction a sum in cash equal to the product resulting from multiplying the then current fair market value of an Exercise Share by such fraction.

7. NOTICE OF CERTAIN EVENTS. The Company shall provide to the Holder at least five (5) days advance written notice of any event that would result in an adjustment to the Exercise Shares or Exercise Price pursuant to Section 5 hereof.

8. MARKET STAND-OFF AGREEMENT. In connection with any public offering of securities of the Company registered under the Act, the Holder hereby agrees not to sell, transfer, make any short sale of, grant any option for the purchase of, enter into any hedging or similar transaction with the same economic effect as a sale or otherwise transfer or dispose of any Common Stock (or any other securities of the Company) held by the Holder (other than those included in the registration) for a period of one hundred eighty (180) calendar days following the effective date of a registration statement of the Company filed under the Act in connection with such offering (or such other period as may be requested by the Company or an underwriter to accommodate regulatory restrictions on (i) the publication or other distribution of research reports and (ii) analyst recommendations and opinions, including, but not limited to, the restrictions contained in NASD Rule 2711(f)(4) or NYSE Rule 472(f)(4), or any successor provisions or amendments thereto). The Holder agrees to execute and deliver such other agreements as may be reasonably requested by the Company or the underwriter that are consistent with the Holder's obligations under this Section 8 or that are necessary to give further effect thereto. The Company may impose stop-transfer instructions with respect to the shares of Common Stock (or any other securities) subject to the foregoing restriction until the end of the market stand-off day period.

9. NO STOCKHOLDER RIGHTS. This Warrant in and of itself shall not entitle the Holder to any voting rights or other rights as a stockholder of the Company.

10. TRANSFER OF WARRANT. Subject to applicable laws and the restriction on transfer set forth on the first page of this Warrant, this Warrant and all rights hereunder are transferable, by the Holder in person or by duly authorized attorney, upon delivery of this Warrant and the form of assignment attached hereto to any transferee designated by the Holder. The transferee shall sign an investment letter in form and substance satisfactory to the Company.

11. LOST, STOLEN, MUTILATED OR DESTROYED WARRANT. If this Warrant is lost, stolen, mutilated or destroyed, the Company may, on such terms as to indemnity

or otherwise as it may reasonably impose (which shall, in the case of a mutilated Warrant, include the surrender thereof), issue a new Warrant of like denomination and tenor as the Warrant so lost, stolen, mutilated or destroyed. Any such new Warrant shall constitute an original contractual obligation of the Company, whether or not the allegedly lost, stolen, mutilated or destroyed Warrant shall be at any time enforceable by anyone.

12. NOTICES, ETC. Any notices required or permitted hereunder shall be in writing and shall be deemed effectively given: (a) upon personal delivery to the party to be notified, (b) when sent by confirmed telex or facsimile if sent during normal business hours of the recipient, if not, then on the next business day, (c) five (5) days after having been sent by registered or certified mail, return receipt requested, postage prepaid, or (d) one (1) day after deposit with a nationally recognized overnight courier, specifying next day delivery, with written verification of receipt. All communications shall be sent to the Company or to the Holder at their respective addresses set forth above or at such other address as the Company or the Holder may designate by ten (10) days advance written notice to the other parties hereto.

13. ACCEPTANCE. Receipt of this Warrant by the Holder shall constitute acceptance of and agreement to all of the terms and conditions contained herein.

14. GOVERNING LAW. This Warrant and all rights, obligations and liabilities hereunder shall be governed by the laws of the State of Delaware.

* * * * * *

IN WITNESS WHEREOF, the Company has caused this Warrant to be executed by its duly authorized officer as of January 13, 2010.

LUNA INNOVATIONS INCORPORATED

By: /s/ Kent A. Murphy
Name: **Kent A. Murphy**
Title: **CEO**

Agreed and accepted:

CARILION CLINIC

By: /s/ G. Robert Vaughan
Name: **G. Robert Vaughan**
Title: **Assistant Treasurer**

NOTICE OF EXERCISE

TO: LUNA INNOVATIONS INCORPORATED

(1) The undersigned hereby irrevocably elects to purchase shares of the Common Stock of **LUNA INNOVATIONS INCORPORATED** (the "***Company***") pursuant to the terms of the attached Warrant, and tenders herewith payment of the exercise price in full, together with all applicable transfer taxes, if any.

The undersigned hereby irrevocably elects to purchase shares of the Common Stock of **LUNA INNOVATIONS INCORPORATED** (the "***Company***") pursuant to the terms of the net exercise provisions set forth in Section 2.2 of the attached Warrant, and shall tender payment of all applicable transfer taxes, if any. Net-issue information, calculated in accordance with Section 2.2 of the attached Warrant, is as follows:

(a) Number of shares of Common Stock to be issued (x): _____

(b) Number of shares of Common Stock underlying exercised portion of Warrant (y): _____

(c) Fair market value of one share of Common Stock, determined in accordance with Section 2.2 of the Warrant (A): _____

(d) Number of shares of Common Stock remaining subject to Warrant, if any: _____

(2) Please issue a certificate or certificates representing said shares of Common Stock in the name of the undersigned or in such other name as is specified below:

_____

(Name)

_____

_____

(Address)

(3) The undersigned represents that (i) the aforesaid shares of Common Stock are being acquired for the account of the undersigned for investment and not with a view to, or for resale in connection with, the distribution thereof and that the undersigned has no present intention of distributing or reselling such shares; (ii) the undersigned is aware of the Company's business affairs and financial condition and has acquired sufficient information about the Company to reach an informed and knowledgeable decision regarding its investment in the Company; (iii) the undersigned is experienced in making investments of this type and has such knowledge and background in financial and business matters that the undersigned is capable of evaluating the merits and risks of this investment and protecting the undersigned's own interests; (iv) the undersigned understands that the shares of Common Stock issuable upon exercise of this Warrant have not been registered under the Securities Act of 1933, as amended (the "***Securities***

Act"), by reason of a specific exemption from the registration provisions of the Securities Act, which exemption depends upon, among other things, the bona fide nature of the investment intent as expressed herein, and, because such securities have not been registered under the Securities Act, they must be held indefinitely unless subsequently registered under the Securities Act or an exemption from such registration is available; (v) the undersigned is aware that the aforesaid shares of Common Stock may not be sold pursuant to Rule 144 adopted under the Securities Act unless certain conditions are met and until the undersigned has held the shares for the time period prescribed by Rule 144; and (vi) the undersigned agrees not to make any disposition of all or any part of the aforesaid shares of Common Stock unless and until there is then in effect a registration statement under the Securities Act covering such proposed disposition and such disposition is made in accordance with said registration statement, or the undersigned has provided the Company with an opinion of counsel satisfactory to the Company, stating that such registration is not required.

(Date)

(Signature)

(Print Name)

ASSIGNMENT FORM

(To assign the foregoing Warrant, execute this form and supply required information. Do not use this form to purchase shares.)

FOR VALUE RECEIVED, the foregoing Warrant and all rights evidenced thereby are hereby assigned to

Name: _____
(Please Print)

Address: _____
(Please Print)

Dated: _____, 20__

Holder's Signature: _____

Holder's Address: _____

NOTE: The signature to this Assignment Form must correspond with the name as it appears on the face of the Warrant, without alteration or any change whatever. Officers of corporations and those acting in a fiduciary or other representative capacity must present proper evidence of authority to assign the foregoing Warrant.

Exhibit 10.3

Execution Copy

THIS WARRANT AND THE UNDERLYING SECURITIES HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "ACT"). THEY MAY NOT BE SOLD, OFFERED FOR SALE, PLEDGED OR HYPOTHECATED IN THE ABSENCE OF AN EFFECTIVE REGISTRATION STATEMENT AS TO SUCH SECURITIES UNDER THE ACT OR AN OPINION OF COUNSEL SATISFACTORY TO THE COMPANY THAT SUCH REGISTRATION IS NOT REQUIRED. THIS WARRANT MUST BE SURRENDERED TO THE COMPANY AS A CONDITION PRECEDENT TO THE SALE, PLEDGE, HYPOTHECATION OR OTHER TRANSFER OF ANY INTEREST IN ANY OF THE SHARES REPRESENTED BY THIS WARRANT.

LUNA INNOVATIONS INCORPORATED

WARRANT TO PURCHASE COMMON STOCK

No. CW-2 **January 13, 2010**

Void After 5 P.M. Eastern Time on December 31, 2020

THIS CERTIFIES THAT, for value received, **Carilion Clinic, formerly known as Carilion Health System**, or assigns, with its principal office at Carilion Roanoke Memorial Hospital, First Floor, 1906 Belleview Ave., Roanoke, Virginia 24033 (the "***Holder***"), is entitled to subscribe for and purchase at the Exercise Price (defined below) from **LUNA INNOVATIONS INCORPORATED**, a Delaware corporation, with its principal office at 1 Riverside Circle, Suite 400, Roanoke, Virginia 24016 (the "***Company***") up to that number of the Exercise Shares of the Common Stock, par value $0.001, of the Company (the "***Common Stock***") determined in accordance with the terms of this Warrant and the attachments hereto (the "***Warrant***").

1. DEFINITIONS. As used herein, the following terms shall have the following respective meanings:

(a) "***Exercise Period***" shall mean the period commencing at 5:00 P.M. Eastern Time on February 1, 2013 and ending on December 31, 2020.

(b) "***Exercise Price***" shall mean $2.50 per share, subject to adjustment pursuant to Section 5 below.

(c) "***Exercise Shares***" shall mean the 356,000 shares of Common Stock issuable upon exercise of this Warrant, subject to adjustment pursuant to the terms herein, including but not limited to adjustment pursuant to Section 5 below.

2. EXERCISE OF WARRANT.

2.1 Procedure. The rights represented by this Warrant may be exercised in whole or in part at any time during the Exercise Period, by delivery of the following to the Company at its address set forth above (or at such other address as it may designate by notice in writing to the Holder):

(a) An executed Notice of Exercise in the form attached hereto (the "***Notice of Exercise***");

(b) Payment of the Exercise Price either (i) in cash, by wire transfer or by check, (ii) by cancellation of indebtedness, or (iii) by net exercise in accordance with Section 2.2 hereof; and

(c) This Warrant.

Upon the exercise of the rights represented by this Warrant, a certificate or certificates for the Exercise Shares so purchased, in the name of the Holder or persons affiliated with the Holder, if the Holder so designates, shall be issued and delivered to the Holder within a reasonable time after the rights represented by this Warrant shall have been so exercised, and, if this Warrant has not been fully exercised or converted and has not expired, a new Warrant representing the Shares not so acquired shall be issued and delivered to the Holder within a reasonable time after the rights represented by this Warrant shall have been so exercised.

The person in whose name any certificate or certificates for the Exercise Shares are to be issued upon exercise of this Warrant shall be deemed to have become the holder of record of such shares on the date on which this Warrant was surrendered and payment of the Exercise Price was made, irrespective of the date of delivery of such certificate or certificates, except that, if the date of such surrender and payment is a date when the stock transfer books of the Company are closed, such person shall be deemed to have become the holder of such shares at the close of business on the next succeeding date on which the stock transfer books are open.

2.2 Net Exercise. Notwithstanding any provisions herein to the contrary, if the fair market value of one share of the Common Stock is greater than the Exercise Price (at the date of calculation as set forth below), in lieu of exercising this Warrant by payment of cash, the Holder may elect to receive shares equal to the value (as determined below) of this Warrant (or the portion thereof being canceled) by surrender of this Warrant at the principal office of the Company together with the properly completed and endorsed Notice of Exercise, in which event the Company shall issue to the Holder a number of shares of Common Stock computed using the following formula:

$$X = \frac{Y\,(A-B)}{A}$$

Where X = the number of shares of Common Stock to be issued to the Holder

Y = the number of shares of Common Stock purchasable under the Warrant or, if only a portion of the Warrant is being exercised, the portion of the Warrant being canceled (at the date of such calculation)

A = the fair market value of one share of the Common Stock (at the date of such calculation)

B = Exercise Price (as adjusted to the date of such calculation)

For purposes of the above calculation, the fair market value of one share of Common Stock shall mean the average of the closing bid and asked prices of Common Stock quoted in the over-the-counter market in which the Common Stock is traded or the closing price quoted on any exchange on which the Common Stock is listed, whichever is applicable, as published in the Eastern Edition of The Wall Street Journal for the ten (10) trading days prior to the date on which this Warrant is surrendered and payment of the Exercise Price has been paid (or such shorter period of time during which such stock was traded over-the-counter or on such exchange). If the Common Stock is not traded on the over-the-counter market or on an exchange, the fair market value shall be the price per share that the Company could obtain from a willing buyer for Common Stock sold by the Company from authorized but unissued shares, as such price shall be determined in good faith by the Company's Board of Directors.

3. COVENANTS OF THE COMPANY. The Company covenants and agrees that all the Exercise Shares that may be issued upon the exercise of the rights represented by this Warrant will, upon issuance, be validly issued and outstanding, fully paid and nonassessable. The Company further covenants and agrees that the Company will at all times during the Exercise Period have authorized and reserved a sufficient number of shares of its Common Stock to provide for the exercise of the rights represented by this Warrant.

4. REPRESENTATIONS OF HOLDER.

4.1 Acquisition of Warrant for Personal Account. The Holder represents and warrants that it is acquiring the Warrant and the Exercise Shares solely for its account for investment and not with a view to or for sale or distribution of said Warrant or the Exercise Shares or any part thereof. The Holder also represents that the entire legal and beneficial interests of the Warrant and the Exercise Shares the Holder is acquiring is being acquired for, and will be held for, its account only.

4.2 Securities Are Not Registered.

(a) The Holder understands that the Warrant and the Exercise Shares have not been registered under the Securities Act of 1933, as amended (the "***Act***") on the basis that no distribution or public offering of the stock of the Company is to be effected. The Holder realizes that the basis for the exemption may not be present if, notwithstanding its representations, the Holder has a present intention of acquiring the securities for a fixed or determinable period in the future, selling (in connection with a distribution or otherwise), granting any participation in, or otherwise distributing the securities. The Holder has no such present intention.

(b) The Holder recognizes that the Warrant and the Exercise Shares must be held indefinitely unless they are subsequently registered under the Act or an exemption from such registration is available. The Holder recognizes that the Company has no obligation to register the Warrant or the Exercise Shares of the Company, or to comply with any exemption from such registration.

(c) The Holder is aware that neither the Warrant nor the Exercise Shares may be sold pursuant to Rule 144 adopted under the Act unless certain conditions are met, including, among other things, the existence of a public market for the shares, the availability of certain current public information about the Company, the resale following the required holding period under Rule 144 and the number of shares being sold during any three month period not exceeding specified limitations.

4.3 Disposition of Warrant and Exercise Shares.

(a) The Holder further agrees not to make any disposition of all or any part of the Warrant or the Exercise Shares in any event unless and until:

(i) There is then in effect a registration statement under the Act covering such proposed disposition and such disposition is made in accordance with said registration statement;

(ii) The Holder shall have notified the Company of the proposed disposition and shall have furnished the Company with a detailed statement of the circumstances surrounding the proposed disposition, and if reasonably requested by the Company, the Holder shall have furnished the Company with an opinion of counsel, reasonably satisfactory to the Company, for the Holder to the effect that such disposition will not require registration of such Warrant or the Exercise Shares under the Act or any applicable state securities laws; or

(iii) The Company shall have received a letter secured by the Holder from the Securities and Exchange Commission stating that no action will be recommended to the Commission with respect to the proposed disposition.

(b) The Holder understands and agrees that all certificates evidencing the shares to be issued to the Holder may bear the following legend:

THE SECURITIES REPRESENTED HEREBY HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE “ACT”), OR UNDER THE SECURITIES LAWS OF CERTAIN STATES. THESE SECURITIES MAY NOT BE OFFERED, SOLD OR OTHERWISE TRANSFERRED, PLEDGED OR HYPOTHECATED EXCEPT AS PERMITTED UNDER THE AMENDED AND RESTATED INVESTOR RIGHTS AGREEMENT, THE ACT AND APPLICABLE STATE SECURITIES LAWS PURSUANT TO REGISTRATION OR AN EXEMPTION THEREFROM. THE ISSUER OF THESE SECURITIES MAY REQUIRE AN OPINION OF COUNSEL SATISFACTORY TO THE ISSUER THAT SUCH OFFER, SALE OR TRANSFER, PLEDGE OR HYPOTHECATION OTHERWISE COMPLIES WITH THE ACT AND ANY APPLICABLE STATE SECURITIES LAWS. THESE SECURITIES MAY BE PLEDGED IN CONNECTION WITH A

BONA FIDE MARGIN ACCOUNT WITH A REGISTERED BROKER-DEALER OR OTHER LOAN WITH A FINANCIAL INSTITUTION THAT IS AN "ACCREDITED INVESTOR" AS DEFINED IN RULE 501(a) UNDER THE SECURITIES ACT OR OTHER LOAN SECURED BY SUCH SECURITIES.

5. ADJUSTMENT OF EXERCISE SHARES AND EXERCISE PRICE.

(a) Stock Splits, Combinations, etc. In the event of changes in the outstanding Common Stock of the Company by reason of stock dividends, split-ups, recapitalizations, reclassifications, combinations or exchanges of shares, separations, reorganizations, liquidations, or the like, the number and class of shares available under the Warrant in the aggregate and the Exercise Price shall be correspondingly adjusted to give the Holder of the Warrant, on exercise for the same aggregate Exercise Price, the total number, class, and kind of shares as the Holder would have owned had the Warrant been exercised prior to the event and had the Holder continued to hold such shares until after the event requiring adjustment. The form of this Warrant need not be changed because of any adjustment in the number of the Exercise Shares subject to this Warrant. The foregoing provisions of this Section 5(a) shall similarly apply to successive stock dividends, split-ups, recapitalizations, reclassifications, combinations or exchanges of shares, separations, reorganizations, liquidations, or the like and to the stock or securities of any other entity that are at the time receivable upon the exercise of this Warrant.

(b) Merger, Sale of Assets, etc. If at any time while this Warrant, or any portion hereof, is outstanding and unexpired there shall occur (i) the sale, conveyance, exchange, license or other transfer of all or substantially all of the intellectual property or assets of the Company, (ii) any acquisition of the Company by means of a consolidation, stock exchange, merger or other form of corporate reorganization of the Company with any other corporation in which the Company's stockholders prior to the consolidation or merger own less than a majority of the voting securities of the surviving entity or (iii) any transaction or series of related transactions following which the Company's stockholders prior to such transaction or series of related transactions own less than a majority of the voting securities of the Company (collectively, a "***Change of Control***"), this Warrant shall cease to represent the right to receive the Exercise Shares and shall automatically and without further action represent the right to receive upon exercise of this Warrant, during the period specified herein and upon payment of the Exercise Price then in effect, the number of shares of stock or other securities or property offered to the Company's holders of Common Stock in connection with such Change of Control that a holder of the shares deliverable upon exercise of this Warrant would have been entitled to receive in such Change of Control if this Warrant had been exercised immediately before such Change of Control, subject to further adjustment as provided in this Section 5. The foregoing provisions of this Section 5(b) shall similarly apply to successive reorganizations, consolidations, mergers, sales and transfers and to the stock or securities of any other entity that are at the time receivable upon the exercise of this Warrant. If the per share consideration payable to the holder hereof in connection with any such transaction is in a form other than cash or marketable securities, then the value of such consideration shall be determined in good faith by the Company's Board of Directors. In all events, appropriate adjustment (as determined in good faith by the Company's Board of Directors) shall be made in the application of the provisions of

this Warrant with respect to the rights and interests of the Holder after the transaction, to the end that the provisions of this Warrant shall be applicable after that event, as near as reasonably may be, in relation to any shares or other property deliverable after that event upon exercise of this Warrant.

6. FRACTIONAL SHARES. No fractional shares shall be issued upon the exercise of this Warrant as a consequence of any adjustment pursuant hereto. All Exercise Shares (including fractions) issuable upon exercise of this Warrant may be aggregated for purposes of determining whether the exercise would result in the issuance of any fractional share. If, after aggregation, the exercise would result in the issuance of a fractional share, the Company shall, in lieu of issuance of any fractional share, pay the Holder otherwise entitled to such fraction a sum in cash equal to the product resulting from multiplying the then current fair market value of an Exercise Share by such fraction.

7. NOTICE OF CERTAIN EVENTS. The Company shall provide to the Holder at least five (5) days advance written notice of any event that would result in an adjustment to the Exercise Shares or Exercise Price pursuant to Section 5 hereof.

8. MARKET STAND-OFF AGREEMENT. In connection with any public offering of securities of the Company registered under the Act, the Holder hereby agrees not to sell, transfer, make any short sale of, grant any option for the purchase of, enter into any hedging or similar transaction with the same economic effect as a sale or otherwise transfer or dispose of any Common Stock (or any other securities of the Company) held by the Holder (other than those included in the registration) for a period of one hundred eighty (180) calendar days following the effective date of a registration statement of the Company filed under the Act in connection with such offering (or such other period as may be requested by the Company or an underwriter to accommodate regulatory restrictions on (i) the publication or other distribution of research reports and (ii) analyst recommendations and opinions, including, but not limited to, the restrictions contained in NASD Rule 2711(f)(4) or NYSE Rule 472(f)(4), or any successor provisions or amendments thereto). The Holder agrees to execute and deliver such other agreements as may be reasonably requested by the Company or the underwriter that are consistent with the Holder's obligations under this Section 8 or that are necessary to give further effect thereto. The Company may impose stop-transfer instructions with respect to the shares of Common Stock (or any other securities) subject to the foregoing restriction until the end of the market stand-off day period.

9. NO STOCKHOLDER RIGHTS. This Warrant in and of itself shall not entitle the Holder to any voting rights or other rights as a stockholder of the Company.

10. TRANSFER OF WARRANT. Subject to applicable laws and the restriction on transfer set forth on the first page of this Warrant, this Warrant and all rights hereunder are transferable, by the Holder in person or by duly authorized attorney, upon delivery of this Warrant and the form of assignment attached hereto to any transferee designated by the Holder. The transferee shall sign an investment letter in form and substance satisfactory to the Company and shall be subject to all terms and conditions of this Warrant.

11. LOST, STOLEN, MUTILATED OR DESTROYED WARRANT. If this Warrant is lost, stolen, mutilated or destroyed, the Company may, on such terms as to indemnity or otherwise as it may reasonably impose (which shall, in the case of a mutilated Warrant, include the surrender thereof), issue a new Warrant of like denomination and tenor as the Warrant so lost, stolen, mutilated or destroyed. Any such new Warrant shall constitute an original contractual obligation of the Company, whether or not the allegedly lost, stolen, mutilated or destroyed Warrant shall be at any time enforceable by anyone.

12. NOTICES, ETC. Any notices required or permitted hereunder shall be in writing and shall be deemed effectively given: (a) upon personal delivery to the party to be notified, (b) when sent by confirmed telex or facsimile if sent during normal business hours of the recipient, if not, then on the next business day, (c) five (5) days after having been sent by registered or certified mail, return receipt requested, postage prepaid, or (d) one (1) day after deposit with a nationally recognized overnight courier, specifying next day delivery, with written verification of receipt. All communications shall be sent to the Company or to the Holder at their respective addresses set forth above or at such other address as the Company or the Holder may designate by ten (10) days advance written notice to the other parties hereto.

13. ACCEPTANCE. Receipt of this Warrant by the Holder shall constitute acceptance of and agreement to all of the terms and conditions contained herein.

14. GOVERNING LAW. This Warrant and all rights, obligations and liabilities hereunder shall be governed by the laws of the State of Delaware.

15. AMENDMENT. Any term of this Warrant may be amended or waived with the written consent of the Company and Holder.

* * * * * *

IN WITNESS WHEREOF, the Company has caused this Warrant to be executed by its duly authorized officer as of January 13, 2010.

LUNA INNOVATIONS INCORPORATED

By: /s/ Kent A. Murphy
Name: **Kent A. Murphy**
Title: **CEO**

Agreed and accepted:

CARILION CLINIC

By: /s/ G. Robert Vaughan
Name: **G. Robert Vaughan**
Title: **Assistant Treasurer**

NOTICE OF EXERCISE

TO: LUNA INNOVATIONS INCORPORATED

(1) The undersigned hereby irrevocably elects to purchase shares of the Common Stock of **LUNA INNOVATIONS INCORPORATED** (the "***Company***") pursuant to the terms of the attached Warrant, and tenders herewith payment of the exercise price in full, together with all applicable transfer taxes, if any.

The undersigned hereby irrevocably elects to purchase shares of the Common Stock of **LUNA INNOVATIONS INCORPORATED** (the "***Company***") pursuant to the terms of the net exercise provisions set forth in Section 2.2 of the attached Warrant, and shall tender payment of all applicable transfer taxes, if any. Net-issue information, calculated in accordance with Section 2.2 of the attached Warrant, is as follows:

(a) Number of shares of Common Stock to be issued (x): _____

(b) Number of shares of Common Stock underlying exercised portion of Warrant (y): _____

(c) Fair market value of one share of Common Stock, determined in accordance with Section 2.2 of the Warrant (A): _____

(d) Number of shares of Common Stock remaining subject to Warrant, if any: _____

(2) Please issue a certificate or certificates representing said shares of Common Stock in the name of the undersigned or in such other name as is specified below:

_____

(Name)

_____

_____

(Address)

(3) The undersigned represents that (i) the aforesaid shares of Common Stock are being acquired for the account of the undersigned for investment and not with a view to, or for resale in connection with, the distribution thereof and that the undersigned has no present intention of distributing or reselling such shares; (ii) the undersigned is aware of the Company's business affairs and financial condition and has acquired sufficient information about the Company to reach an informed and knowledgeable decision regarding its investment in the Company; (iii) the undersigned is experienced in making investments of this type and has such knowledge and background in financial and business matters that the undersigned is capable of evaluating the merits and risks of this investment and protecting the undersigned's own interests; (iv) the undersigned understands that the shares of Common Stock issuable upon exercise of this Warrant have not been registered under the Securities Act of 1933, as amended (the "***Securities***

Act"), by reason of a specific exemption from the registration provisions of the Securities Act, which exemption depends upon, among other things, the bona fide nature of the investment intent as expressed herein, and, because such securities have not been registered under the Securities Act, they must be held indefinitely unless subsequently registered under the Securities Act or an exemption from such registration is available; (v) the undersigned is aware that the aforesaid shares of Common Stock may not be sold pursuant to Rule 144 adopted under the Securities Act unless certain conditions are met and until the undersigned has held the shares for the time period prescribed by Rule 144; and (vi) the undersigned agrees not to make any disposition of all or any part of the aforesaid shares of Common Stock unless and until there is then in effect a registration statement under the Securities Act covering such proposed disposition and such disposition is made in accordance with said registration statement, or the undersigned has provided the Company with an opinion of counsel satisfactory to the Company, stating that such registration is not required.

(Date)

(Signature)

(Print Name)

ASSIGNMENT FORM

(To assign the foregoing Warrant, execute this form and supply required information. Do not use this form to purchase shares.)

FOR VALUE RECEIVED, the foregoing Warrant and all rights evidenced thereby are hereby assigned to

Name: _____
(Please Print)

Address: _____
(Please Print)

Dated: _____, 20__

Holder's Signature: _____

Holder's Address: _____

NOTE: The signature to this Assignment Form must correspond with the name as it appears on the face of the Warrant, without alteration or any change whatever. Officers of corporations and those acting in a fiduciary or other representative capacity must present proper evidence of authority to assign the foregoing Warrant.

Exhibit 10.4

Execution Copy

LUNA INNOVATIONS INCORPORATED

AMENDED & RESTATED INVESTOR RIGHTS AGREEMENT

January 13, 2010

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LUNA INNOVATIONS INCORPORATED

AMENDED AND RESTATED INVESTOR RIGHTS AGREEMENT

This Amended and Restated Investor Rights Agreement (this "**Agreement**") is made as of January 13, 2010, by and among Luna Innovations Incorporated, a Delaware corporation (the "**Company**"), the entity (the "**Investor**") listed on Exhibit A hereto, and certain stockholders of the Company listed on Exhibit B hereto (the "**Stockholders**"). Unless otherwise defined herein, capitalized terms used in this Agreement have the meanings ascribed to them in **Section 1**.

RECITALS

WHEREAS: the Investor is a party to the Class C Common Stock and Note Purchase Agreement made and entered into as of December 30, 2005, by and between the Company, the Investor, and certain Stockholders (the "**Prior Agreement**") pursuant to which, among other things, the Investor purchased senior convertible promissory notes (the "**Notes**").

WHEREAS: the Company has authorized the reservation and issuance of a new series of preferred stock of the Company to be designated as Series A Preferred Stock, par value $0.001 per share ("**Series A Preferred**") that is convertible into shares of the Company's common stock, par value $0.001 per share ("**Common Stock**").

WHEREAS: the Investor wishes to exchange (the "**Exchange")**, upon the terms and conditions set forth in the Securities Purchase and Exchange Agreement between the Company and Investor, dated as of January 12, 2010 (the "**Exchange Agreement**"), all of the outstanding Notes issued pursuant to the Prior Agreement for 1,321,514 shares of Series A Preferred such that all outstanding principal would be treated as retired and all accrued and unpaid interest under the Notes would be treated as paid in full. In addition, as part of the Exchange, the Company will also issue warrants (the "**New Warrants**") to purchase an aggregate of an additional 356,000 shares of Common Stock. Further, the exercise price of the warrants currently held by the Investor (the "**Existing Warrants**," together with the New Warrants, the "**Warrants**") to purchase 10,000 shares of the Company's Common Stock shall be amended to reduced the exercise price of such Existing Warrants to $2.50 per share (the shares of Common Stock issuable upon exercise of or otherwise pursuant to the Warrants issued to the Investor, collectively, the "**Warrant Shares**").

WHEREAS: The Investor, the Company and certain of the Stockholders are parties to that certain Investor Rights Agreement made and entered into as of December 30, 2005 (the "**Original Agreement**").

WHEREAS: the Company, the Investor and the Holders holding a majority of the Registrable Securities as defined under the Original Agreement (collectively, the "**Requisite Stockholders**") desire to amend and restate the Original Agreement as provided herein.

WHEREAS: the obligations in the Exchange Agreement are conditioned upon the execution and delivery of this Agreement by the Company and the Requisite Stockholders; and

WHEREAS: in consideration of the Exchange, the Company, the Investor and the Stockholders have agreed to the provisions set forth below.

NOW, THEREFORE: in consideration of the mutual promises and covenants set forth herein, and other consideration, the receipt and adequacy of which is hereby acknowledged, the parties hereto agree as follows:

Section 1
Definitions

1.1 *Certain Definitions.* As used in this Agreement, the following terms shall have the meanings set forth below:

(a) "**Best Efforts**" means the efforts that a prudent person desirous of achieving a result would use in similar circumstances to ensure that such result is achieved as expeditiously as practical unless such efforts would result in a Material Adverse Effect on the Company, provided all costs and expenses that will be necessary for the Company to incur in order to satisfy its obligations under this Agreement pursuant to a request to register shares of Common Stock pursuant to the Investor's rights under this Agreement shall not be deemed, in and of itself, to be a Material Adverse Effect on the Company.

(b) "**Carilion**" shall mean Carilion Clinic or its assigns.

(c) "**Change of Control**" shall mean any transaction or series of related transactions to which the Company is a party in which one hundred percent (100%) of the Company's outstanding equity is sold and voting power is transferred.

(d) "**Commission**" shall mean the Securities and Exchange Commission or any other federal agency at the time administering the Securities Act.

(e) "**Common Stock**" shall have the meaning set forth in the Recitals hereto.

(f) "**Exchange Act**" shall mean the Securities Exchange Act of 1934, as amended, or any similar successor federal statute and the rules and regulations thereunder, all as the same shall be in effect from time to time.

(g) "**Exchange Agreement**" shall have the meaning set forth in the Recitals hereto.

(h) "**Holder**" shall mean any Investor or Major Stockholder who holds Registrable Securities and any holder of Registrable Securities to whom the registration rights conferred by this Agreement have been duly and validly transferred in accordance with **Section 2.12** of this Agreement.

(i) "**Indemnified Party**" shall have the meaning set forth in **Section 2.6(c)** hereto.

(j) "**Indemnifying Party**" shall have the meaning set forth in **Section 2.6(c)** hereto.

(k) "**Initiating Holders**" shall mean any Holder or Holders who in the aggregate hold not less than a majority of (i) the outstanding Registrable Securities or (ii) the outstanding Registrable Securities issued or issuable, directly or indirectly, pursuant to the conversion of the Series A Preferred and exercise of the Warrants.

(l) "**Major Stockholder**" shall mean Kent A. Murphy, Ph.D. or any permitted transferee.

(m) "**Material Adverse Effect**" means a material adverse change or any material development involving a prospective adverse change, in or adversely affecting the management, financial position, stockholders' equity or results of operations of the Company, provided, an order approving the Plan shall not be deemed to be a Material Adverse Effect.

(n) "**Other Selling Stockholders**" shall mean persons other than Holders who, by virtue of agreements with the Company, are entitled to include their Other Shares in certain registrations hereunder.

(o) "**Other Shares**" shall mean shares of Common Stock, other than Registrable Securities (as defined below), with respect to which registration rights have been granted.

(p) "**Plan**" shall mean the *First Amended Joint Plan of Reorganization of Luna Innovations Incorporated and Luna Technologies, Inc*, dated December 18, 2009, as it may be further amended, and together with the Exhibits thereto.

(q) "**Registrable Securities**" shall mean (i) shares of Common Stock beneficially owned by the Holders and (ii) shares of Common Stock issued or issuable, directly or indirectly, pursuant to the conversion of the Series A Preferred and exercise of the Warrants; provided, however, that Registrable Securities shall not include any shares of Common Stock described in clause (i) or (ii) above which have previously been registered or which have been sold to the public either pursuant to a registration statement or Rule 144, or which have been sold in a private transaction in which the transferor's rights under this Agreement are not validly assigned in accordance with this Agreement.

(r) The terms "**register**," "**registered**" and "**registration**" shall refer to a registration effected by preparing and filing a registration statement in compliance with the Securities Act and applicable rules and regulations thereunder, and the declaration or ordering of the effectiveness of such registration statement.

(s) "**Registration Expenses**" shall mean all expenses incurred in effecting any registration pursuant to this Agreement, including, without limitation, all registration, qualification, and filing fees, printing expenses, escrow fees, fees and disbursements of counsel for the Company, blue-sky fees and expenses, and expenses of any regular or special audits incident to or required by any such registration, but shall not include Selling Expenses, fees and disbursements of counsel for the Holders and the compensation of regular employees of the Company, which shall be paid in any event by the Company.

(t) "**Restricted Securities**" shall mean any Registrable Securities required to bear the first legend set forth in **Section 2.8(c)** hereof.

(u) "**Rule 144**" shall mean Rule 144 as promulgated by the Commission under the Securities Act, as such rule may be amended from time to time, or any similar successor rule that may be promulgated by the Commission.

(v) "**Rule 145**" shall mean Rule 145 as promulgated by the Commission under the Securities Act, as such rule may be amended from time to time, or any similar successor rule that may be promulgated by the Commission.

(w) "**Securities Act**" shall mean the Securities Act of 1933, as amended, or any similar successor federal statute and the rules and regulations thereunder, all as the same shall be in effect from time to time.

(x) "**Selling Expenses**" shall mean all underwriting discounts, selling commissions and stock transfer taxes applicable to the sale of Registrable Securities and fees and disbursements of counsel for any Holder.

(y) "**Series A Preferred**" shall have the meaning set forth in the Recitals hereto.

(z) "**Withdrawn Registration**" shall mean a forfeited demand registration under **Section 2.1** in accordance with the terms and conditions of **Section 2.4**.

Section 2
Registration Rights

2.1 *Requested Registration.*

(a) Request for Registration. Subject to the conditions set forth in this **Section 2.1**, if the Company shall receive from Initiating Holders a written request signed by such Initiating Holders that the Company effect any registration with respect to Registrable Securities held by such Initiating Holders, provided such request states the number of shares of Registrable Securities to be disposed of and the intended methods of disposition of such shares by such Initiating Holders, the Company will:

(i) promptly give written notice of the proposed registration to all other Holders; and

(ii) file and use its Best Efforts to effect such registration within ninety (90) days of such written request from the Initiating Holders (including, without limitation, filing post-effective amendments, appropriate qualifications under applicable blue-sky or other state securities laws, and appropriate compliance with the Securities Act) and to permit or facilitate the sale and distribution of all or such portion of such Registrable Securities as are specified in

such request, together with all or such portion of the Registrable Securities of any Holder or Holders joining in such request as are specified in a written request received by the Company within twenty (20) days after such written notice from the Company is mailed or delivered.

(b) Limitations on Requested Registration. The Company shall not be obligated to effect, or to take any action to effect, any such registration pursuant to this **Section 2.1**:

(i) If the Initiating Holders, together with the holders of any other securities of the Company entitled to inclusion in such registration statement, propose to sell Registrable Securities and such other securities (if any) the aggregate proceeds of which (after deduction for underwriter's discounts and expenses related to the issuance) are less than $500,000;

(ii) In any particular jurisdiction in which the Company would be required to execute a general consent to service of process in effecting such registration, qualification, or compliance, unless the Company is already subject to service in such jurisdiction and except as may be required by the Securities Act;

(iii) After the Company has initiated two (2) such registrations pursuant to this **Section 2.1**; or

(iv) If the Initiating Holders propose to dispose of shares of Registrable Securities which may be immediately registered on Form S-3 pursuant to a request made under **Section 2.3** hereof.

(c) Deferral. If (i) in the good faith judgment of the board of directors of the Company (the "**Board**"), the filing of a registration statement covering the Registrable Securities would be detrimental to the Company and the Board concludes, as a result, that it is in the best interests of the Company to defer the filing of such registration statement at such time, and (ii) the Company shall furnish to such Holders a certificate signed by the Chief Executive Officer of the Company stating that in the good faith judgment of the Board, it would be detrimental to the Company for such registration statement to be filed in the near future and that it is, therefore, in the best interests of the Company to defer the filing of such registration statement, then (in addition to the limitations set forth in **Section 2.1(b)** above) the Company shall have the right to defer such filing for a period of not more than ninety (90) days after receipt of the request of the Initiating Holders, and, provided further, that the Company shall not defer its obligation in this manner more than once in any twelve-month period.

(d) Other Shares. The registration statement filed pursuant to the request of the Initiating Holders may, subject to the provisions of **Section 2.1(e)**, include Other Shares, and may include securities of the Company being sold for the account of the Company.

(e) Underwriting. If the Initiating Holders intend to distribute the Registrable Securities covered by their request by means of an underwriting, they shall so advise the Company as a part of their request made pursuant to this **Section 2.1** and the Company shall include such information in the written notice given pursuant to **Section 2.1(a)(i)**. In such event, the right of any Holder to include all or any portion of its Registrable Securities in such

registration pursuant to this **Section 2.1** shall be conditioned upon such Holder's participation in an underwriting and the inclusion of such Holder's Registrable Securities to the extent provided herein. If the Company shall request inclusion in any registration pursuant to **Section 2.1** of securities being sold for its own account, or if other persons shall request inclusion in any registration pursuant to **Section 2.1**, the Initiating Holders shall, on behalf of all Holders, offer to include such securities in the underwriting and such offer shall be conditioned upon the participation of the Company or such other persons in such underwriting and the inclusion of the Company's and such person's other securities of the Company and their acceptance of the further applicable provisions of this **Section 2**. The Company shall (together with all Holders and other persons proposing to distribute their securities through such underwriting) enter into an underwriting agreement in customary form with the representative of the underwriter or underwriters selected for such underwriting by a majority in interest of the Initiating Holders, which underwriters are reasonably acceptable to the Company.

Notwithstanding any other provision of this **Section 2.1**, if the underwriter determines in good faith that marketing factors require a limitation of the number of shares to be underwritten, the number of shares that may be included in the underwriting shall be allocated in the following order of priority: first, to the Investor; second, to any other Initiating Holders; third, to the Company for securities being sold for its own account; fourth, to the Major Stockholder, and fifth, to any other Holders that have requested inclusion of their shares in the underwriting on a *pro rata* basis based on the total number of Registrable Securities held by such Holders; provided, however, that no such reduction shall reduce the amount of securities of the Initiating Holders included in the registration below twenty-five percent (25%) of the total amount of securities included in such registration; provided, further, that, notwithstanding the any of the foregoing to the contrary, in no event shall the amount of Registrable Securities of the Investor to be included in such underwriting be reduced until all Registrable Securities held by the Major Stockholder, by the other Holders and by any Other Selling Stockholders have been first excluded from the underwriting in their entirety. In no event will shares of any Other Selling Stockholder be included in such registration without the written consent of the Initiating Holder(s) if such inclusion would reduce the number of shares that may be included by the Initiating Holders.

If a person who has requested inclusion in such registration as provided above does not agree to the terms of any such underwriting, such person shall be excluded therefrom by written notice from the Company, the underwriter or the Initiating Holders. The securities so excluded shall also be withdrawn from registration. Any Registrable Securities or other securities excluded or withdrawn from such underwriting shall also be withdrawn from such registration. If shares are so withdrawn from the registration and if the number of shares to be included in such registration was previously reduced as a result of marketing factors pursuant to this **Section 2.1(e)**, then the Company shall then offer to all Holders and Other Selling Stockholders who have retained rights to include securities in the registration the right to include additional Registrable Securities or Other Shares in the registration in an aggregate amount equal to the number of shares so withdrawn, with such shares to be allocated among such Holders and Other Selling Stockholders requesting additional inclusion, as set forth above.

2.2 *Company Registration.*

(a) Company Registration. If the Company shall determine to register any of its securities either for its own account or the account of a security holder or holders, other than a registration pursuant to **Section 2.1** or **2.3**, a registration relating solely to employee benefit plans, a registration relating to the offer and sale of debt securities, a registration relating to a corporate reorganization or other Rule 145 transaction, or a registration on any registration form that does not permit secondary sales, the Company will:

(i) promptly give written notice of the proposed registration to all Holders; and

(ii) use its commercially reasonable efforts to include in such registration (and any related qualification under blue-sky laws or other compliance), except as set forth in **Section 2.2(b)** below, and in any underwriting involved therein, all of such Registrable Securities as are specified in a written request or requests made by any Holder or Holders received by the Company within ten (10) days after such written notice from the Company is mailed or delivered. Such written request may specify all or a part of a Holder's Registrable Securities.

(b) Underwriting. If the registration of which the Company gives notice is for a registered public offering involving an underwriting, the Company shall so advise the Holders as a part of the written notice given pursuant to **Section 2.2(a)(i)**. In such event, the right of any Holder to registration pursuant to this **Section 2.2** shall be conditioned upon such Holder's participation in such underwriting and the inclusion of such Holder's Registrable Securities in the underwriting to the extent provided herein. All Holders proposing to distribute their securities through such underwriting shall (together with the Company, the Other Selling Stockholders and the other holders of securities of the Company with registration rights to participate therein distributing their securities through such underwriting) enter into an underwriting agreement in customary form with the representative of the underwriter or underwriters selected by the Company.

Notwithstanding any other provision of this **Section 2.2**, if the underwriters advise the Company in writing that marketing factors require a limitation on the number of shares to be underwritten, the underwriters may (subject to the limitations set forth below) exclude all Registrable Securities from, or limit the number of Registrable Securities to be included in, the registration and underwriting. The Company shall so advise all holders of securities requesting registration, and the number of shares of securities that are entitled to be included in the registration and underwriting shall be allocated in the following order of priority: first, to the Company for securities being sold for its own account; second, to the Investor; third, to the Major Stockholder; and fourth, to any other Holders that have requested inclusion of their shares in the underwriting on a *pro rata* basis based on the total number of Registrable Securities held by such Holders; provided, however, that no such reduction shall reduce the amount of securities of the Holders included in the registration below twenty-five percent (25%) of the total amount of securities included in such registration; provided, further, that, notwithstanding the any of the foregoing to the contrary, in no event shall the amount of Registrable Securities of the Investor to be included in such underwriting be reduced until all Registrable Securities held by the Major Stockholder, by the other Holders and by any Other Selling Stockholders have been first excluded from the underwriting in their entirety.

If a person who has requested inclusion in such registration as provided above does not agree to the terms of any such underwriting, such person shall also be excluded therefrom by written notice from the Company or the underwriter. The Registrable Securities or other securities so excluded shall also be withdrawn from such registration. Any Registrable Securities or other securities excluded or withdrawn from such underwriting shall be withdrawn from such registration.

(c) Right to Terminate Registration. The Company shall have the right to terminate or withdraw any registration initiated by it under this **Section 2.2** prior to the effectiveness of such registration whether or not any Holder has elected to include securities in such registration.

2.3 *Registration on Form S-3.*

(a) Request for Form S-3 Registration. At any time after the Company has qualified for the use of Form S-3, in addition to the rights contained in the foregoing provisions of this **Section 2** and subject to the conditions set forth in this **Section 2.3**, if the Company shall receive from a Holder or Holders of Registrable Securities a written request that the Company effect any registration on Form S-3 or any similar short form registration statement with respect to all or part of the Registrable Securities (such request shall state the number of shares of Registrable Securities to be disposed of and the intended methods of disposition of such shares by such Holder or Holders), the Company will take all such action with respect to such Registrable Securities as required by **Section 2.1(a)(i)** and **(ii)**; provided, further that the Company shall keep such registrations effective until the earlier to occur of such time as (i) all Registrable Securities registered thereunder have been sold, (ii) the Holders whose shares are registered thereon agree to terminate the registration, or (iii) the registration rights of all such Holders terminate.

(b) Limitations on Form S-3 Registration. The Company shall not be obligated to effect, or take any action to effect, any such registration pursuant to this **Section 2.3**:

(i) In the circumstances described in either **Sections 2.1(b)(i)** or **2.1(b)(iv)**;

(ii) If the Holders, together with the holders of any other securities of the Company entitled to inclusion in such registration, propose to sell Registrable Securities and such other securities (if any) on Form S-3 at an aggregate price to the public of less than $500,000; or

(iii) In a given twelve-month period if, during such period, the Company has already effected one (1) or more registrations pursuant to this **Section 2.3**.

(c) Deferral. The provisions of **Section 2.1(c)** shall apply to any registration pursuant to this **Section 2.3**.

(d) Underwriting. If the Holders of Registrable Securities requesting registration under this **Section 2.3** intend to distribute the Registrable Securities covered by their request by means of an underwriting, the provisions of **Sections 2.1(e)** shall apply to such

registration. Notwithstanding anything contained herein to the contrary, registrations effected pursuant to this **Section 2.3** shall not be counted as requests for registration or registrations effected pursuant to **Section 2.1**.

2.4 *Expenses of Registration.* All Registration Expenses incurred in connection with registrations pursuant to **Sections 2.1**, **2.2** and **2.3** hereof shall be borne by the Company. All Selling Expenses relating to securities registered on behalf of the Holders shall be borne by the holders of securities included in such registration pro rata among each other on the basis of the number of Registrable Securities so registered.

2.5 *Registration Procedures.* In the case of each registration effected by the Company pursuant to **Section 2**, the Company will keep each Holder advised in writing as to the initiation of each registration and as to the completion thereof. At its expense, the Company will use its commercially reasonable efforts to:

(a) Keep such registration effective for a period of ending on the earlier of the date which is sixty (60) days from the effective date of the registration statement or such time as the Holder or Holders have completed the distribution described in the registration statement relating thereto;

(b) Prepare and file with the Commission such amendments and supplements to such registration statement and the prospectus used in connection with such registration statement as may be necessary to comply with the provisions of the Securities Act with respect to the disposition of all securities covered by such registration statement for the period set forth in subsection (a) above;

(c) Furnish such number of prospectuses, including any preliminary prospectuses, and other documents incident thereto, including any amendment of or supplement to the prospectus, as a Holder from time to time may reasonably request;

(d) Use its reasonable Best Efforts to register and qualify the securities covered by such registration statement under such other securities or blue-sky laws of such jurisdiction as shall be reasonably requested by the Holders; provided, that the Company shall not be required in connection therewith or as a condition thereto to qualify to do business or to file a general consent to service of process in any such states or jurisdictions;

(e) Notify each seller of Registrable Securities covered by such registration statement at any time when a prospectus relating thereto is required to be delivered under the Securities Act of the happening of any event as a result of which the prospectus included in such registration statement, as then in effect, includes an untrue statement of a material fact or omits to state a material fact required to be stated therein or necessary to make the statements therein not misleading or incomplete in light of the circumstances then existing, and following such notification promptly prepare and furnish to such seller a reasonable number of copies of a supplement to or an amendment of such prospectus as may be necessary so that, as thereafter delivered to the purchasers of such shares, such prospectus shall not include an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading or incomplete in light of the circumstances then existing;

(f) Provide a transfer agent and registrar for all Registrable Securities registered pursuant to such registration statement and a CUSIP number for all such Registrable Securities, in each case not later than the effective date of such registration;

(g) Cause all such Registrable Securities registered pursuant hereunder to be listed on each securities exchange on which similar securities issued by the Company are then listed; and

(h) In connection with any underwritten offering pursuant to a registration statement filed pursuant to **Section 2.1** hereof, enter into an underwriting agreement in form reasonably necessary to effect the offer and sale of Common Stock, provided such underwriting agreement contains reasonable and customary provisions, and provided, further, that each Holder participating in such underwriting shall also enter into and perform its obligations under such an agreement.

2.6 *Indemnification.*

(a) To the extent permitted by law, the Company will indemnify and hold harmless each Holder, each of its officers, directors and partners, legal counsel, and accountants and each person controlling such Holder within the meaning of Section 15 of the Securities Act, with respect to which registration, qualification, or compliance has been effected pursuant to this **Section 2**, and each underwriter, if any, and each person who controls within the meaning of Section 15 of the Securities Act any underwriter, against all expenses, claims, losses, damages, and liabilities (or actions, proceedings, or settlements in respect thereof) arising out of or based on: (i) any untrue statement (or alleged untrue statement) of a material fact contained or incorporated by reference in any prospectus, offering circular, or other document (including any related registration statement, notification, or the like) incident to any such registration, qualification, or compliance, (ii) any omission (or alleged omission) to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading, or (iii) any violation (or alleged violation) by the Company of the Securities Act, any state securities laws or any rule or regulation thereunder applicable to the Company and relating to action or inaction required of the Company in connection with any offering covered by such registration, qualification, or compliance, and the Company will reimburse each such Holder, each of its officers, directors, partners, legal counsel, and accountants and each person controlling such Holder, each such underwriter, and each person who controls any such underwriter, for any legal and any other expenses reasonably incurred in connection with investigating and defending or settling any such claim, loss, damage, liability, or action; provided, that the Company will not be liable in any such case to the extent that any such claim, loss, damage, liability, or action is caused by any untrue statement or omission based upon written information furnished to the Company by (a) such Holder, or (b) any of such Holder's officers, directors, partners, legal counsel or accountants, and any person controlling such Holder, such underwriter or any person who controls any such underwriter and stated to be specifically for use therein; and provided, further that, the indemnity agreement contained in this **Section 2.6(a)** shall not apply to amounts paid in settlement of any such loss, claim, damage, liability, or action if such settlement is effected without the consent of the Company (which consent shall not be unreasonably withheld or delayed).

(b) To the extent permitted by law, each Holder will, severally and not jointly, if Registrable Securities held by such Holder are included in the securities as to which such registration, qualification, or compliance is being effected, indemnify and hold harmless the Company, each of its directors, officers, partners, legal counsel, and accountants and each underwriter, if any, of the Company's securities covered by such a registration statement, each person who controls the Company or such underwriter within the meaning of Section 15 of the Securities Act, each other such Holder, and each of their officers, directors, and partners, and each person controlling such Holder, against all claims, losses, damages and liabilities (or actions in respect thereof) caused by: (i) any untrue statement (or alleged untrue statement) of a material fact contained or incorporated by reference in any such registration statement, prospectus, offering circular, or other document, or (ii) any omission (or alleged omission) to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading, and will reimburse the Company and such Holders, directors, officers, partners, legal counsel, and accountants, persons, underwriters, or control persons for any legal or any other expenses reasonably incurred in connection with investigating or defending any such claim, loss, damage, liability, or action, in each case to the extent, but only to the extent, that such untrue statement (or alleged untrue statement) or omission (or alleged omission) is made in such registration statement, prospectus, offering circular, or other document in reliance upon and in conformity with written information furnished to the Company by such Holder and stated to be specifically for use therein; provided, however, that the obligations of such Holder hereunder shall not apply to amounts paid in settlement of any such claims, losses, damages, or liabilities (or actions in respect thereof) if such settlement is effected without the consent of such Holder (which consent shall not be unreasonably withheld or delayed); and provided, that in no event shall any indemnity under this **Section 2.6** exceed the net proceeds from the offering received by such Holder.

(c) Each party entitled to indemnification under this **Section 2.6** (the "**Indemnified Party**") shall give notice to the party required to provide indemnification (the "**Indemnifying Party**") promptly after such Indemnified Party has actual knowledge of any claim as to which indemnity may be sought, and shall permit the Indemnifying Party to assume the defense of such claim or any litigation resulting therefrom; provided, that counsel for the Indemnifying Party, who shall conduct the defense of such claim or any litigation resulting therefrom, shall be approved by the Indemnified Party (whose approval shall not be unreasonably withheld), and the Indemnified Party may participate in such defense at such party's expense; and provided, further that the failure of any Indemnified Party to give notice as provided herein shall not relieve the Indemnifying Party of its obligations under this **Section 2.6**, to the extent such failure is not prejudicial. No Indemnifying Party, in the defense of any such claim or litigation, shall, except with the consent of each Indemnified Party, consent to entry of any judgment or enter into any settlement that does not include as an unconditional term thereof the giving by the claimant or plaintiff to such Indemnified Party of a release from all liability in respect to such claim or litigation. Each Indemnified Party shall furnish such information regarding itself or the claim in question as an Indemnifying Party may reasonably request in writing and as shall be reasonably required in connection with defense of such claim and litigation resulting therefrom.

(d) If the indemnification provided for in this **Section 2.6** is held by a court of competent jurisdiction to be unavailable to an Indemnified Party with respect to any loss, liability, claim, damage, or expense referred to herein, then the Indemnifying Party, in lieu of indemnifying such Indemnified Party hereunder, shall contribute to the amount paid or payable by such Indemnified Party as a result of such loss, liability, claim, damage, or expense in such proportion as is appropriate to reflect the relative fault of the Indemnifying Party on the one hand and of the Indemnified Party on the other in connection with the statements or omissions that resulted in such loss, liability, claim, damage, or expense as well as any other relevant equitable considerations. The relative fault of the Indemnifying Party and of the Indemnified Party shall be determined by reference to, among other things, whether the untrue or alleged untrue statement of a material fact or the omission to state a material fact relates to information supplied by the Indemnifying Party or by the Indemnified Party and the parties' relative intent, knowledge, access to information, and opportunity to correct or prevent such statement or omission.

(e) Notwithstanding the foregoing, to the extent that the provisions on indemnification and contribution contained in the underwriting agreement entered into in connection with the underwritten public offering are in conflict with the foregoing provisions, the provisions in the underwriting agreement shall control.

(f) The obligations of the Company and Holders under this **Section 2.6** shall survive the completion of any offering of Registrable Securities in a registration statement under this **Section 2**, and otherwise.

2.7 *Information by Holder.* Each Holder of Registrable Securities shall furnish to the Company such information regarding such Holder and the distribution proposed by such Holder as the Company may reasonably request in writing and as shall be reasonably required in connection with any registration, qualification or compliance referred to in this **Section 2**.

2.8 *Restrictions on Transfer.*

(a) The holder of each certificate representing Registrable Securities by acceptance thereof agrees to comply in all respects with the provisions of this **Section 2.8**. Each Holder agrees not to make any sale, assignment, transfer, pledge or other disposition of all or any portion of the Restricted Securities, or any beneficial interest therein, unless and until (x) the transferee thereof has agreed in writing for the benefit of the Company to take and hold such Restricted Securities subject to, and to be bound by, the terms and conditions set forth in this Agreement, including, without limitation, this **Section 2.8**, except for transfers permitted under **Section 2.8(b)**, and **(y)**:

(i) There is then in effect a registration statement under the Securities Act covering such proposed disposition and such disposition is made in accordance with such registration statement; or

(ii) Such Holder shall have given prior written notice to the Company of such Holder's intention to make such disposition and shall have furnished the Company with a detailed description of the manner and circumstances of the proposed disposition, and, if

requested by the Company, such Holder shall have furnished the Company, at its expense, with (i) an opinion of counsel, reasonably satisfactory to the Company, to the effect that such disposition will not require registration of such Restricted Securities under the Securities Act (it being understood that an opinion of Woods Rogers PLC shall be deemed satisfactory with respect to Carilion or any permitted transferee of Registrable Securities held by Carilion) or (ii) a "no action" letter from the Commission to the effect that the transfer of such securities without registration will not result in a recommendation by the staff of the Commission that action be taken with respect thereto, whereupon the holder of such Restricted Securities shall be entitled to transfer such Restricted Securities in accordance with the terms of the notice delivered by the Holder to the Company. It is agreed that the Company will not require opinions of counsel for transactions made pursuant to Rule 144, except in unusual circumstances.

(b) Permitted transfers include (i) a transfer not involving a change in beneficial ownership, or (ii) in transactions involving the distribution without consideration of Restricted Securities by any Holder to (x) a parent, subsidiary or other affiliate of Holder that is a corporation, or (y) any of its partners, members or other equity owners, or retired partners, retired members or other equity owners, or to the estate of any of its partners, members or other equity owners or retired partners, retired members or other equity owners, or (iii) transfers in compliance with Rule 144, as long as the Company is furnished with satisfactory evidence of compliance with such rule including, if requested, an opinion of counsel, reasonably satisfactory to the Company; provided, in each case, that the Holder thereof shall give written notice to the Company of such Holder's intention to effect such disposition and shall have furnished the Company with a detailed description of the manner and circumstances of the proposed disposition.

(c) Each certificate representing Registrable Securities shall (unless otherwise permitted by the provisions of this Agreement) be stamped or otherwise imprinted with a legend substantially similar to the following (in addition to any legend required under applicable state securities laws):

> THE SECURITIES REPRESENTED HEREBY HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "ACT"), OR UNDER THE SECURITIES LAWS OF CERTAIN STATES. THESE SECURITIES MAY NOT BE OFFERED, SOLD OR OTHERWISE TRANSFERRED, PLEDGED OR HYPOTHECATED EXCEPT AS PERMITTED UNDER THE AMENDED AND RESTATED INVESTOR RIGHTS AGREEMENT, THE ACT AND APPLICABLE STATE SECURITIES LAWS PURSUANT TO REGISTRATION OR AN EXEMPTION THEREFROM. THE ISSUER OF THESE SECURITIES MAY REQUIRE AN OPINION OF COUNSEL SATISFACTORY TO THE ISSUER THAT SUCH OFFER, SALE OR TRANSFER, PLEDGE OR HYPOTHECATION OTHERWISE COMPLIES WITH THE ACT AND ANY APPLICABLE STATE SECURITIES LAWS. THESE SECURITIES MAY BE PLEDGED IN CONNECTION WITH A BONA FIDE MARGIN ACCOUNT WITH A REGISTERED BROKER-DEALER OR OTHER LOAN

WITH A FINANCIAL INSTITUTION THAT IS AN "ACCREDITED INVESTOR" AS DEFINED IN RULE 501(a) UNDER THE SECURITIES ACT OR OTHER LOAN SECURED BY SUCH SECURITIES.

The Holders consent to the Company making a notation on its records and giving instructions to any transfer agent of the Restricted Securities in order to implement the restrictions on transfer established in this **Section 2.8**.

(d) The first legend referring to federal and state securities laws identified in **Section 2.8(c)** hereof stamped on a certificate evidencing the Restricted Securities and the stock transfer instructions and record notations with respect to such Restricted Securities shall be removed and the Company shall issue a certificate without such legend to the holder of such Restricted Securities if (i) such securities are registered under the Securities Act, or (ii) such holder provides the Company with an opinion of counsel reasonably acceptable to the Company to the effect that a public sale or transfer of such securities may be made without registration under the Securities Act, or (iii) such holder provides the Company with reasonable assurances, which may, at the option of the Company, include an opinion of counsel satisfactory to the Company, that such securities can be sold freely without restriction pursuant to Rule 144 under the Securities Act.

2.9 *Rule 144 Reporting.* With a view to making available the benefits of certain rules and regulations of the Commission that may permit the sale of the Restricted Securities to the public without registration, the Company agrees to use its commercially reasonable efforts to:

(a) Make and keep public information regarding the Company available as those terms are understood and defined in Rule 144 under the Securities Act, at all times;

(b) File with the Commission in a timely manner all reports and other documents required of the Company under the Securities Act and the Exchange Act; and

(c) So long as a Holder owns any Restricted Securities, furnish to the Holder forthwith upon written request a written statement by the Company as to its compliance with the reporting requirements of Rule 144, and of the Securities Act and the Exchange Act, a copy of the most recent annual or quarterly report of the Company, and such other reports and documents so filed as a Holder may reasonably request in availing itself of any rule or regulation of the Commission allowing a Holder to sell any such securities without registration.

2.10 *Intentionally Omitted.*

2.11 *Delay of Registration.* No Holder shall have any right to take any action to restrain, enjoin, or otherwise delay any registration as the result of any controversy that might arise with respect to the interpretation or implementation of this **Section 2**.

2.12 *Transfer or Assignment of Registration Rights.* The rights to cause the Company to register securities granted to a Holder by the Company under this **Section 2** may be transferred or assigned by a Holder only to a transferee or assignee (a) of not less than 750,000 of the Registrable Securities (as presently constituted and subject to subsequent adjustments for stock

splits, stock dividends, reverse stock splits, and the like), (b) that is a partner or retired partner of any Holder that is a partnership, (c) that is a member or former member of any Holder that is a limited liability company, (d) that is an affiliate of any Holder or (e) that is a family member or trust for the benefit of any individual Holder, provided, that (i) such transfer or assignment of Registrable Securities is effected in accordance with the terms of **Section 2.8** hereof and applicable securities laws, (ii) the transferee or assignee of such rights assumes in writing the obligations of such Holder under this Agreement, and (iii) with respect to a proposed transfer pursuant to this **Section 2.12**, the Company is given written notice within 30 days after said transfer or assignment, stating the name and address of the transferee or assignee and identifying the securities with respect to which such registration rights are intended to be transferred or assigned and such transferee is not, in the Company's reasonable opinion, a competitor of the Company or a party who is demonstrably hostile toward the Company.

2.13 *Limitations on Subsequent Registration Rights.* From and after the date of this Agreement, the Company shall not, without the prior written consent of Holders of at least a majority of the Registrable Securities, enter into any agreement with any holder or prospective holder of any securities of the Company giving such holder or prospective holder any registration rights the terms of which are *pari passu* with or senior to the registration rights granted to the Holders hereunder.

2.14 *Termination of Registration Rights.* The right of any Holder to request registration or inclusion in any registration pursuant to **Section 2.1**, **2.2** or **2.3** shall terminate on such date as all of the Registrable Securities held or entitled to be held upon conversion by such Holder may immediately transferred or sold without restriction under Rule 144 of the Securities Act.

Section 3
Miscellaneous

3.1 *Right of First Review.* So long as Carilion continues to hold at least 750,000 shares of Common Stock (or Common Stock issuable upon the conversion of the Series A Preferred), and to the extent such technology is not restricted by other contractual arrangements in effect as of August 2, 2005, the Company shall disclose to Carilion Consolidated Laboratory ("**CCL**") for review on a confidential basis, that technology developed now or in the future by the employees of the Company or its affiliates which impacts, or has an application to, the clinical laboratory industry, at least sixty (60) days prior to disclosing such technology to any third-party for purpose of commercialization.

3.2 *Amendment.* This Agreement amends, restates and supersedes the Original Agreement such that the Original Agreement is terminated and is of no further force or effect. Except as expressly provided herein, neither this Agreement nor any term hereof may be amended, waived, discharged or terminated other than by a written instrument referencing this Agreement and signed by (i) the Company, (ii) the Holders holding a majority of the Series A Preferred issued and outstanding (excluding any of such shares that have been sold to the public or pursuant to Rule 144), and (iii) the Holders holding a majority of the Registrable Securities. Any such amendment, waiver, discharge or termination effected in accordance with this

paragraph shall be binding upon each Holder and each future holder of all such securities of Holder. Each Holder acknowledges that by operation of this paragraph, the holders of a majority of the Common Stock issued or issuable upon conversion of the Series A Preferred issued pursuant to the Exchange Agreement (excluding any of such shares that have been sold to the public or pursuant to Rule 144) will have the right and power to diminish or eliminate all rights of such Holder under this Agreement.

3.3 *Notices.* All notices and other communications required or permitted hereunder shall be in writing and shall be mailed by registered or certified mail, postage prepaid, or otherwise delivered by hand or by messenger addressed:

(a) if to an Investor, at the Investor's address as shown on Exhibit A hereto or in the Company's records, as may be updated in accordance with the provisions hereof.

(b) if to any Holder, at such address as shown in the Company's records, or, until any such holder so furnishes an address to the Company, then to and at the address of the last holder of such shares for which the Company has contact information in its records; or

(c) if to the Company, one copy should be sent to 1 Riverside Circle, Roanoke, VA 24106, Attn: Chief Executive Officer, or at such other address as the Company shall have furnished to the Investor, with a copy to Trevor Chaplick, Esq. Proskauer Rose LLP, 1001 Pennsylvania Avenue, NW, Suite 400 South, Washington, DC 20004.

Each such notice or other communication shall for all purposes of this Agreement be treated as effective or having been given when delivered if delivered personally, or, if sent by mail, at the earlier of its receipt or 72 hours after the same has been deposited in a regularly maintained receptacle for the deposit of the United States mail, addressed and mailed as aforesaid.

3.4 *Governing Law.* This Agreement shall be governed in all respects by the internal laws of the Commonwealth of Virginia as applied to agreements entered into among Virginia residents to be performed entirely within Virginia, without regard to principles of conflicts of law.

3.5 *Successors and Assigns.* This Agreement, and any and all rights, duties and obligations hereunder, shall not be assigned, transferred, delegated or sublicensed by any Investor without the prior written consent of the Company. Any attempt by an Investor without such permission to assign, transfer, delegate or sublicense any rights, duties or obligations that arise under this Agreement shall be void. Subject to the foregoing and except as otherwise provided herein, the provisions of this Agreement shall inure to the benefit of, and be binding upon, the successors, assigns, heirs, executors and administrators of the parties hereto.

3.6 *Entire Agreement.* This Agreement and the exhibits hereto and the agreements and documents referenced herein constitute the full and entire understanding and agreement between the parties with regard to the subjects hereof. No party hereto shall be liable or bound to any other party in any manner with regard to the subjects hereof or thereof by any warranties, representations or covenants except as specifically set forth herein.

3.7 *Delays or Omissions.* Except as expressly provided herein, no delay or omission to exercise any right, power or remedy accruing to any party to this Agreement upon any breach or default of any other party under this Agreement shall impair any such right, power or remedy of such non-defaulting party, nor shall it be construed to be a waiver of any such breach or default, or an acquiescence therein, or of or in any similar breach or default thereafter occurring, nor shall any waiver of any single breach or default be deemed a waiver of any other breach or default theretofore or thereafter occurring. Any waiver, permit, consent or approval of any kind or character on the part of any party of any breach or default under this Agreement, or any waiver on the part of any party of any provisions or conditions of this Agreement, must be in writing and shall be effective only to the extent specifically set forth in such writing. All remedies, either under this Agreement or by law or otherwise afforded to any party to this Agreement, shall be cumulative and not alternative.

3.8 *Severability.* If any provision of this Agreement becomes or is declared by a court of competent jurisdiction to be illegal, unenforceable or void, portions of such provision, or such provision in its entirety, to the extent necessary, shall be severed from this Agreement, and such court will replace such illegal, void or unenforceable provision of this Agreement with a valid and enforceable provision that will achieve, to the extent possible, the same economic, business and other purposes of the illegal, void or unenforceable provision. The balance of this Agreement shall be enforceable in accordance with its terms.

3.9 *Titles and Subtitles.* The titles and subtitles used in this Agreement are used for convenience only and are not to be considered in construing or interpreting this Agreement. All references in this Agreement to sections, paragraphs and exhibits shall, unless otherwise provided, refer to sections and paragraphs hereof and exhibits attached hereto.

3.10 *Counterparts.* This Agreement may be executed in any number of counterparts, each of which shall be enforceable against the parties that execute such counterparts, and all of which together shall constitute one instrument.

3.11 *Telecopy Execution and Delivery.* A facsimile, telecopy or other reproduction of this Agreement may be executed by one or more parties hereto and delivered by such party by facsimile or any similar electronic transmission device pursuant to which the signature of or on behalf of such party can be seen. Such execution and delivery shall be considered valid, binding and effective for all purposes. At the request of any party hereto, all parties hereto agree to execute and deliver an original of this Agreement as well as any facsimile, telecopy or other reproduction hereof.

3.12 *Jurisdiction; Venue; Waiver of Jury Trial.* With respect to any disputes arising out of or related to this Agreement, the parties consent to the exclusive jurisdiction of, and venue in, the state courts in the City of Roanoke in the Commonwealth of Virginia (or in the event of exclusive federal jurisdiction, the courts of the Western District of Virginia, Roanoke Division). Each party hereto hereby waives all rights to a trial by jury.

3.13 *Further Assurances.* Each party hereto agrees to execute and deliver, by the proper exercise of its corporate, limited liability company, partnership or other powers, all such other and additional instruments and documents and do all such other acts and things as may be necessary to more fully effectuate this Agreement.

3.14 *Conflict*. In the event of any conflict between the terms of this Agreement and the Company's Amended and Restated Certificate of Incorporation or its Bylaws, the terms of the Company's Amended and Restated Certificate of Incorporation or its Bylaws, as the case may be, will control.

3.15 *Attorneys' Fees.* In the event that any suit or action is instituted to enforce any provisions in this Agreement, the each party hereto shall be responsible for its own fees, costs and expenses incurred with respect to enforcing its rights under this Agreement, including without limitation, all fees, costs and expenses of appeals.

3.16 *Termination Upon a Change of Control*. Notwithstanding anything in this Agreement to the contrary, this Agreement shall terminate upon the effective date of a Change of Control.

[Remainder of Page Intentionally Left Blank]

IN WITNESS WHEREOF, the parties hereto have executed this Amended and Restated Investor Rights Agreement effective as of the day and year first above written.

"COMPANY"

LUNA INNOVATIONS INCORPORATED
a Delaware corporation

By: /s/ Kent A. Murphy
Name: Kent A. Murphy
Title: CEO

SIGNATURE PAGE TO AMENDED & RESTATED INVESTOR RIGHTS AGREEMENT

"INVESTOR"

CARILION CLINIC

By: /s/ G. Robert Vaughn, Jr.
Name: G. Robert Vaughn, Jr.
Title: Asst. Treasurer

SIGNATURE PAGE TO AMENDED & RESTATED INVESTOR RIGHTS AGREEMENT

“STOCKHOLDERS”

/s/ Kent A. Murphy
Kent A. Murphy

SIGNATURE PAGE TO AMENDED & RESTATED INVESTOR RIGHTS AGREEMENT

EXHIBIT A

SCHEDULE OF INVESTORS

Carilion Clinic
213 S. Jefferson Street
Suite 720
P.O. Box 40032
Roanoke, VA 24022-0032
Attn: Briggs W. Andrews, General Counsel

EXHIBIT B

SCHEDULE OF STOCKHOLDERS

Kent A. Murphy
Ashish Vengsarkar
Mike Gunther