VERMILLION, INC.
Form 424B5
July 13, 2015
Filed Pursuant to Rule 424(b)(5)

Registration No. 333-198734

The information in this preliminary prospectus supplement and the accompanying prospectus is not complete and may be changed. Neither this prospectus supplement nor the accompanying prospectus is an offer to sell these securities, and we are not soliciting an offer to buy these securities, in any jurisdiction where the offer or sale is not permitted.

Subject to completion, dated July 13, 2015

Preliminary Prospectus Supplement

(to Prospectus Dated October 2, 2014)

shares

VERMILLION, INC.

Common Stock

We are offering shares of our common stock in this offering, pursuant to this prospectus supplement and the accompanying prospectus.

Our common stock is traded on The NASDAQ Capital Market under the symbol “VRML.” On July 10, 2015, the last reported sale price for our common stock on The NASDAQ Capital Market was $1.96 per share.

Investing in our securities involves substantial risks. You should consider the risk factors beginning on page S-7 of this prospectus supplement, and the “Risk Factors” section contained in the accompanying prospectus and in the documents that are incorporated by reference before buying any of our securities.

As of July 10, 2015, the aggregate market value of our outstanding common stock held by non-affiliates, or public float, was approximately $57,114,789, based on 42,271,192 shares of outstanding common stock on such date, of which approximately 16,943,126 shares were held by affiliates and 25,328,066 shares were held by non-affiliates, and a price of $2.255 per share, which was the average of the bid and ask prices for our common stock on the NASDAQ Capital Market on June 5, 2015 (a date within 60 days of the date of this prospectus supplement), calculated in accordance with General Instruction I.B.6 of Form S-3. Prior to this offering, the value of all securities we have offered pursuant to General Instruction I.B.6 of Form S-3 in the last 12 calendar months is $75,423.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

	Per Share	Total
Public offering price	$	$
Underwriting discounts and commissions	$	$
Net proceeds, before expenses, to us	$	$

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The underwriters may also purchase up to an aggregate of additional shares of our common stock at the public offering price, less the underwriting discount, within 30 days from the date of this prospectus supplement solely to cover any over-allotments. If the underwriters exercise the option in full, the total underwriting discount will be $ and the total net proceeds, before expenses, to us will be $

The underwriters expect to deliver the shares of common stock to purchasers on or about July , 2015.

The date of this prospectus is July , 2015

Sole Book-Running Manager

Canaccord Genuity

Lead Manager

Roth Capital Partners

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Prospectus Supplement

Prospectus

ABOUT THIS PROSPECTUS SUPPLEMENT

This document contains two parts. The first part is this prospectus supplement, which describes the terms of this offering of common stock and also adds to and updates information contained in the accompanying prospectus and the documents incorporated by reference. The second part is the accompanying prospectus, which provides more general information, some of which may not apply to this offering. If the information contained in this prospectus supplement differs or varies from the information contained in the accompanying prospectus, you should rely on the information set forth in this prospectus supplement.

You should rely only on the information contained or incorporated by reference in this prospectus supplement, the accompanying prospectus and any related free writing prospectus provided or approved by us. We have not, and the underwriters have not, authorized any person to provide you with other or additional information. We are offering to sell, and seeking offers to buy, shares of our common stock only in jurisdictions where offers and sales are permitted.

You should assume that the information appearing in this prospectus supplement, the accompanying prospectus, any related free writing prospectus and the documents incorporated by reference are accurate only as of the respective dates of those documents. Our business, financial condition, results of operations and prospects may have changed since those dates, and neither the delivery of this prospectus supplement and the accompanying prospectus nor any sale hereunder shall, under any circumstances, create any implication to the contrary.

Before you invest in our common stock, you should carefully read the registration statement described in the accompanying prospectus (including the exhibits thereto) of which this prospectus supplement and the accompanying prospectus form a part, this prospectus supplement, the accompanying prospectus and the documents incorporated by reference into this prospectus supplement and the accompanying prospectus. See “Incorporation of Certain Information by Reference” and “Where You Can Find More Information” in this prospectus supplement.

PROSPECTUS SUPPLEMENT SUMMARY

This summary highlights certain information contained in greater detail elsewhere in this prospectus supplement or the accompanying prospectus, or incorporated by reference herein or therein. This summary is not complete and does not contain all of the information that you should consider before deciding whether to invest in our securities. You should carefully read this prospectus supplement, the accompanying prospectus, any related free writing prospectus that we have authorized for use in connection with this offering and the documents incorporated by reference, including the information referred to under the heading "Risk Factors" in this prospectus supplement and under the heading "Risk Factors" contained in the accompanying prospectus or in the documents incorporated by reference. Unless the context requires otherwise, all references in this prospectus to "Vermillion," "the Company," "we," "us," "our" or similar references mean Vermillion, Inc. together with its consolidated subsidiaries.

Our Company

Our vision is to drive the advancement of women's health by providing innovative methods to detect, monitor and manage the treatment of gynecologic disease – both benign and malignant cancers as well as other gynecologic diseases.

We have expanded our corporate strategy with the goal of transforming Vermillion from a technology license company to a diagnostic service and bio-analytic solutions provider. Our plan is to broaden our commercial focus from ovarian cancer to differential diagnosis of women with a range of gynecological disorders. Our strategy will be deployed in three phases. The three phases are a rebuild phase, which we expect to complete in the third quarter of 2015, a transformation phase, which is ongoing and is expected to span 2015, and a market expansion and growth phase, which we expect to begin in 2016.

During the first phase, we expanded our leadership team by hiring new heads of sales and customer experience, managed markets, marketing and operations, a chief information officer, a chief medical officer and a chief executive officer. In addition, we expanded our commercial strategy, reestablished medical and advisory support, rebuilt our patient advocacy strategy and established a billing system and a payer strategy outside of our relationship with Quest Diagnostics Incorporated ("Quest Diagnostics"). During the second phase, we completed the process of obtaining licensure of ASPiRA LABS in all of the states that require licenses and plan to establish our own payer coverage for OVA1 and launch a second-generation OVA1 test, known as OVA2 (predicated on receipt of clearance from the United States Food and Drug Administration (the "FDA")). In the third phase we plan to commercialize OVA2 by utilizing the full national licensure of ASPiRA LABS, managed care coverage in select markets, our sales force and existing customer base. Unlike OVA1, OVA2 uses a global testing platform, which will allow OVA2 to be deployed internationally. We also plan to develop a laboratory-developed test ("LDT") product series, which we refer to internally as OvaX. We anticipate that OvaX will include not only biomarkers and other diagnostics, but also clinical risk factors and patient history data in order to boost predictive value.

We are dedicated to the discovery, development and commercialization of novel high-value diagnostic and bio-analytical solutions that help physicians diagnose, treat and improve outcomes for women. Our tests are intended to detect, characterize and stage disease, and to help guide decisions regarding patient treatment, which may include decisions to refer patients to specialists, to perform additional testing, or to assist in monitoring response to therapy. A distinctive feature of our approach is to combine multiple biomarkers, other modalities and diagnostics, clinical risk factors and patient data into a single, reportable index score that has higher diagnostic accuracy than its constituents. We concentrate our development of novel diagnostic tests for gynecologic disease, with an initial focus on ovarian cancer. We also intend to address clinical questions related to early disease detection, treatment response, monitoring of disease progression, prognosis and others through collaborations with leading academic and clinical research institutions.

Our lead product, OVA1, is a blood test designed to, in addition to a physician's clinical assessment of a woman with an ovarian mass, identify women who are at high risk of having a malignant ovarian tumor prior to planned surgery. The FDA cleared OVA1 in September 2009, and we commercially launched OVA1 in March 2010. We have completed development and validation work on a second-generation biomarker panel known as OVA2, which is intended to maintain our product's high sensitivity while improving specificity. We submitted our 510(k) clearance application to the FDA on March 6, 2015, with the goal of commencing the marketing and sale of the panel in the third quarter of 2015. We have received a request for additional information about the submission from the FDA and we are in the process of responding to that request. This product uses the Roche Cobas 6000 platform.

In June 2014, Vermillion launched ASPiRA LABS, a Clinical Laboratory Improvements Amendments of 1988 ("CLIA") certified national laboratory based near Austin, Texas, which specializes in applying biomarker-based technologies

to address critical needs in the management of gynecologic cancers. ASPiRA LABS provides expert diagnostic services using a state-of-the-art biomarker-based diagnostic algorithm to inform clinical decision making and advance personalized treatment plans. In addition, ASPiRA LABS seeks to serve as an educational and resource hub for healthcare professionals and women facing surgery for potentially-cancerous ovarian masses and other related gynecologic conditions. The lab currently processes our OVA1 test, and we expect the lab to process the CA 125-II test (which is marketed and sold by a third party) in the future in specific markets. We plan to expand the testing provided to other gynecologic conditions with high unmet need. We also plan to develop and perform LDTs at ASPiRA LABS. ASPiRA LABS currently holds a CLIA Certificate of Registration and a state laboratory license in California, Florida, Maryland, New York, Pennsylvania and Rhode Island. This allows us to process OVA1 on a national basis. The Centers for Medicare & Medicaid Services ("CMS") issued a provider number to ASPiRA LABS on March 5, 2015.

We are focused on the execution of four core strategic business drivers in ovarian cancer diagnostics to build long-term value for our investors:

- Maximizing the existing OVA1 opportunity in the United States by expanding our direct market reach beyond our current commercial agreement with Quest Diagnostics and taking the lead in payer coverage and commercialization of OVA1. This strategy included the launch of a CLIA certified clinical laboratory, ASPiRA LABS, in June 2014;
- Improving OVA1 performance by seeking FDA clearance of a potentially better performing biomarker panel while migrating OVA1 to a global testing platform, thus potentially allowing for better domestic market penetration and international expansion;
- Building an expanded patient base by launching a next generation multi-marker ovarian cancer test to monitor patients at risk for ovarian cancer; and
- Expanding our product offerings by adding additional gynecologic bio-analytic solutions involving biomarkers, other modalities (e.g., imaging), clinical risk factors and patient data to aid diagnosis and risk stratification of women presenting with pelvic mass disease.

We believe that these business drivers will contribute significantly to addressing unmet medical needs for women faced with gynecologic disease and other conditions and the continued development of our business.

Our Product

OVA1 addresses a clear clinical need, namely the pre-surgical identification of women who are at high risk of having a malignant ovarian tumor. Numerous studies have documented the benefit of referral of these women to gynecologic oncologists for their initial surgery. Prior to the clearance of OVA1, no blood test had been cleared by the FDA for physicians to use in the pre-surgical management of ovarian adnexal masses. OVA1 is a qualitative serum test that utilizes five well-established biomarkers and proprietary software cleared as part of the OVA1 510(k) to determine the likelihood of malignancy in women over age 18, with a pelvic mass for whom surgery is planned. OVA1 should not be used without an independent clinical/radiological evaluation and is not intended to be a screening test or to determine whether a patient should proceed to surgery. Incorrect use of OVA1 carries the risk of unnecessary testing, surgery and/or delayed diagnosis. OVA1 was developed through large pre-clinical studies in collaboration with numerous academic medical centers encompassing over 2,500 clinical samples. OVA1 was fully validated in a prospective multi-center clinical trial encompassing 27 sites reflective of the diverse nature of the clinical centers at which ovarian adnexal masses are evaluated.

We terminated our Strategic Alliance Agreement with Quest Diagnostics (the "Strategic Alliance Agreement") in August 2013. Prior to the termination of the Strategic Alliance Agreement, Quest Diagnostics had the right to be the exclusive clinical reference laboratory marketplace provider of OVA1 tests in its exclusive territory, which included the United States, Mexico, the United Kingdom and India. As part of the termination, we agreed that Quest Diagnostics could continue to make OVA1 available to healthcare providers under legacy financial terms following

the termination while negotiating in good faith towards an alternative business structure. Quest Diagnostics disputed the effectiveness of such termination.

On March 11, 2015, we reached a settlement agreement with Quest Diagnostics that terminated all disputes related to our prior strategic alliance and loan agreements with Quest Diagnostics. We also entered into a new commercial agreement with Quest Diagnostics. Pursuant to this agreement, Vermillion's wholly-owned subsidiary, ASPiRA LABS, will begin to offer OVA1 testing to Quest Diagnostics customers. We expect Quest Diagnostics to transfer all OVA1 U.S. testing services to ASPiRA LABS in all 50 states this year, while continuing to provide blood draw and logistics support by transporting specimens from its clients to ASPiRA LABS for testing for a period of at least two years from the date of the agreement.

Quest Diagnostics will receive a fee for collection and logistic support services it provides. Per the terms of the agreement, we will not offer to existing or future Quest Diagnostics customers CA 125-II or other tests that Quest Diagnostics offers.

On March 27, 2015, we announced initial results from a cost-effectiveness analysis study which was presented in a poster at the Annual Meeting of the American College of Medical Quality in Alexandria, Virginia. The study was co-authored by Dr. Robert E. Bristow and Dr. Gareth K. Forde, clinicians at the UC Irvine and Dr. John Hornberger, a leading health economist at Stanford University School of Medicine. The new study, entitled: “Cost Effectiveness Analysis of a Multivariate Index Assay compared to Modified ACOG Criteria and CA-125 in the Triage of Women with Adnexal Masses”, compared the cost-effectiveness of triaging ovarian masses using OVA1 versus two important clinical benchmarks: the CA-125 biomarker and the modified ACOG (American College of Obstetricians and Gynecologists) guideline for ovarian cancer risk assessment.

Study endpoints included treatment costs, quality-adjusted life-years (“QALYs”) and incremental cost-effectiveness ratio (“ICER”). The health economic model utilized OVA1 performance data from the OVA500 prospective trial, published survival, cost and QALY parameters, and a best-practice patient management decision tree. Several important health economic and quality outcomes conclusions were reported in the study:

- Use of OVA1 resulted in fewer projected re-operations and pre-treatment CT scans versus CA 125-II or mod-ACOG,
- OVA1 was QALY-increasing and cost-effective relative to CA 125-II or mod-ACOG,
- ICERs of $12,189/QALY and $35,094/QALY were calculated for OVA1 versus CA 125-II and mod-ACOG, respectively, resulting in a “cost-effective” outcome based on the $50,000 threshold, and
- Relative to the best-practice mod-ACOG benchmark, OVA1 projected an annual increase in patient survival and QALY in excess of 1,000 years, when the surgical cohort was projected to national annual adnexal mass surgeries including about 22,000 new cases of ovarian cancer.

On April 14, 2015, we announced the initiation of a strategic collaboration with Kaiser Permanente's Southern California Permanente Medical Group in order to enhance the diagnosis and treatment of ovarian cancer. The ultimate goal of this collaboration is to create a "best practice" for identification and "first time right" treatment of patients with ovarian cancer. The first phase of this partnership is focused on retrospective benchmarking of ovarian cancer care study across the Kaiser-Permanente system in Southern California. The study will be directed from within the Women and Children’s Service Line of Kaiser Permanente, Orange County. Subsequent phases are expected to include the future opportunity to collaborate further in identifying a role for innovative diagnostics, such as OVA1 and succeeding second generation tests, in informing ovarian cancer treatment decisions to better serve patients and optimize the effectiveness of healthcare delivery.

On May 14, 2015, we announced publication of two abstracts reporting initial positive top-line results regarding the development and validation of OVA2, Vermillion’s second-generation OVA1 ovarian cancer triage test. The results were presented in two posters at the 2015 American Society for Clinical Oncology (ASCO) annual meeting on May 29 through June 2, 2015.

The abstracts represent the first publication of data from OVA2 development. The data show significant improvement in OVA2 specificity compared to OVA1, while maintaining strong sensitivity (92% for OVA1 in a 2013 study). Vermillion’s goal is to launch OVA2 by the third quarter of this year, dependent on successful and timely FDA clearance.

Highlights are as follows:

Validation Study† (N=493)	OVA1	OVA2	Variance	% Variance

		(MIA2G)		
Sensitivity	n.s. (not significantly different)			
Specificity	53.6%	69.1%	+15.5%*	+28.9%
Positive predictive value	31.4%	40.4%	9.0%*	+28.7%
Negative predictive value	n.s. (not significantly different)			
False positive rate	46.4%	30.9%	(15.5%)*	(33.4%)
Overall clinical accuracy†	60.9%	73.2%	+12.3%	+20.2%

†Risk stratification performance, for analytical purposes only; OVA1/OVA2 are not standalone diagnostic tests

*Statistically significant difference ($p<0.001$); n.s. Difference not statistically significant ($p\geq0.05$)

Corporate Information

We were originally incorporated in 1993, and we had our initial public offering in 2000. Our executive offices are located at 12117 Bee Caves Road, Building Three, Suite 100, Austin, Texas 78759, and our telephone number is (512) 519-0400. We maintain websites at www.vermillion.com and www.aspiralab.com where general information about us is available. Our websites, and the information contained therein, are not incorporated by reference into this prospectus supplement or the accompanying prospectus, and you should not consider information contained on our websites to form any part of this prospectus supplement or the accompanying prospectus.

THE OFFERING

Common stock offered by us.....	shares (or shares if the underwriters exercises their option to purchase additional shares in full)
Common stock outstanding immediately after the offering(1).....	shares (or shares if the underwriters exercises their option to purchase additional shares in full)
Option to purchase additional shares.....	We have granted the underwriters an option to purchase up to additional shares of our common stock. This option is exercisable, in whole or in part, for a period of 30 days from the date of this prospectus supplement.
Use of proceeds.....	We estimate that the net proceeds to us from this offering after expenses will be approximately $ million, or approximately $ million if the underwriters exercise their option in full, after deducting underwriting discounts and commission and estimated offering expenses payable by us. We intend to use the net proceeds of this offering to fund domestic and international commercialization, bioinformatics platform enhancements, portfolio expansion and general corporate purposes. See “Use of Proceeds.”
NASDAQ Capital Market Symbol.....	VRML
Risk Factors.....	Investing in our common stock involves risks. See “Risk Factors” beginning on page S-7 of this prospectus supplement and the “Risk Factors” section contained in the accompanying prospectus or the documents incorporated by reference for a discussion of material risks you should consider before investing in our common stock.
Participation Rights.....	In connection with a private placement in May 2013, we entered into a stockholders agreement with the purchasers named in that agreement. Pursuant to and subject to the terms of the stockholders agreement, certain of the investors received rights to participate in any future equity offerings on the same price and terms as other investors, and rights to exercise “piggyback” registration rights for any registration statements that we file prior to May 13, 2018 on our own account or for the account of others with respect to shares of our common stock. Certain of the investors, including Oracle Partners, LP, Oracle Ten Fund Master, LP, Feinberg Family Trust and Jack W. Schuler, have preliminarily indicated that they plan to exercise their rights under the May 2013

stockholders agreement to participate in this offering.

(1) The number of shares of our common stock that will be outstanding immediately after the offering is based on 42,271,192 shares outstanding as of July 10, 2015, and excludes as of that date the following:

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3,272,311 shares of our common stock issuable upon the exercise of outstanding stock options at a weighted average exercise price of $2.29 per share;

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3,656,372 shares of our common stock reserved for future issuance to employees, directors and consultants pursuant to our stock incentive plan; and

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outstanding warrants to purchase an aggregate of 4,608,018 shares of our common stock at a weighted average exercise price of $1.96 per share.

Except as otherwise indicated, all information in this prospectus supplement assumes no exercise by the underwriters of their option to purchase additional shares.

RISK FACTORS

Investing in our securities involves a high degree of risk. Please carefully consider the risk factors described in our most recent Annual Report on Form 10-K, any subsequent updates in our Quarterly Reports on Form 10-Q and any other filings we make with the SEC pursuant to Section 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), incorporated by reference in this prospectus supplement, before making an investment decision. The occurrence of any of those risks could materially and adversely affect our business, prospects, financial condition, results of operations or cash flow. Other risks and uncertainties that we do not now consider to be material or of which we are not now aware may become important factors that affect us in the future and could result in a complete loss of your investment. Please also read carefully the section below entitled "Disclosure Regarding Forward-Looking Statements."

Management will have broad discretion as to the use of the proceeds that we will receive from this offering and may not use the proceeds effectively.

Because we have not designated the amount of net proceeds from this offering to be used for any particular purpose, our management will have broad discretion as to the application of the net proceeds from this offering, including for any of the purposes described in the section entitled "Use of Proceeds," and you will not have the opportunity as part of your investment decision to assess whether the net proceeds are being used appropriately. Because of the number and variability of factors that will determine our use of the net proceeds from this offering, our management could use them for purposes other than those contemplated at the time of the offering. Our management may use the net proceeds for corporate purposes that may not improve our financial condition or market value.

You may experience immediate dilution.

Since the price per share of our common stock being offered is higher than the net tangible book value per share of our common stock, you will suffer substantial dilution in the net tangible book value of the common stock you purchase in this offering. See the section entitled "Dilution" in this prospectus supplement for a more detailed discussion of the dilution you will incur if you purchase common stock in this offering.

You may experience future dilution as a result of future equity offerings.

To the extent that we raise additional funds through the sale of equity or convertible debt securities, the issuance of such securities will result in dilution to our stockholders. Investors purchasing shares or other securities in the future could have rights superior to existing stockholders. The price per share at which we sell additional shares of our common stock, or securities convertible or exchangeable into common stock, in future transactions may be higher or lower than the price per share paid by investors in this offering. In addition, we have a significant number of options and warrants outstanding. If the holders of these options or warrants exercise such securities, you may incur further dilution.

Sales of a significant number of shares of our common stock in the public markets, or the perception that such sales could occur, could depress the market price of our common stock.

Sales of a substantial number of shares of our common stock in the public markets could depress the market price of our common stock and impair our ability to raise capital through the sale of additional equity securities. We cannot predict the effect that future sales of our common stock would have on the market price of our common stock.

If we or our suppliers fail to comply with FDA requirements for production, marketing and post-market monitoring of our products, we may not be able to market our products and services and may be subject to stringent penalties,

product restrictions or recall; further improvements to our manufacturing operations may be required that could entail additional costs.

The commercialization of our products could be delayed, halted or prevented by applicable FDA regulations. If the FDA were to view any of our actions as non-compliant, it could initiate enforcement actions, such as a warning letter and possible imposition of penalties. For instance, we are subject to a number of FDA requirements, including compliance with the FDA's Quality System Regulations "QSR" requirements, which establish extensive requirements for quality assurance and control as well as manufacturing procedures. Failure to comply with these regulations could result in enforcement actions for us or our potential suppliers. Adverse FDA actions in any of these areas could significantly increase our expenses and reduce our revenue. We will need to undertake steps to maintain our operations in line with the FDA's QSR requirements. Some components of OVA1 are manufactured by other companies and we are required to ensure that, to the extent that we incorporate those components into our finished OVA1 test, we use those components in compliance with QSR. Any failure to do so would have an adverse effect on our ability to commercialize OVA1. Our suppliers' manufacturing facilities, since they manufacture finished kits that we use in OVA1, are subject to periodic regulatory inspections by the FDA and other

federal and state regulatory agencies. Our facility also is subject to FDA inspection. We or our suppliers may not satisfy such regulatory requirements, and any such failure to do so may adversely affect our business, financial condition and results of operations.

In the future, we plan to develop and perform LDTs at ASPiRA LABS. If the FDA finalizes its October 3, 2014 draft guidance documents that outline the FDA's proposal to actively regulate LDTs, we may need to obtain a 510(k) clearance or pre-market approval ("PMA") for our future LDTs, and there is no guarantee that we would ever procure the needed FDA clearance or approval. We also would need to comply with ongoing regulatory requirements.

We intend to develop and perform LDTs at ASPiRA LABS. The FDA has historically exercised enforcement discretion and not required approvals or clearances for LDTs. However, on October 3, 2014, the FDA issued two draft guidance documents, entitled "Framework for Regulatory Oversight of Laboratory Developed Tests (LDTs)" and "FDA Notification and Medical Device Reporting for Laboratory Developed Tests (LDTs)," respectively, that set forth a proposed risk-based regulatory framework that would apply varying levels of FDA oversight to LDTs.

According to the draft guidance documents, all laboratories with LDTs—except for those only performing forensic testing or certain LDTs for transplantation—would need to comply with some basic statutory requirements, regardless of the risks of the tests, including adverse event reporting, corrections and removals reporting and registration and listing or notification.

In addition, "high" and "moderate" risk tests not subject to an exemption will need to be the subject of a PMA or 510(k) submitted to the FDA in a phased-in manner. High-risk tests are those that are classified as Class III devices. Within those high-risk devices, the FDA identifies the "highest risk devices" as (1) LDTs with the same intended use as an approved or cleared companion diagnostic; (2) LDTs with the same intended use as an FDA-approved Class III device; and (3) certain LDTs for determining safety and effectiveness of blood or blood products. Moderate-risk tests are those that are classified as Class II devices.

The FDA has indicated that it does not intend to modify its policy of enforcement discretion until the draft guidance documents are finalized. It is unclear at this time when, or if, the draft guidance documents will be finalized, and, if so, how the final framework might differ from the proposal. In addition, the new regulatory requirements are proposed to be phased-in consistent with the schedule set forth in the guidance documents for tests that are on the market at the time the guidance documents are finalized.

Legislative proposals addressing the FDA's oversight of LDTs have been previously introduced, and we expect that new legislative proposals will be introduced from time to time. The likelihood that Congress will pass such legislation and the extent to which such legislation may affect the FDA's plans to regulate LDTs as medical devices is difficult to predict.

Even before the FDA finalizes such guidance documents, the FDA may assert that a test that we believe to be an LDT is not an LDT and could require us to seek clearance or approval to offer such tests for clinical use. If the FDA pre-market review or approval is required for any of the future LDTs we may develop, we may be forced to stop selling our tests or be required to modify claims or make such other changes while we work to obtain FDA clearance or approval. Our business would be negatively affected until such review is completed and clearance to market or approval is obtained.

If pre-market review is required by the FDA or if we decide to voluntarily pursue FDA pre-market review of our future LDTs, there can be no assurance that any tests we develop in the future will be cleared or approved on a timely basis, if at all. Obtaining FDA clearance or approval for diagnostics can be expensive, time consuming and uncertain, and, for higher-risk devices, generally takes several years and requires detailed and comprehensive scientific and

clinical data. In addition, medical devices are subject to ongoing FDA obligations and continued regulatory oversight and review. Ongoing compliance with FDA regulations for those tests would increase the cost of conducting our business and subject us to heightened regulation by the FDA and penalties for failure to comply with these requirements.

DISCLOSURE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus supplement, the accompanying prospectus and the documents that we incorporate by reference contain forward-looking statements, as defined in the Private Securities Litigation Reform Act of 1995. These statements involve a number of risks and uncertainties. Words such as “may,” “expects,” “intends,” “anticipates,” “believes,” “estimates,” “plans,” “seeks,” “could,” “should,” “continue,” “will,” “potential,” “projects” and similar expressions are intende identify such forward-looking statements. Readers are cautioned that these forward-looking statements speak only as of the date on which the document in which they appear is filed with the SEC, and, except as required by law, we do not assume any obligation to update, amend or clarify them to reflect events, new information or circumstances occurring after such dates.

Examples of forward-looking statements regarding our business include the following:

- projections or expectations regarding our future revenue, results of operations and financial condition;
- projections or expectations regarding the potential market size for our products and product candidates;
- our plan to broaden our commercial focus from ovarian cancer to differential diagnosis of women with a range of gynecological disorders;
- intentions to address clinical questions related to early disease detection, treatment response, monitoring of disease progression, prognosis and other issues in the fields of oncology and women’s health;
- anticipated efficacy of our products, product development activities and product innovations;
- plans with respect to ASPiRA LABS;
- plans with respect to OVA2 and OvaX;
- plans to develop and implement LDTs at ASPiRA LABS;
- expectations regarding existing and future collaborations and partnerships;
- achieving milestones in product development and pending regulatory submissions;
- our ability to commercialize OVA1 in other countries;
- anticipated future losses and our ability to continue as a going concern;
- expected levels of expenditures;
- expected market adoption of our diagnostic tests, including OVA1;
- the amount of financing anticipated to be required to fund our planned operations;
- the financial or market share projections which could result from positive guidelines or position statements; and
- our expected reimbursement for our products, and our ability to obtain such reimbursement, from third-party payers such as private insurance companies and government insurance plans.

These statements involve estimates, assumptions and uncertainties that could cause actual results to differ materially from those expressed in them. Any forward-looking statements are qualified in their entirety by reference to the risk factors described in this prospectus supplement, the accompanying prospectus or in any document incorporated by reference herein or therein.

These factors include, among others:

- our ability to increase the volume of OVA1 sales;
- our ability to market our test through sales channels other than Quest Diagnostics, including ASPiRA LABS;
- uncertainty in how we recognize future revenue following termination of the Quest Diagnostics Strategic Alliance Agreement;
- failures by third-party payers to reimburse OVA1 or changes or variances in reimbursement rates;
- our ability to secure additional capital on acceptable terms to execute our business plan;
- our ability to commercialize OVA1 outside the United States;
- in the event that we succeed in commercializing OVA1 outside the United States, the political, economic

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and other conditions affecting other countries (including foreign exchange rates);

- our ability to develop and commercialize additional diagnostic products and achieve market acceptance with respect to these products;
- our ability to compete successfully;
- our ability to obtain any regulatory approval or clearance required for our future diagnostic products;
- our or our suppliers' ability to comply with FDA requirements for production, marketing and post-market monitoring of our products;
- further improvements to our manufacturing operations may be required that could entail additional costs;
- our ability to maintain sufficient or acceptable supplies of immunoassay kits from our suppliers;
- our ability to continue to develop, protect and promote our proprietary technologies;
- future litigation against us, including infringement of intellectual property and product liability exposure;
- our ability to retain key employees;
- business interruptions;
- legislative actions resulting in higher compliance costs;
- changes in healthcare policy;
- our ability to comply with environmental laws;
- our ability to generate sufficient demand for ASPiRA LABS' services to cover its operating costs;
- our ability to comply with the additional laws and regulations that apply to us in connection with the operation of ASPiRA LABS;
- our ability to comply with FDA regulations that relate to our products and to obtain any FDA clearance or approval required to develop and perform LDTs;
- the potentially low liquidity and trading volume of our common stock and concentration in the ownership of our common stock;
- volatility in the price of our common stock;
- the existence of anti-takeover provisions in our corporate governance documents;
- actions of activist stockholders;
- that we do not intend to pay dividends, so our stockholders will benefit from an investment in our capital stock only if it appreciates in value; and
- potential dilution caused by future sale of our common stock or other securities to meet our capital requirements.

You should read this prospectus supplement, the accompanying prospectus, any related free writing prospectus and the documents that we incorporate by reference herein and therein completely and with the understanding that our actual future results may be materially different from what we currently expect. You should not put undue reliance on any forward-looking statement. We believe it is important to communicate our expectations to our investors. However, there may be events in the future that we are not able to accurately predict or that we do not fully control that could cause actual results to differ materially from those expressed or implied in our forward-looking statements.

USE OF PROCEEDS

We estimate that the net proceeds to us from this offering after deducting underwriting discounts and commissions and estimated offering expenses payable by us will be approximately $ million (or approximately $ million if the underwriters exercise their option in full). We intend to use the net proceeds of this offering to fund domestic and international commercialization, bioinformatics platform enhancements, portfolio expansion and general corporate purposes.

DILUTION

If you invest in our common stock, your interest will be diluted immediately to the extent of the difference between the public offering price per share of our common stock and the as-adjusted net tangible book value per share of common stock after this offering.

The net tangible book value of our common stock as of March 31, 2015 was approximately $15,190,000, or approximately $0.35 per share. Net tangible book value per share represents the amount of our total tangible assets less total liabilities divided by the total number of shares of our common stock outstanding.

Dilution per share to new investors represents the difference between the amount per share paid by purchasers for our common stock in this offering and the net tangible book value per share of our common stock immediately following the completion of this offering.

After giving effect to the sale of shares of common stock offered by this prospectus supplement at a public offering price of $ per share and after deducting underwriting discounts and commissions and estimated aggregate offering expenses payable by us, our as adjusted net tangible book value as of March 31, 2015 would have been approximately $, or approximately $ per share. This represents an immediate increase in net tangible book value of approximately $ per share to our existing stockholders and an immediate dilution in as adjusted net tangible book value of approximately $ per share to purchasers of our common stock in this offering, as illustrated by the following table:

Public offering price per share		$
Net tangible book value per share as of March 31, 2015	$ 0.35	
Increase in net tangible book value per share attributable to this offering	$	
As adjusted net tangible book value per share as of March 31, 2015, after giving effect to this offering		$
Dilution per share to new investors purchasing shares in this offering		$

The above table assumes that the underwriters do not exercise their over-allotment option. If the underwriters exercise in full their option to purchase additional shares of common stock at the public offering price of $ per share, our as adjusted net tangible book value after this offering would be approximately $ million, or $ per share of common stock, representing an increase in net tangible book value of approximately $ per share to existing stockholders and immediate dilution in net tangible book value of approximately $ per share to investors purchasing shares of common stock in this offering.

The above table is based on 42,271,192 shares outstanding as of July 10, 2015 and excludes as of such date:

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3,272,311 shares of our common stock issuable upon the exercise of outstanding stock options at a weighted average exercise price of $2.29 per share;

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3,656,372 shares of our common stock reserved for future issuance to employees, directors and consultants pursuant to our stock incentive plan; and

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outstanding warrants to purchase an aggregate of 4,608,018 shares of our common stock at a weighted average exercise price of $1.96 per share.

To the extent that outstanding options or warrants are exercised, you will experience further dilution. In addition, we may choose to raise additional capital due to market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. To the extent that additional capital is raised through the sale of equity or convertible debt securities, the issuance of these securities could result in further dilution to our stockholders.

DIVIDEND POLICY

We have never paid or declared any dividend on our common stock, and we do not anticipate paying cash dividends on any common stock in the foreseeable future. We intend to retain all available funds and any future earnings to fund the development and expansion of our business.

UNDERWRITING

We are offering the shares of common stock described in this prospectus supplement through a number of underwriters. Subject to the terms and conditions set forth in the underwriting agreement between us and Canaccord Genuity Inc., as representative of the underwriters, which we refer to as the representative, we have agreed to sell to the underwriters, and each underwriter has severally agreed to purchase from us, at the public offering price of $ per share less the underwriting discounts of $ per share, the number of shares of common stock listed next to its name in the following table:

Name	Number of shares
Canaccord Genuity Inc.	
Roth Capital Partners, LLC	
Total	

Subject to the terms and conditions set forth in the underwriting agreement, the underwriters have agreed, severally and not jointly, to purchase all of the shares sold under the underwriting agreement if any of these shares are purchased, other than the shares covered by the option described below unless and until this option is exercised.

We have agreed to indemnify the underwriters against certain liabilities, including liabilities under the Securities Act of 1933, as amended, and to contribute to payments the underwriters may be required to make for certain liabilities.

The underwriters are offering the shares, subject to prior sale, when, as and if issued to and accepted by them, subject to approval of legal matters by their counsel, including the validity of the shares, and other conditions contained in the underwriting agreement, such as the receipt by the underwriters of officer's certificates and legal opinions. The underwriters reserve the right to withdraw, cancel or modify offers to the public and to reject orders in whole or in part.

Commissions and Discounts

The underwriters have advised us that they propose to offer the shares of common stock directly to the public at the public offering price set forth on the cover page of this prospectus supplement, and to dealers at the public offering price less a selling concession not in excess of $ per share. The underwriters also may allow, and dealers may reallow, a concession not in excess of $ per share to brokers and dealers. After the public offering of the shares, the underwriters may change the offering price and other selling terms.

The underwriting fee is equal to the public offering price per share of common stock less the amount paid by the underwriters to us per share of common stock. The underwriting fee is $ per share. The following table shows the per share and total underwriting discounts to be paid to the underwriters assuming both no exercise and full exercise of the underwriters' option to purchase additional shares.

	Per Share	Total Without Over-allotment Exercise	Total With Over-allotment Exercise
Public offering price	$	$	$
Underwriting discounts and commissions paid by us	$	$	$

Net proceeds, before expenses, to us	$	$	$

The expenses of the offering payable by us in connection with the offering, other than the underwriting discounts and commissions and the expense reimbursement referred to below, are estimated to be approximately $280,000. We are responsible for all of our expenses related to the offering, whether or not it is completed.

In addition to the underwriting discounts and commissions to be paid by us, we have agreed to reimburse the underwriters for the first $50,000 of certain of their out-of-pocket expenses incurred in connection with the offering, including travel, legal, document production and distribution and database and research expenses and the reasonable fees and disbursements of underwriters' independent counsel.

Option to Purchase Additional Shares

We have granted an option to the underwriters to purchase up to an aggregate of additional shares of our common stock at the public offering price less the underwriting discount. The underwriters may exercise this option for 30 days from the date of this prospectus supplement solely to cover any over-allotments. If any shares are purchased with this over-allotment option, the underwriters will purchase shares in approximately the same proportion as shown in the table above. If any additional shares of common stock are purchased, the underwriters will offer the additional shares on the same terms as those on which the shares are being offered.

Lock-Up Agreements

We and each of our executive officers and directors entered into lock-up agreements with the representative. Under these agreements, we and each of these persons may not, without the prior written approval of the representative, subject to limited exceptions, offer, pledge, sell, offer to sell, contract to sell or lend, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, or otherwise transfer or dispose of, or announce the intention to otherwise dispose of, any shares of our common stock or any securities convertible into or exercisable or exchangeable for our common stock, enter into any swap, hedge or similar arrangement, or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of any shares of our common stock or securities convertible into or exercisable or exchangeable for our common stock, or make any demand for, or exercise any right with respect to, the registration of any shares of our common stock or any security convertible into or exercisable or exchangeable for our common stock without the prior written consent of the representative. These restrictions will be in effect for a period of 90 days after the date of this prospectus supplement.

Notwithstanding the termination of the lock-up period outlined above, and subject to certain exceptions, in the event that either (i) during the last 17 days of the lock-up period, we issue an earnings release or material news or a material event relating to us occurs, or (ii) prior to the expiration of the lock-up period, we announce that we will release earnings results during the 16-day period beginning on the last day of the lock-up period, then the expiration of the lock-up period will be extended until the expiration of the 18-day period beginning on the date of the issuance of an earnings release or the occurrence of the material news or material event, as applicable, unless the representative waives, in writing, such extension.

Price Stabilization and Short Positions

In connection with the offering, the underwriters may purchase and sell our common stock in the open market. These transactions may include over-allotment and stabilizing transactions, passive market making and purchases to cover syndicate short positions created in connection with the offering. Until distribution of the shares of our common stock is completed, SEC rules may limit the underwriters from bidding for and purchasing shares of our common stock. However, the underwriters may engage in transactions that stabilize the price of the shares of our common stock, such as bids or purchases to peg, fix or maintain that price. A “stabilizing transaction” is a bid for or the purchase of common stock on behalf of an underwriter in the open market prior to the completion of this offering for the purpose of fixing or maintaining the price of the shares of common stock. Stabilizing transactions may cause the price of shares of our common stock to be higher than the price that might otherwise prevail in the open market.

If an underwriter creates a short position in our common stock in connection with the offering (i.e., if it sells more shares of our common stock than are listed on the cover page of this prospectus supplement), the underwriter may reduce that short position by purchasing shares of our common stock in the open market. A “covering transaction” is the bid for or purchase of common stock on behalf of an underwriter to reduce a short position incurred by the underwriter in connection with the offering. The underwriters may also elect to reduce any short position by exercising all or part of the over-allotment option described above. A short position is more likely to be created if an underwriter is concerned that there may be downward pressure on the price of the shares in the open market after pricing that could

adversely affect investors who purchase shares in this offering. Similar to other purchase transactions, an underwriter's purchases to cover the short sales may have the effect of raising or maintaining the market price of our shares or preventing or retarding a decline in the market price of our shares. As a result, the price of our shares may be higher than the price that might otherwise prevail in the open market.

An underwriter also may impose a penalty bid, whereby the underwriter may reclaim selling concessions allowed to syndicate members or other broker-dealers in respect of the common stock sold in the offering for their account if the underwriter repurchases the shares in stabilizing or covering transactions. These activities may stabilize, maintain or otherwise affect the market price of the common stock, which may be higher than the price that might otherwise prevail in the open market. The imposition of a penalty bid may also affect the price of the shares of our common stock in that it discourages resales of those shares of our common stock.

In connection with the offering, the underwriters may also engage in passive market making transactions in our common stock on The NASDAQ Capital Market in accordance with Rule 103 of Regulation M during a period before the commencement of offers or sales of shares of our common stock in this offering and extending through the completion of distribution. A passive market maker must display its bid at a price not in excess of the highest independent bid of that security. However, if all independent bids are lowered below the passive market maker's bid, that bid must then be lowered when specified purchase limits are exceeded.

The underwriters have advised us that these transactions may be effected on The NASDAQ Capital Market or otherwise. Neither we nor the underwriters make any representation or prediction as to the direction or magnitude of any effect that the transactions described above may have on the price of shares of our common stock. In addition, neither we nor the underwriters make any representation that the underwriters will engage in these transactions or that these transactions, once commenced, will not be discontinued without notice.

Electronic Distribution

This prospectus supplement and the accompanying prospectus may be made available in electronic format on websites or through other online services maintained by the underwriters of the offering, or by their affiliates. Other than this prospectus supplement and the accompanying prospectus in electronic format, the information on such websites and any information contained in any other website maintained by the underwriters or any of their affiliates is not part of this prospectus supplement, the accompanying prospectus or the registration statement of which this prospectus supplement and the accompanying prospectus form a part, has not been approved or endorsed by us or the underwriters in their capacities as underwriters and should not be relied upon by investors.

Disclaimers About Non-U.S. Jurisdictions

United Kingdom

The underwriters:

- have only communicated or caused to be communicated and will only communicate or cause to be communicated an invitation or inducement to engage in investment activity (within the meaning of section 21 of Financial Services and Markets Act 2000 (as amended) ("FSMA")) to persons who have professional experience in matters relating to investments falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 or in circumstances in which section 21 of FSMA does not apply to us; and
- have complied with and will comply with all applicable provisions of FSMA with respect to anything done by it in relation to the securities in, from or otherwise involving the United Kingdom.

Switzerland

The securities will not be offered, directly or indirectly, to the public in Switzerland and this prospectus does not constitute a public offering prospectus as that term is understood pursuant to article 652a or 1156 of the Swiss Federal Code of Obligations.

European Economic Area

In relation to each Member State of the European Economic Area (the "EEA") which has implemented the Prospectus Directive (each, a "Relevant Member State"), an offer of our shares may not be made to the public in a Relevant Member State other than:

- to any legal entity which is a qualified investor as defined in the Prospectus Directive;

- to fewer than 150 natural or legal persons (other than qualified investors as defined in the Prospectus Directive), subject to obtaining the prior consent of the relevant dealer or dealers nominated by us for any such offer, or;
- in any other circumstances falling within Article 3(2) of the Prospectus Directive,

provided that no such offer of our shares shall require us or any underwriter to publish a prospectus pursuant to Article 3 of the Prospectus Directive or supplement prospectus pursuant to Article 16 of the Prospectus Directive.

For the purposes of this description, the expression an "offer of our shares to the public" in relation to any of our shares in any Relevant Member State means the communication in any form and by any means of sufficient information on the terms of the offer and the shares to be offered so as to enable an investor to decide to purchase or subscribe for the shares, as the expression may be varied in that Relevant Member State by any measure implementing the Prospectus Directive in that member state, and the expression "Prospectus Directive" means European Union Directive 2003/71/EC (as amended by Directive 2010/73/EU and includes any relevant implementing measure in each Relevant Member State.

Neither this prospectus supplement nor the accompanying prospectus is a prospectus for the purposes of the Prospectus Directive. This prospectus supplement and the accompanying prospectus have been prepared on the basis that any offer of our shares in any Relevant Member State will be made pursuant to an exemption under the Prospectus Directive from the requirement to publish a prospectus for offers of shares. We have not authorized and do not authorize the making of any offer of securities through any financial intermediary on our behalf, other than offers made by the underwriters and their respective affiliates, with a view to the final placement of the securities as contemplated in this document. Accordingly, no purchaser of the shares, other than the underwriters, is authorized to make any further offer of shares on our behalf or on behalf of the underwriters.

Relationship with Vermillion, Inc.

In the ordinary course of business, the underwriters and their affiliates may, in the future, provide various investment banking, financial advisory and other services to us for which they may receive customary compensation. In the course of their business, the underwriters and their affiliates may actively trade our securities for their own account or for the accounts of customers, and, accordingly the underwriters and their affiliates may at any time hold long or short positions in such securities.

Listing

Our common stock is listed on The NASDAQ Capital Market under the symbol "VRML."

Transfer Agent

The transfer agent for our common stock is Wells Fargo Shareowner Services, 161 N. Concord Exchange, South St. Paul, MN, 55075, (800) 468-9716.

LEGAL MATTERS

Certain legal matters relating to the validity of the securities offered hereby will be passed upon by Sidley Austin LLP, Chicago, Illinois. Michael A. Gordon, a stockholder of the Company, is a partner in such firm. As of July 10, 2015, Mr. Gordon beneficially owned 175,663 shares of our common stock, including 19,801 warrants he purchased in our previously disclosed December 23, 2014 private placement. Certain legal matters in connection with this offering will be passed upon for the underwriters by Choate, Hall & Stewart LLP, Boston, Massachusetts.

EXPERTS

The consolidated financial statements as of December 31, 2014 and 2013 and for the years then ended incorporated by reference in this prospectus supplement have been so incorporated in reliance on the report of BDO USA, LLP, an independent registered public accounting firm, incorporated in this prospectus supplement by reference, given on the authority of said firm as experts in auditing and accounting.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the SEC. We have filed with the SEC a registration statement on Form S-3 under the Securities Act with respect to the securities we are offering under this prospectus supplement. This prospectus supplement and the accompanying prospectus do not contain all of the information set forth in the registration statement and the exhibits to the registration statement. For further information with respect to us and the securities we are offering under this prospectus supplement, we refer you to the registration statement and the exhibits and schedules filed as a part of the registration statement. You may read and copy, at prescribed rates, any document we file with the SEC at the SEC's Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for more information about the operation of the Public Reference Room. The SEC maintains an Internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC, including Vermillion, Inc. The SEC's Internet site can be found at http://www.sec.gov. Our filings are also available to the public over the Internet at our website at www.vermillion.com.

Information on any Vermillion website, any subsection, page or other subdivision of any Vermillion website or any website linked to by content on any Vermillion website is not part of this prospectus, and you should not rely on that information unless that information is also in this prospectus supplement or the accompanying prospectus or incorporated by reference herein or therein.

IMPORTANT INFORMATION INCORPORATED BY REFERENCE

The SEC allows us to incorporate by reference into this prospectus supplement the information contained in other documents we file with the SEC, which means that we can disclose important information to you by referring you to those documents. Any statement contained in any document incorporated or deemed to be incorporated by reference into this prospectus supplement shall be deemed to be modified or superseded, for purposes of this prospectus supplement, to the extent that a statement contained in or omitted from this prospectus supplement, or in any other subsequently filed document that also is or is deemed to be incorporated by reference into this prospectus supplement, modifies or supersedes such statement. Any such statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this prospectus. We incorporate by reference the documents listed below, which have been filed by us and any future filings we make with the SEC under Section 13(a), 13(c), 14 or 15(d) of the Exchange Act (other than current reports furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits filed on such form that are related to such items unless such Form 8-K expressly provides to the contrary) until the offering is completed:

(a) Our Annual Report on Form 10-K for the fiscal year ended December 31, 2014 filed with the SEC on March 31, 2015;
(b) Our Quarterly Report on Form 10-Q for the period ended March 31, 2015 filed with the SEC on May 12, 2015;
(c) Our Current Reports on Form 8-K filed with the SEC on January 13, 2015 (Item 5.02 only), March 17, 2015, March 20, 2015, April 6, 2015 (Item 5.02 only), May 14, 2015, June 18, 2015 and June 22, 2015;
(d) The description of our common stock set forth in the Registration Statement on Form 8-A filed with the SEC on July 6, 2010 (File No. 001-34810), including any amendments or reports filed for the purpose of updating such description.

Upon written or oral request, we will provide without charge to each person, including any beneficial owner, to whom a copy of the prospectus is delivered a copy of the documents incorporated by reference into this prospectus supplement (other than exhibits to such documents unless such exhibits are specifically incorporated by reference herein). You may request a copy of these filings, at no cost, by writing or telephoning us at the following address:

Vermillion, Inc.

12117 Bee Caves Road, Building Three, Suite 100

Austin, Texas 78738

(512) 519-0400
Attn: Corporate Secretary

S-20

shares

VERMILLION, INC.

Common Stock

PROSPECTUS SUPPLEMENT

Sole Book-Running Manager

Canaccord Genuity

Lead Manager

Roth Capital Partners

July , 2015

PROSPECTUS

$50,000,000 Aggregate Offering Price of

Common Stock, Preferred Stock, Warrants, Rights and Units

70,000
Shares of
Common Stock
underlying
Warrants
Offered
by the Selling
Warrant Holder

Vermillion, Inc., a Delaware corporation ("Vermillion"), may offer and sell from time to time, in one or more offerings, common stock, preferred stock, warrants, rights and units for an aggregate initial offering price up to $50,000,000 in amounts, at prices and on terms that Vermillion will determine at the time of the offering.

In addition, Liolios Group, Inc., a California corporation (the "selling warrant holder"), may use this prospectus to offer and sell from time to time up to 70,000 shares of our common stock issuable upon the exercise of warrants ("warrant shares"). The prices at which the selling warrant holder may sell the warrant shares will be determined by the prevailing market price for shares of our common stock or in negotiated transactions. We will not receive any proceeds from the sale of the warrant shares by the selling warrant holder. This prospectus does not necessarily mean that the selling warrant holder will offer or sell any warrant shares. We cannot predict when or in what amounts the selling warrant holder may sell any of the warrant shares offered by this prospectus or any prospectus supplement.

This prospectus describes general terms that apply to these securities. When we or the selling warrant holder decide to sell a particular class or series of these securities, we or the selling warrant holder will provide specific terms of the securities, including the initial offering price and the aggregate amount of the offering, in one or more supplements to this prospectus. Any prospectus supplement may also add, update, or change information contained in this prospectus. You should carefully read this prospectus and the applicable prospectus supplement, as well as the documents incorporated or deemed to be incorporated by reference in this prospectus before you invest in our securities.

We or the selling warrant holder may offer and sell these securities in the same offering or in separate offerings; to or through underwriters, dealers, and agents; or directly to purchasers. The names of any underwriters, dealers, or agents involved in the sale of our securities, their compensation and any over-allotment options held by them will be described in the applicable prospectus supplement. The selling warrant holder will pay any underwriting discounts and

commissions in connection with the sale of the warrant shares. For a more complete description of the plan of distribution with respect to the securities covered by this prospectus, see the sections entitled "Plan of Distribution for Securities Offered by Us" beginning on page 9 of this prospectus and "Plan of Distribution for Warrant Shares Offered by the Selling Warrant Holder" beginning on page 13 of this prospectus.

Our common stock is traded on The NASDAQ Capital Market under the symbol "VRML". On September 11, 2014, the last reported sale price for our common stock on The NASDAQ Capital Market was $2.21 per share. As of September 12, 2014, the aggregate market value of our outstanding common stock held by our non-affiliates, as calculated pursuant to the rules of the Securities and Exchange Commission, was $47,592,445. Pursuant to General Instruction I.B.6 of Form S-3, in no event will we sell securities in a public primary offering with a value exceeding more than one-third of our "public float" (the market value of our common stock held by our non-affiliates) in any 12-month period so long as our public float remains below $75,000,000. We have not sold any of our common stock or securities convertible into our common stock during the 12 calendar months prior to and including the date of this prospectus.

INVESTING IN OUR SECURITIES INVOLVES SUBSTANTIAL RISKS. YOU SHOULD CONSIDER THE " RISK FACTORS " BEGINNING ON PAGE 5 OF THIS PROSPECTUS, IN THE DOCUMENTS THAT ARE INCORPORATED BY REFERENCE INTO THIS PROSPECTUS AND, IF APPLICABLE, IN RISK FACTORS DESCRIBED IN ANY ACCOMPANYING PROSPECTUS SUPPLEMENT BEFORE BUYING ANY OF OUR SECURITIES.

NEITHER THE SECURITIES AND EXCHANGE COMMISSION NOR ANY STATE SECURITIES COMMISSION HAS APPROVED OR DISAPPROVED OF THESE SECURITIES OR PASSED UPON THE ADEQUACY OR ACCURACY OF THIS PROSPECTUS. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

The date of this prospectus is , 2014.

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement on Form S-3 that we filed with the Securities and Exchange Commission, or the SEC, on September 12, 2014, using a “shelf” registration process. Under this shelf registration process, we may, from time to time, sell any combination of the securities described in this prospectus in one or more offerings up to the aggregate amount of $50,000,000. In addition, the selling warrant holder may offer and sell, from time to time, up to 70,000 warrant shares, in one or more offering and at prices and on terms that it determines at the time of the offering, as described in this prospectus.

This prospectus provides you with a general description of the securities we may offer and the warrant shares the selling warrant holder may offer. A prospectus supplement may add to, update or change information contained in this prospectus, and, accordingly, to the extent inconsistent, information in this prospectus is superseded by the information in any prospectus supplement.

A prospectus supplement may describe, as applicable: the terms of the securities offered by us or the selling warrant holder; the initial public offering price; the price paid for the securities; net proceeds; and the other specific terms related to the offering of the securities.

You should rely only on the information that we have provided or incorporated by reference in this prospectus, any applicable prospectus supplement and any related free writing prospectus that we may authorize to be provided to you. Neither we nor the selling warrant holder have authorized anyone to provide you with different information. No dealer, salesperson or other person is authorized to give any information or to represent anything not contained in this prospectus or any applicable prospectus supplement or any related free writing prospectus that we or the selling warrant holder may authorize to be provided to you. If anyone provides you with different or inconsistent information, you should not rely on it. You should assume that the information in this prospectus, any applicable prospectus supplement or any related free writing prospectus is accurate only as of the date on the cover of the document and that any information we have incorporated by reference is accurate only as of the date of the document incorporated by reference, regardless of the time of delivery of this prospectus, any applicable prospectus supplement or any related free writing prospectus, or any sale of a security. Our business, financial condition, results of operations and prospects may have changed since those dates.

SUMMARY

This summary highlights certain information contained in greater detail elsewhere in this prospectus or incorporated by reference into this prospectus. This summary is not complete and does not contain all of the information that you should consider before deciding whether to invest in our securities. You should carefully read this prospectus, any accompanying prospectus supplements, any related free writing prospectus that we have authorized for use in connection with this offering and the documents incorporated by reference herein and in any accompanying prospectus supplement, including the information referred to under the heading "Risk Factors" in this prospectus on page 5, under the heading "Risk Factors" contained in the applicable prospectus supplement and in the documents incorporated by reference into this prospectus and any prospectus supplement. Unless the context requires otherwise, all references in this prospectus to "Vermillion," "the company," "we," "us," "our" or similar references mean Vermillion, Inc. together with its consolidated subsidiaries.

Our Company

Our vision is to drive advancement in personalized medical management — initially focused on ovarian health — to improve outcomes for patients, physicians and providers.

We are dedicated to the discovery, development and commercialization of novel high-value diagnostic tests that help physicians diagnose, treat and improve outcomes for patients. Our OVA1® ovarian tumor triage test ("OVA1") and soon-to-be-marketed CA 125II test are intended to help guide decisions regarding patient treatment, which may include decisions to refer patients to specialists, to perform additional testing, or to assist in monitoring response to therapy. A distinctive feature of our approach is to combine multiple markers into a single, reportable index score that has higher diagnostic accuracy than its constituents. We concentrate on our development of novel diagnostic tests in the fields of gynecologic oncology and women's health, with an initial focus on ovarian cancer. We also intend to address clinical questions related to early disease detection, treatment response, monitoring of disease progression, prognosis and others through collaborations with leading academic and research institutions.

Our lead product, OVA1, is a blood test designed to identify women who are at a high risk of having a malignant ovarian tumor prior to surgery. The United States Food and Drug Administration (the "FDA") cleared OVA1 in September 2009, and we commercially launched OVA1 in March 2010.

On June 23, 2014, Vermillion launched ASPiRA LABS, which specializes in applying biomarker-based technologies, including OVA1, to address critical needs in the management of gynecologic cancers. ASPiRA LABS provides expert diagnostic processing and results using a state-of-the-art biomarker-based diagnostic algorithm to inform clinical decision making and advance personalized treatment plans. In addition, ASPiRA LABS, a national lab based near Austin, Texas, seeks to serve as an educational and resource hub for healthcare professionals and women facing surgery for ovarian masses that are potentially cancerous and related gynecologic conditions. The lab currently processes our OVA1 test, a diagnostic test and clinical decision aid for women's health in ovarian cancer, and we expect the lab to process the CA 125II test in the future. We plan to expand the testing provided by the lab to other gynecologic conditions with high unmet need. We also plan to develop and perform at ASPiRA LABS laboratory-developed tests ("LDTs"). ASPiRA began accepting samples on June 23, 2014. ASPiRA currently holds a Certificate of Registration under the Clinical Laboratory Improvement Amendments of 1988 ("CLIA") and a state laboratory license in California. ASPiRA is in the process of obtaining state licensure in New York, Florida, Rhode

Island, Maryland and Pennsylvania.

We are focused on the execution of four core strategic business drivers in ovarian cancer diagnostics to build long-term value for our investors:

- Maximizing the existing OVA1 opportunity in the United States by expanding our direct market reach, and payer coverage and commercialization of OVA1. This strategy includes the launch of a CLIA certified clinical laboratory, ASPiRA LABS in June 2014;

- Improving OVA1 performance by seeking FDA clearance of a potentially better performing bio-marker panel while migrating OVA1 to a global testing platform;

- Building an expanded patient base by seeking FDA approval and launching a next generation multi-marker ovarian cancer test to monitor patients at risk for ovarian cancer; and

- Expanding our product offerings by adding additional gynecological tests such as longitudinal CA 125II testing.

We believe that these business drivers will contribute significantly to addressing unmet medical needs for women faced with ovarian cancer and the continued development of our business.

Our Product

OVA1 addresses a clear clinical need, namely the pre-surgical identification of women who are at high risk of having a malignant ovarian tumor. Numerous studies have documented the benefit of referral of these women to gynecologic oncologists for their initial surgery. Prior to the clearance of OVA1, no blood test had been cleared by the FDA for physicians to use in the pre-surgical management of ovarian adnexal masses. OVA1 is a qualitative serum test that utilizes five well-established biomarkers and proprietary software cleared as part of the OVA1 510(k) to determine the likelihood of malignancy in women over age 18, with a pelvic mass for whom surgery is planned. OVA1 should not be used without an independent clinical/radiological evaluation and is not intended to be a screening test or to determine whether a patient should proceed to surgery. Incorrect use of OVA1 carries the risk of unnecessary testing, surgery and/or delayed diagnosis. OVA1 was developed through large pre-clinical studies in collaboration with numerous academic medical centers encompassing over 2,500 clinical samples. OVA1 was fully validated in a prospective multi-center clinical trial encompassing 27 sites reflective of the diverse nature of the clinical centers at which ovarian adnexal masses are evaluated.

In 2012, we completed a second pivotal clinical study of OVA1 called the "OVA500 study," led by Dr. Robert E. Bristow, Director of Gynecologic Oncology Services with University of California Irvine Healthcare. The study evaluated OVA1 diagnostic performance in a population of 494 evaluable patients who underwent surgery for an adnexal mass after enrollment by a non-gynecologic oncologist. In February 2013, the OVA500 study was published in the peer-reviewed journal Gynecologic Oncology , which we believe enjoys the highest impact factor rating of any journal worldwide focused on gynecologic oncology. Since many professional medical societies stress the importance of multiple independent clinical trials as so-called "evidence levels", we also believe that the OVA500 study contributes to a higher evidence level relative to OVA1's utility in the medical management of adnexal masses.

In addition to these pivotal studies, three follow-on studies have been published bringing the number of full research articles on OVA1 clinical performance to a total of five peer-reviewed publications. Together, we believe these data provide strong clinical evidence that OVA1, in conjunction with the physician's independent clinical and radiological evaluation, improves the pre-surgical detection of ovarian cancer, across all stages or subtypes, in patients undergoing surgery for a suspicious ovarian mass.

The American Medical Association Current Procedural Terminology ("CPT®") Panel approved a Category I CPT code (81503) for OVA1, which became effective in January 2013.

Dr. Bristow presented another study at the Society of Gynecological Oncology ("SGO") in March 2013 which was published in the journal Obstetrics & Gynecology (also known as the Green Journal) in June 2013. This study was based on the medical records of 13,321 women with epithelial cancer, the most common type of ovarian cancer, diagnosed from 1999 to 2006 in California. Only 37 percent of these patients received treatment that adhered to guidelines set by the National Comprehensive Cancer Network ("NCCN"), an alliance of 23 major cancer centers with expert panels that analyze, research and recommend cancer treatments. The study found that surgeons who operated on 10 or more women a year for ovarian cancer, and hospitals that treated 20 or more a year, were more likely to adhere to NCCN guidelines and their patients lived longer. Among women with advanced disease — the stage at which ovarian cancer is usually first found — 35 percent survived at least five years if their care met the guidelines, compared with 26 percent of those whose care fell short.

In May 2013, SGO issued a new position statement on OVA1. This second SGO statement on OVA1 since its FDA clearance in 2009 represents another significant step toward acceptance of OVA1 as the standard of care for pre-surgically evaluating the risk of ovarian cancer in women with adnexal masses. The statement, titled "Multiplex

Serum Testing for Women with Pelvic Mass", reads:

"Blood levels of five proteins in women with a known ovarian mass have been reported to change when ovarian cancer is present. Tests measuring these proteins may be useful in identifying women who should be referred to a gynecologic oncologist. Recent data have suggested that such tests, along with physician clinical assessment, may improve detection rates of malignancies among women with pelvic masses planning surgery. [1],[2] Results from such tests should not be interpreted independently, nor be used in place of a physician's clinical assessment. Physicians are strongly encouraged to reference the American Congress of Obstetricians and Gynecologists' 2011 Committee Opinion "The Role of the Obstetrician-Gynecologist in the Early Detection of Epithelial Ovarian Cancer" to determine an appropriate care plan for their patients. It is important to note that no such test has been evaluated for use as, nor cleared by, the FDA as a screening tool for ovarian cancer. SGO does not formally endorse or promote any specific products or brands."

[1] Bristow RE, Smith A, Zhang Z, Chan DW, Crutcher G, Fung ET, et al. Ovarian malignancy risk stratification of the adnexal mass using a multivariate index assay. Gynecol Oncol 2013;128: 252–259

[2] Ueland FR, Desimone CP, Seamon LG, Miller RA, Goodrich S, Podzielinski I, et al. Effectiveness of a multivariate index assay in the preoperative assessment of ovarian tumors. Obstet Gynecol 2011;117:1289-1297.

We believe the position statement does two things:

- Lists as references the publications of OVA1's two pivotal clinical studies, comprised of the original FDA validation study published in June 2011 and the OVA500 "intended use" study published in 2013. Together, this offers an extensive, peer-reviewed proof source for physicians and payers to assess OVA1's clinical performance and comparative medical benefits versus today's standard of care.

- Places OVA1 use in the context of current American Congress of Obstetricians and Gynecologists ("ACOG") practice guidelines, where CA125 has been used off-label for many years to predict malignancy before surgery, although with inferior performance.

In June 2013 our collaborators from Johns Hopkins Biomarker Discovery and Translation Center presented data from "proof of concept" work to identify markers with high clinical specificity that may complement OVA1. These results were presented in a poster at the annual meeting of the American Society for Clinical Oncology by Dr. Zhen Zhang and co-workers. The study identified a set of 5 biomarkers (CA125, prealbumin, IGFBP2, IL6 and FSH) which optimally reduced false positives among a targeted set of OVA1-positive benign patients. This panel was subsequently tested in a 50/50 cross-validation strategy against a sampling of OVA500 patients (N=384), to evaluate specificity and other diagnostic parameters. At a fixed sensitivity of 90%, the median specificity of models using the new panel in testing was 80.6%. The mean and median absolute improvements over that of OVA1 were 18.6% and 20.3%, respectively. The new panel demonstrated the possibility to improve specificity over that of the existing OVA1 algorithm, while maintaining a high sensitivity in pre-surgical assessment of malignancy. The work will be submitted for publication in 2014.

We are in the process of identifying intended use(s) and establishing a regulatory or commercial pathway for a potential next-generation OVA product utilizing this or another new panel. Any actual product development will likely differ significantly depending on a number of technical and commercial factors.

A study published in July 2014 in The American Journal of Obstetrics & Gynecology, examined the relationship between two imaging methods, ultrasound and computed tomography, and the OVA1 test result in assessing the risk of ovarian cancer among patients planning surgery for an ovarian mass. Using data obtained from 1,100 ovarian mass surgery patients in two previous pivotal trials of OVA1's clinical performance, conducted in 2007 and 2012, the study found that adding OVA1 reduced the number of ovarian cancers missed with imaging alone by 84-90%. Specifically, ultrasound alone missed 23.1% of ovarian cancers that were presented, but when OVA1 was added in parallel, the number of ovarian cancers missed decreased to 2.2%. When CT was used alone, 20.2% of ovarian cancers were missed but this rate fell to 2.9% when OVA1 was added in parallel. Additionally, the study found that when ultrasound and OVA1 were combined in parallel, 95% of ovarian cancers in a subgroup of early-stage patients were detected.

Novitas Solutions (formerly Highmark Medicare Services), a Medicare contractor, covers and reimburses for OVA1. In December 2013, the Centers for Medicare and Medicaid Services ("CMS") made its final determination and authorized Medicare contractors to set prices for Multianalyte Assays with Algorithmic Analyses ("MAAA") test CPT codes when they determine it is payable. CMS also validated that an algorithm has unique value by specifying that the gap-fill process and not cross-walk should be used by contractors to price MAAA tests. We expect OVA1 to be priced using the gap-fill method. We will be engaged in that process in 2014 for pricing effective January 1, 2015. This decision also sets a precedent for recognizing the value of biomarker developed tests to clinical decision-making and healthcare efficiencies.

Independent BlueCross BlueShield plans representing approximately 8.0 million lives provide coverage for OVA1. In total, including Medicare and other private payers, approximately 55.5 million patients have access to and coverage for OVA1.

Under the terms of our Strategic Alliance Agreement with Quest Diagnostics Incorporated ("Quest Diagnostics"), which we terminated in August 2013, Quest Diagnostics was required to pay us a fixed payment of $50 per OVA1 test performed, as well as 33% of its "gross margin" from revenue from performing OVA1 tests domestically, as that term is defined in the Strategic Alliance Agreement. Prior to the termination of the agreement, Quest Diagnostics had the right to be the exclusive clinical reference laboratory marketplace provider of OVA1 tests in its exclusive territory, which included the US, Mexico, the United Kingdom and India. This right extended through September 11, 2014, and Quest Diagnostics had the right to extend its exclusivity period for an additional year on the same terms and conditions. In August 2013, we sent Quest Diagnostics a notice of termination. Notwithstanding the termination, we agreed that Quest Diagnostics could continue to make OVA1 available to healthcare providers on the same financial terms following the termination while negotiating in good faith towards an alternative business structure. Quest Diagnostics has disputed the effectiveness of our notice of termination.

Corporate Information

We were originally incorporated in 1993, and we had our initial public offering in September 2000. Our executive offices are located at 12117 Bee Caves Road, Building Three, Suite 100, Austin, TX 78759, and our telephone number is (512) 519-0400. We maintain websites at www.vermillion.com and www.aspiralab.com where general information about us is available. Our websites, and the information contained therein, are not a part of this prospectus.

RISK FACTORS

Investing in our securities involves a high degree of risk. Please carefully consider the risk factors described in our most recent Annual Report on Form 10-K, any subsequent updates in our Quarterly Reports on Form 10-Q and any other filings we make with the SEC pursuant to Section 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), incorporated by reference herein, before making an investment decision. Additional risk factors may be included in any prospectus supplements relating to securities described in this prospectus. The occurrence of any of those risks could materially and adversely affect our business, prospects, financial condition, results of operations or cash flow. Other risks and uncertainties that we do not now consider to be material or of which we are not now aware may become important factors that affect us in the future and could result in a complete loss of your investment.

DISCLOSURE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus, any prospectus supplement and the documents that we incorporate herein or therein by reference contain forward-looking statements, as defined in the Private Securities Litigation Reform Act of 1995. These statements involve a number of risks and uncertainties that are difficult to predict. In some cases, you can identify forward-looking statements by words such as “may,” “expects,” “intends,” “anticipates,” “believes,” “estimates,” “plans,” “see “could,” “should,” “continue,” “will,” “potential,” “projects” or other similar expressions. Readers are cautioned that these forward-looking statements speak only as of the date on which the document in which they appear is filed with the SEC, and we do not assume any obligation to update, amend or clarify them to reflect events, new information or circumstances after such dates. Forward-looking statements are subject to risks, uncertainties and assumptions that are difficult to predict.

Examples of forward-looking statements regarding our business include the following:

- projections of or expectations regarding our future revenue, results of operations and financial condition;
- intentions to address clinical questions related to early disease detection, treatment response, monitoring of disease progression, prognosis and other issues in the fields of oncology and women’s health;
- anticipated efficacy of our products, product development activities and product innovations;
- our expected ability to consolidate the five OVA1 immunoassays on a single mainstream integrated diagnostic automation platform;
- expected competition and consolidation in the markets in which we compete;
- plans with respect to ASPiRA LABS;
- expectations regarding existing and future collaborations and partnerships;
- our belief that particular biomarker discoveries may have diagnostic and/or therapeutic utility;
- achieving milestones in product development, future regulatory or scientific submissions and presentations;
- our continued ability to comply with applicable governmental regulations;
- our continued ability to expand and protect our intellectual property portfolio;
- anticipated future losses;
- expected levels of expenditures;
- expected market adoption of our diagnostic tests, including OVA1;
- anticipated results of clinical trials, post-market studies required by FDA, and publications on OVA1;
- the amount of financing anticipated to be required to fund our planned operations;
- our prospects for obtaining support of medical or professional societies (e.g., SGO, NCCN and ACOG) through “guidelines”, “position statements” and the like;
- the financial or market share projections which could result from positive guidelines or position statements; and
- our expected reimbursement for our products, and our expected ability to obtain such reimbursement, from third-party payers such as private insurance companies and government insurance plans.

These statements involve estimates, assumptions and uncertainties that could cause actual results to differ materially from those expressed in them. Any forward-looking statements are qualified in their entirety by reference to the risk factors described in any accompanying prospectus supplement or in any document incorporated by reference into this prospectus. These factors include, among others:

- our ability to increase the volume of OVA1 sales;

- the fact that all of our revenue was derived from Quest Diagnostics during 2013 and that there is no guarantee that we will be able to successfully market our test through additional channels in the future;

- the consequences of terminating the Quest Diagnostics Strategic Alliance Agreement;

- failures by third-party payers to reimburse OVA1 or changes or variances in reimbursement rates;

- our ability to secure adequate funds on terms acceptable to us;

- our ability to commercialize OVA1 outside the United States;

- our ability to develop additional diagnostic products and achieve significant commercial market acceptance of such products;
- competition in the diagnostics market;
- delay by or failure of the FDA to approve our diagnostic tests submitted to the FDA;
- failure to comply with FDA requirements for production, marketing and postmarket monitoring of our products;
- the continuity of supply of our biomarker kits;
- our ability to continue to develop our technologies;
- our ability to use, maintain and protect our intellectual property rights;
- our ability to recruit and retain key executives and employees;
- changes in law or healthcare policy;
- low liquidity and trading volume of our common stock may be low and the concentration of our stock ownership; and
- volatility of our stock price.

You should read this prospectus, any accompanying prospectus supplement, any related free writing prospectus and the documents that we reference herein and therein and have filed as exhibits to the registration statement, of which this prospectus is part, completely and with the understanding that our actual future results may be materially different from what we currently expect. You should not put undue reliance on any forward-looking statement. We believe it is important to communicate our expectations to our investors. However, there may be events in the future that we are not able to accurately predict or that we do not fully control that could cause actual results to differ materially from those expressed or implied in our forward-looking statements.

USE OF PROCEEDS

Unless otherwise indicated in the prospectus supplement, we will use the net proceeds from the sale of securities offered by this prospectus for general corporate purposes, including working capital, for further research and development and ongoing sales and marketing expenses, and, potentially, capital expenditures and licensing of additional technologies. We may also use a portion of the net proceeds from this offering to acquire or invest in complimentary businesses, technologies, product candidates or other intellectual property, although we have no present commitments or agreements to do so. The timing and amount of our actual expenditures will be based on many factors, including cash flows from operations and the anticipated growth of our business. As a result, unless otherwise indicated in the prospectus supplement, our management will have broad discretion to allocate the net proceeds of the offerings. Pending their ultimate use, we intend to invest the net proceeds in short-term, investment-grade, interest-bearing instruments.

We will not receive any proceeds from sales of warrant shares by the selling warrant holder. Such proceeds would be solely for the account of the selling warrant holder. The selling warrant holder will pay any underwriting discounts and commissions and expenses it incurs for brokerage, accounting, tax or legal services or any other expenses it incurs in disposing of the warrant shares. We will bear all other costs, fees and expenses incurred in effecting the registration of the warrant shares covered by this prospectus.

PLAN OF DISTRIBUTION FOR SECURITIES OFFERED BY US

We may sell the securities offered through this prospectus in one or more of the following ways (or in any combination) from time to time:

- to or through underwriters or dealers;

- directly to purchasers, including our affiliates;

- through agents; or

- a combination of any these methods.

If underwriters or dealers are used in the sale, the securities will be acquired by the underwriters or dealers for their own account and may be resold from time to time in one or more transactions, including:

- in one or more transactions at a fixed price or prices, which may be changed from time to time;

- in “at-the-market offerings,” within the meaning of Rule 415(a)(4) of the Securities Act, to or through a market maker or into an existing trading market, on an exchange or otherwise;

- through a market maker or into an existing trading market on an exchange or otherwise;
- at prices related to those prevailing market prices; or

- at negotiated prices.

The prospectus supplement will include the following information:

- the terms of the offering;

- the names of any underwriters or agents;

- the name or names of any managing underwriter or underwriters;

- the purchase price of the securities;

- the net proceeds from the sale of the securities;
- any delayed delivery arrangements;
- any underwriting discounts, commissions and other items constituting underwriters' compensation;
- any initial public offering price;
- any discounts or concessions allowed or reallowed or paid to dealers; and
- any commissions paid to agents.

Sale Through Underwriters or Dealers

If underwriters are used in the sale of any securities, the underwriters will acquire the securities for their own account, including through underwriting, purchase, security lending or repurchase agreements with us. The underwriters may resell the securities from time to time in one or more transactions, including negotiated transactions. Underwriters may sell the securities in order to facilitate transactions in any of our other securities (described in this prospectus or otherwise), including

other public or private transactions and short sales. Underwriters may offer securities to the public either through underwriting syndicates represented by one or more managing underwriters or directly by one or more firms acting as underwriters. Unless otherwise indicated in the prospectus supplement, the obligations of the underwriters to purchase the securities will be subject to certain conditions, and the underwriters will be obligated to purchase all the offered securities if they purchase any of them. The underwriters may change from time to time any initial public offering price and any discounts or concessions allowed or reallowed or paid to dealers. The prospectus supplement will include the names of the principal underwriters, the respective amount of securities underwritten, the nature of the obligation of the underwriters to take the securities and the nature of any material relationship between an underwriter and us.

If dealers are used in the sale of securities offered through this prospectus, we will sell the securities to them as principals. They may then resell those securities to the public at varying prices determined by the dealers at the time of resale. The prospectus supplement will include the names of the dealers and the terms of the transaction.

We may authorize underwriters, dealers or agents to solicit offers by certain purchasers to purchase our securities from us at the public offering price set forth in the prospectus supplement pursuant to delayed delivery contracts providing for payment and delivery on a specified date in the future. The contracts will be subject to those conditions set forth in the prospectus supplement, and the prospectus supplement will set forth any commissions paid for solicitation of these contracts.

Underwriters, dealers and agents may contract for or otherwise be entitled to indemnification by us against certain civil liabilities, including liabilities under the Securities Act, or to contribution with respect to payments made by the underwriters, dealers or agents, under agreements between us on one hand, and the underwriters, dealers and agents, on the other hand.

We may grant underwriters who participate in the distribution of our securities an option to purchase additional securities to cover over-allotments, if any, in connection with the distribution.

Underwriters, dealers, or agents may receive compensation in the form of discounts, concessions or commissions from us or our purchasers, as their agents in connection with the sale of our securities. These underwriters, dealers or agents may be considered to be underwriters under the Securities Act. As a result, discounts, commissions or profits on resale received by the underwriters, dealers or agents may be treated as underwriting discounts and commissions. The prospectus supplement for any securities offered by us will identify any such underwriter, dealer or agent and describe any compensation received by them from us. Any public offering price and any discounts or concessions allowed or re-allowed or paid to dealers may be changed from time to time.

Underwriters, broker-dealers or agents who may become involved in the sale of our securities may engage in transactions with and perform other services for us for which they receive compensation.

Direct Sales and Sales Through Agents

We may sell the securities offered through this prospectus directly. In this case, no underwriters or agents would be involved. Such securities may also be sold through agents designated from time to time. The prospectus supplement will name any agent involved in the offer or sale of the offered securities and will describe any commissions payable to the agent by us. Unless otherwise indicated in the prospectus supplement, any agent will agree to use its reasonable best efforts to solicit purchases for the period of its appointment.

We may sell the securities directly to institutional investors or others who may be deemed to be underwriters within the meaning of the Securities Act, with respect to any sale of those securities.

At-the-Market Offerings

To the extent that we make sales through one or more underwriters or agents in at-the-market offerings, we will do so pursuant to the terms of a sales agency financing agreement or other at-the-market offering arrangement between us, on one hand, and the underwriters or agents, on the other. If we engage in at-the-market sales pursuant to any such agreement, we will issue and sell our securities through one or more underwriters or agents, which may act on an agency basis or a principal basis. During the term of any such agreement, we may sell securities on a daily basis in exchange transactions or otherwise as we agree with the underwriters or agents. Any such agreement will provide that any securities sold will be sold at prices related to the then prevailing market prices for our securities. Therefore, exact figures regarding proceeds that will be raised or commissions to be paid cannot be determined at this time. Pursuant to the terms of the agreement, we may agree to sell, and the relevant underwriters or agents may agree to solicit offers to purchase blocks of our common stock or other securities. The terms of any such agreement will be set forth in more detail in the prospectus supplement.

Market Making, Stabilization and Other Transactions

In connection with an offering through underwriters, an underwriter may, to the extent permitted by applicable rules and regulations, purchase and sell securities in the open market. These transactions, to the extent permitted by applicable rules and regulations, may include short sales, stabilizing transactions and purchases to cover positions

created by short sales. Short sales involve the sale by the underwriters of a greater number of securities than they are required to purchase in the offering. “Covered” short sales are short sales made in an amount not greater than the underwriters’ option to purchase additional securities from us in the offering, if any. If the underwriters have an over-allotment option to purchase additional securities from us, the underwriters may consider, among other things, the price of securities available for purchase in the open market as compared to the price at which they may purchase securities through the over-allotment option. “Naked” short sales, which may be prohibited or restricted by applicable rules and regulations, are any sales in excess of such option or where the underwriters do not have an over-allotment option. The underwriters must close out any naked short position by purchasing securities in the open market. A naked short position is more likely to be created if the underwriters are concerned that there may be downward pressure on the price of the securities in the open market after pricing that could adversely affect investors who purchase in the offering.

Accordingly, to cover these short positions or to otherwise stabilize or maintain the price of the securities, the underwriters may bid for or purchase securities in the open market and may impose penalty bids. If penalty bids are imposed,

selling concessions allowed to syndicate members or other broker-dealers participating in the offering are reclaimed if securities previously distributed in the offering are repurchased, whether in connection with stabilization transactions or otherwise. The effect of these transactions may be to stabilize or maintain the market price of the securities at a level above that which might otherwise prevail in the open market. The imposition of a penalty bid may also affect the price of the securities to the extent that it discourages resale of the securities. The magnitude or effect of any stabilization or other transactions is uncertain.

Derivative Transactions and Hedging

We, the underwriters or other agents may engage in derivative transactions involving the securities. These derivatives may consist of short sale transactions and other hedging activities. The underwriters or agents may acquire a long or short position in the securities, hold or resell securities acquired and purchase options or futures on the securities and other derivative instruments with returns linked to or related to changes in the price of the securities. In order to facilitate these derivative transactions, we may enter into security lending or repurchase agreements with the underwriters or agents. The underwriters or agents may effect the derivative transactions through sales of the securities to the public, including short sales, or by lending the securities in order to facilitate short sale transactions by others. The underwriters or agents may also use the securities purchased or borrowed from us or others (or, in the case of derivatives, securities received from us in settlement of those derivatives) to directly or indirectly settle sales of the securities or close out any related open borrowings of the securities.

Trading Market and Listing of Securities

Any common stock sold or resold pursuant to a prospectus supplement will be listed on The NASDAQ Capital Market or on such other national securities exchange as our common stock may then be listed. The securities other than common stock may or may not be listed on a national securities exchange. It is possible that one or more underwriters may make a market in a class or series of securities, but the underwriters will not be obligated to do so and may discontinue any market making at any time without notice. We cannot give any assurance as to the liquidity of the trading market for any of the securities.

General Information

Agents, underwriters, and dealers may be entitled, under agreements entered into with us, to indemnification by us against certain liabilities, including liabilities under the Securities Act.

SELLING WARRANT HOLDER

This prospectus also relates to the possible offering and sale, from time to time, of up to 70,000 warrant shares by the selling warrant holder, subject to anti-dilution adjustment. The selling warrant holder does not own any of our securities other than the warrant shares registered under the registration statement of which this prospectus forms a part. We issued four warrants exercisable for shares of our common stock to the selling warrant holder pursuant to a financial public investor relations agreement, dated as of November 1, 2011, as amended, between us and the selling warrant holder. In July 2014, we terminated that agreement with the selling warrant holder. The terms of the warrants held by the selling warrant holder are described under "Description of Capital Stock – Warrants – Outstanding Warrants." Additional information about the selling warrant holder may be set forth in one or more prospectus supplements or in filings that we make with the SEC under the Exchange Act that are incorporated by reference in this prospectus.

The following table sets forth information regarding beneficial ownership of our common stock and the warrants by the selling warrant holder as of September 22, 2014.

Selling Warrant Holder (1)	Warrants Held Prior to Offering	Number of Shares of Common Stock Underlying Warrants Offered Hereby (2)	Total Shares of Common Stock Beneficially Owned Prior to the Offering (2)	Percentage of Common Stock Outstanding Represented by Warrant Shares (2)(3)
Liolios Group, Inc.	70,000	70,000	70,000	*

(1)Also includes any sale of the warrants and the underlying warrant shares by pledges, donees, transferees or other successors in interest that receive such securities by pledge, gift, distribution or other non-sale related transfer from the selling warrant holder after the effective date of the registration statement of which this prospectus forms a part. The information concerning the selling warrant holder may change from time to time, and any changes and the names of any transferees, pledges, donees, and other successors in interest will be set forth in supplements to this prospectus to the extent required.

(2)The number of shares of our common stock indicated assumes exercise of all of the selling warrant holder's warrants, each for one share of common stock and a cash payment in lieu of the issuance of any fractional share interest. However, the number of shares issuable upon exercise of a warrant is subject to anti-dilution protections as described under "Description of Capital Stock – Warrants – Outstanding Warrants." As a result, the number of shares of common stock issuable upon exercise of the warrants may increase or decrease in the future.

*Less than 1%.

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PLAN OF DISTRIBUTION FOR WARRANT SHARES OFFERED BY THE SELLING WARRANT HOLDER

The selling warrant holder may offer and sell all or a portion of the warrant shares covered by this prospectus from time to time, in one or more or any combination of the following transactions:

- on The NASDAQ Capital Market, in the over-the-counter market or on any other securities exchange, market or trading facility on which our shares are listed or traded;
- in privately negotiated transactions;
- in underwritten transactions;
- in a block trade in which a broker-dealer will attempt to sell the offered shares as agent but may position and resell a portion of the block as principal to facilitate the transaction;
- in an exchange distribution in accordance with the rules of the applicable exchange;
- settlement of short sales entered into after the effective date of the registration statement of which this prospectus is a part;
- through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise;
- through purchases by a broker-dealer as principal and resale by the broker-dealer for its account pursuant to this prospectus;
- in ordinary brokerage transactions and transactions in which the broker solicits purchasers;
- a combination of any such methods of sale; or
- any other method permitted pursuant to applicable law.

The selling warrant holder may sell the shares at prices then prevailing or related to the then current market price or at negotiated prices. The offering price of the shares from time to time will be determined by the selling warrant holder and, at the time of the determination, may be higher or lower than the market price of our common stock on The NASDAQ Capital Market or any other exchange or market.

The shares may be sold directly or through broker-dealers acting as principal or agent, or pursuant to a distribution by one or more underwriters on a firm commitment or best-efforts basis. In connection with an underwritten offering, underwriters or agents may receive compensation in the form of discounts, concessions or commissions from the selling warrant holder or from purchasers of the offered warrant shares for whom they may act as agents. In addition, underwriters may sell the warrant shares to or through dealers, and those dealers may receive compensation in the form of discounts, concessions or commissions from the underwriters and/or commissions from the purchasers for whom they may act as agents. In connection with any particular offering of warrant shares, an underwriter may engage in stabilizing transactions, short sales, syndicate covering transactions and penalty bids. The selling warrant holder and any underwriters, dealers or agents participating in a distribution of the shares may be deemed to be “underwriters” within the meaning of the Securities Act, and any profit on the sale of the shares by the selling warrant holder and any commissions received by broker-dealers may be deemed to be underwriting commissions under the Securities Act. Broker-dealers may receive commissions or discounts from the selling warrant holder (or, if any broker-dealer acts as agent for the purchaser of shares, from the purchaser) in amounts to be negotiated, but, except as set forth in a supplement to this prospectus, in the case of an agency transaction not in excess of a customary brokerage commission in compliance with NASD Rule 2440 of the Financial Industry Regulatory Authority (“ FINRA ”); and in the case of a principal transaction a markup or markdown in compliance with FINRA’s NASD IM-2440.

In connection with the sale of the warrant shares, the selling warrant holder may enter into hedging transactions with broker-dealers or other financial institutions, which may in turn engage in short sales of the warrant shares in the course of hedging the positions they assume. The selling warrant holder may also sell warrant shares short and deliver these securities to close out their short positions, or loan or pledge the warrant shares to broker-dealers that in turn may sell these securities. The selling warrant holder may also enter into option or other transactions with broker-dealers or other financial institutions for the creation of one or more derivative securities which require the delivery to such broker-dealer or other financial institution of warrant shares, which warrant shares such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction).

The selling warrant holder may agree to indemnify an underwriter, broker-dealer or agent against certain liabilities related to the selling of the common stock, including liabilities arising under the Securities Act. We will not be responsible for any underwriting discounts or commissions associated with the sale of such shares.

We are not aware that the selling warrant holder has entered into any agreements, understandings or arrangements with any underwriters or broker-dealers regarding the sale of their shares. Upon our notification by the selling warrant holder that any material arrangement has been entered into with an underwriter or broker-dealer for the sale of shares through a block trade, special offering, exchange distribution, secondary distribution or a purchase by an underwriter or broker-dealer, we will file a supplement to this prospectus, if required, pursuant to Rule 424(b) under the Securities Act, disclosing certain material information, including:

- the name of the selling warrant holder;
- the number of shares being offered;
- the terms of the offering;
- the names of the participating underwriters, broker-dealers or agents;
- any discounts, commissions or other compensation paid to underwriters or broker-dealers and any discounts, commissions or concessions allowed or reallowed or paid by any underwriters to dealers;
- the public offering price; and
- other material terms of the offering.

The selling warrant holder is subject to the applicable provisions of the Exchange Act and the rules and regulations under the Exchange Act, including Regulation M. This regulation may limit the timing of purchases and sales of any of the warrant shares offered in this prospectus by the selling warrant holder. The anti-manipulation rules under the Exchange Act may apply to sales of warrant shares in the market and to the activities of the selling warrant holder and its affiliates. Furthermore, Regulation M may restrict the ability of any person engaged in the distribution of the warrant shares to engage in market-making activities for the particular securities being distributed for a period of up to five business days before the distribution. The restrictions may affect the marketability of the warrant shares and the ability of any person or entity to engage in market-making activities for the warrant shares.

To the extent required, this prospectus may be amended and/or supplemented from time to time to describe a specific plan of distribution. The selling warrant holder may sell the shares of common stock in compliance with the provisions of Rule 144 under the Securities Act, if available, or pursuant to other available exemptions from the registration requirements of the Securities Act.

The warrant shares registered hereunder will be sold only through registered or licensed brokers or dealers if required under applicable state securities laws. In addition, in certain states, such shares may not be sold unless they have been registered or qualified for sale in the applicable state or an exemption from the registration or qualification requirement is available and is complied with.

DESCRIPTION OF CAPITAL STOCK

The following summary description of our capital stock is based on the applicable provisions of the Delaware General Corporation Law, or DGCL, and on the provisions of our Fourth Amended and Restated Certificate of Incorporation, dated January 22, 2010, as amended effective June 19, 2014 (our "Certificate of Incorporation"), and our Fifth Amended and Restated Bylaws, effective June 19, 2014 (our "Bylaws"). This information is qualified entirely by reference to the applicable provisions of the DGCL, our Certificate of Incorporation, and our Bylaws. For information on how to obtain copies of our Certificate of Incorporation and our Bylaws, please refer to the heading "Where You Can Find More Information" in this prospectus.

Our Authorized Capital Stock

Under our Certificate of Incorporation, our authorized capital stock consists of 150,000,000 shares of common stock, par value $0.001 per share, and 5,000,000 shares of preferred stock, par value $0.001 per share.

Common Stock

As of September 30, 2014, we had 35,962,514 shares of our common stock outstanding, 1,944,747 shares of our common stock that were subject to outstanding options, 23,750 shares of our common stock subject to existing restricted stock grants and 763,838 shares of our common stock reserved for future issuance to employees, directors and consultants pursuant to our stock incentive plans. In addition, as of September 30, 2014, warrants to purchase 483,359 shares of our common stock were outstanding at exercise prices ranging from $1.46 to $4.70 per share, with a weighted average exercise price of $1.65 per share. All outstanding shares of common stock are, and the shares of common stock offered by us in this offering, when issued and paid for will be, fully paid and nonassessable. The rights, preferences and privileges of the holders of common stock are subject to, and may be adversely affected by, the rights of the holders of shares of any series of preferred stock which we may designate in the future.

Voting Rights

Each holder of common stock is entitled to one vote for each share on all matters to be voted upon by the stockholders, and there are no cumulative voting rights.

Dividend Rights

Subject to preferences to which holders of preferred stock may be entitled and the rights of certain of our stockholders set forth in the Stockholders Agreement (as defined below), holders of common stock are entitled to receive ratably such dividends, if any, as may be declared from time to time by our Board of Directors out of funds legally available therefor. We have never paid or declared any dividend on our common stock, and we do not anticipate paying cash dividends on any common stock in the foreseeable future. We intend to retain all available funds and any future earnings to fund the development and expansion of our business.

No Preemptive or Similar Rights

Holders of our common stock do not have preemptive rights, and our common stock is not convertible or redeemable. As described under "Stockholders Agreement," certain holders of our common stock have the right to purchase shares in connection with most equity offerings made by the Company.

Right to Receive Liquidation Distributions

In the event of our liquidation, dissolution or winding up, holders of common stock would be entitled to share in our assets remaining after the payment of liabilities and the satisfaction of any liquidation preference granted the holders of any outstanding shares of any senior class of securities. The rights, preferences and privileges of the holders of common stock are subject to, and may be adversely affected by, the rights of the holders of shares of any series of preferred stock which we may designate in the future.

Preferred Stock

There are no shares of our preferred stock outstanding.

Our Board of Directors is authorized, subject to any limitations prescribed by law, without stockholder approval, to issue from time to time up to an aggregate of 5,000,000 shares of preferred stock, in one or more series, each of such series to have such rights and preferences, including voting rights, dividend rights, conversion rights, redemption terms and liquidation preferences as shall be determined by our Board of Directors. Any issuance of shares of preferred stock could adversely affect the voting power of holders of

common stock, and the likelihood that the holders of preferred stock will receive dividend payments and payments upon liquidation could have the effect of delaying, deferring or preventing a change in control.

Warrants

Outstanding Warrants

As of September 30, 2014, warrants to purchase 483,359 shares of common stock at exercise prices ranging from $1.46 to $4.70 were outstanding, with a weighted exercise price of $1.65 per share. All outstanding warrants contain provisions for the adjustment of the exercise price in the event of stock dividends, stock splits, reorganizations, reclassifications or mergers. The rights of the shares of common stock issuable upon exercise of all of our outstanding warrants are the same as those described under “Common Stock” above.

Pursuant to a financial public investor relations agreement, dated as of November 1, 2011, as amended, between us and the selling warrant holder, we issued four warrants for an aggregate of 70,000 shares of our common stock to the selling warrant holder. If the selling warrant holder does not sell all of its 70,000 warrant shares under this registration statement, it will have “piggyback” registration rights with respect to the remaining warrant shares for any additional registration statements that we file on our own account or the account of others with respect to shares of our common stock. The following table sets forth the date of issuance, expiration date, number of shares of underlying common stock and initial exercise price associated with each warrant held by the selling warrant holder.

Date of Issuance	Expiration Date	Number of Shares of Common Stock Underlying the Warrant (1)	Initial Exercise Price
November 1, 2012	October 31, 2014	21,000	$1.93
May 1, 2013	April 30, 2015	21,000	$1.88
November 1, 2013	October 31, 2015	21,000	$3.89
May 1, 2014	April 30, 2016	7,000	$4.70

(1)The warrant dated May 1, 2014 was initially exercisable for 21,000 shares of our common stock, but, in accordance with its terms, did not fully vest due to the termination of our agreement with the selling warrant holder in July 2014.

The foregoing description of our outstanding warrants is qualified entirely by reference to exhibits 4.5, 4.6, 4.7 and 4.8 to the registration statement of which this prospectus forms a part.

Warrants Registered by Us Hereunder

We may issue warrants to purchase shares of common stock or shares of preferred stock, independently or together with other securities. Warrants sold with other securities may be attached to or separate from the other securities. We will issue warrants under one or more warrant agreements between us and a warrant agent we will name in the prospectus supplement.

The prospectus supplement relating to any warrants we are offering will include specific terms relating to the offering. These terms will include some or all of the following:

- the aggregate number of warrants offered;
- the title of the warrants;
- the designation, number and terms of the shares of common stock or shares of preferred stock purchasable upon exercise of the warrants and procedures by which those numbers may be adjusted;
- the exercise price of the warrants;
- the dates or periods during which the warrants are exercisable;

- the designation and terms of any securities with which the warrants are issued;

- if the warrants are issued as a unit with another security, the date on and after which the warrants and the other security will be separately transferable;

- if the exercise price is not payable in U.S. dollars, the foreign currency, currency unit or composite currency in which the exercise price is denominated;

- any minimum or maximum amount of warrants that may be exercised at any one time;

- any terms relating to the modification of the warrants; and
- any terms, procedures and limitations relating to the transferability, exchange or exercise of the warrants.

Rights

We may issue rights for the purchase of shares of our common stock or shares of our preferred stock. Each series of rights will be issued under a separate rights agreement which we will enter into with a bank or trust company, as rights agent, all as set forth in the applicable prospectus supplement. The rights agent will act solely as our agent in connection with the certificates relating to the rights and will not assume any obligation or relationship of agency or trust with any holders of rights certificates or beneficial owners of rights. We will file the rights agreement and the rights certificates relating to each series of rights with the SEC and incorporate them by reference as an exhibit to the registration statement of which this prospectus is a part on or before the time we issue a series of rights.

The applicable prospectus supplement will describe the terms of any rights we issue, including as applicable:

- the date for determining the persons entitled to participate in the rights distribution;

- the aggregate number or amount of underlying securities purchasable upon exercise of the rights and the exercise price;

- the aggregate number of rights being issued;

- the date, if any, on and after which the rights may be transferable separately;

- the date on which the right to exercise the rights commences and the date on which such right expires;

- the designation and terms of any securities with which the warrants are issued;

- a discussion of any material or special U.S. federal income tax considerations applicable to the rights; and

- any other terms of the rights, including the terms, procedures and limitations relating to the distribution, exchange and exercise of the rights.

Rights will be exercisable for U.S. dollars only and will be in registered form only.

Units

We may issue securities in units, each consisting of two or more types of securities. For example, we might issue units consisting of a combination of common stock and warrants to purchase common stock. If we issue units, the prospectus supplement relating to the units will contain the information described above with regard to each of the securities that is a component of the units. In addition, the prospectus supplement relating to the units will describe the terms of any units we issue, including as applicable:

- the date, if any, on and after which the units may be transferable separately;

- whether we will apply to have the units traded on a securities exchange or securities quotation system;

- a discussion of any material or special U.S. federal income tax considerations applicable to the units; and

- how, for U.S. federal income tax purposes, the purchase price paid for the units is to be allocated among the component securities.

Stockholders Agreement

In connection with a private placement in May 2013, we entered into a stockholders agreement with the purchasers named in that agreement. Pursuant to and subject to the terms of the stockholders agreement, certain of the investors received rights to participate in any future equity offerings on the same price and terms as other investors, and rights to exercise “piggyback” registration rights for any registration statements that we file prior to May 13, 2018 on our own account or for the account of others with respect to shares of our common stock. Some or all of such investors might participate in one or more of the equity offering under the registration statement of which this prospectus is a part.

In addition, the stockholders agreement prohibits the company from taking material actions without the consent of at least one of the two primary investors. These material actions include:

• making any acquisition with value greater than $2 million;

• entering into, or amending the terms of agreements with Quest Diagnostics Incorporated, provided that such investors' consent shall not be unreasonably withheld, conditioned or delayed following good faith consultation with the company;

• submitting any resolution at a meeting of stockholders or in any other manner changing or authorizing a change in the size of our Board of Directors;

• offering, selling or issuing any securities senior to our common stock or any securities that are convertible into or exchangeable or exercisable for securities ranking senior to our common stock;

• amending our Certificate of Incorporation or our Bylaws in any manner that affects the rights, privileges or economics of our common stock or the warrants purchased in the May 2013 private placement;

• taking any action that would result in a change in control of Vermillion or an insolvency event;

• paying or declaring dividends on any securities of the company or distributing any assets of the company other than in the ordinary course of business or repurchasing any outstanding securities of the company; or

• adopting or amending any shareholder rights plan.

In addition, the two primary investors each received the right to designate a person to serve on our Board of Directors. These rights terminate for each stockholder when that stockholder ceases to beneficially own less than 50% of the shares and warrants (taking into account shares issued upon exercise of the warrants), in the aggregate, than were purchased at the closing of the private placement.

Section 203 of the Delaware Corporation Law

We are subject to Section 203 of the DGCL, which prevents an "interested stockholder" (defined in Section 203 of the DGCL, generally, as a person owning 15% or more of a corporation's outstanding voting stock), from engaging in a "business combination" (as defined in Section 203 of the DGCL) with a publicly-held Delaware corporation for three years following the date such person became an interested stockholder, unless:

· before such person became an interested stockholder, the board of directors of the corporation approved the transaction in which the interested stockholder became an interested stockholder or approved the business combination;

· upon consummation of the transaction that resulted in the interested stockholder's becoming an interested stockholder, the interested stockholder owns at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced (excluding stock held by directors who are also officers of the corporation and by employee stock plans that do not provide employees with the rights to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer); or

· following the transaction in which such person became an interested stockholder, the business combination is approved by the board of directors of the corporation and authorized at a meeting of stockholders by the affirmative vote of the holders of two-thirds of the outstanding voting stock of the corporation not owned by the

interested stockholder.

The provisions of Section 203 of the DGCL could make a takeover of our company difficult.

Effect of Certain Provisions of Our Certificate of Incorporation and Bylaws

Certain provisions of our Certificate of Incorporation and Bylaws may have the effect of making it more difficult for a third party to acquire, or of discouraging a third party from attempting to acquire, control of us. Such provisions could limit the price that certain investors might be willing to pay in the future for our securities. Our Certificate of Incorporation eliminates the right of stockholders to call special meetings of stockholders or to act by written consent without a meeting, and our Bylaws require advance notice for stockholder proposals and director nominations, which may preclude stockholders from bringing matters before an annual meeting of stockholders or from making nominations for directors at an annual meeting of stockholders. Our Certificate of Incorporation authorizes undesignated preferred stock, which makes it possible

for our Board of Directors to issue preferred stock with voting or other rights or preferences that could impede the success of any attempt to change control of us.

These and other provisions may have the effect of deferring hostile takeovers or delaying changes in control or management of us. The amendment of any of the provisions of our Certificate of Incorporation described in the immediately preceding paragraph would require approval by our Board of Directors and the affirmative vote of at least 66 2/3% of our then outstanding voting securities, and the amendment of any of the provisions of our Bylaws described in the immediately preceding paragraph would require approval by our Board of Directors or the affirmative vote of at least 66 2/3% of our then outstanding voting securities.

Transfer Agent

The transfer agent for our common stock is Wells Fargo Shareowner Services.

Listing

Our common stock is listed on The NASDAQ Capital Market under the symbol “VRML.”

LEGAL MATTERS

Sidley Austin LLP has passed upon the validity of the securities being registered by the registration statement of which this prospectus is a part. Additional legal matters may be passed upon for us or any underwriters, dealers or agents, by counsel that we will name in the applicable prospectus supplement.

EXPERTS

The consolidated financial statements as of December 31, 2013 and 2012 and for the years then ended incorporated by reference in this prospectus have been so incorporated in reliance on the report of BDO USA, LLP, an independent registered public accounting firm, incorporated herein by reference, given on the authority of said firm as experts in auditing and accounting.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the SEC. We have filed with the SEC a registration statement on Form S-3 under the Securities Act with respect to the securities we are offering under this prospectus. This prospectus does not contain all of the information set forth in the registration statement and the exhibits to the registration statement. For further information with respect to us and the securities we are offering under this prospectus, we refer you to the registration statement and the exhibits and schedules filed as a part of the registration statement. You may read and copy the registration statement, as well as our reports, proxy statements and other information, at the SEC’s Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for more information about the operation of the Public Reference Room. The SEC maintains an Internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC, including Vermillion, Inc. The SEC’s Internet site can be found at http://www.sec.gov .

Information on any Vermillion website, any subsection, page, or other subdivision of any Vermillion website, or any website linked to by content on any Vermillion website, is not part of this prospectus and you should not rely on that information unless that information is also in this prospectus or incorporated by reference in this prospectus.

IMPORTANT INFORMATION INCORPORATED BY REFERENCE

The SEC allows us to “incorporate by reference” information into this prospectus, which means that we can disclose important information to you by referring you to another document filed separately with the SEC. The documents incorporated by reference into this prospectus contain important information that you should read about us.

The following documents are incorporated by reference into this prospectus:

(a) The registrant's Annual Report on Form 10-K for the fiscal year ended December 31, 2013 filed with the SEC on March 31, 2014;
(b) The registrant's Quarterly Report on Form 10-Q for the quarters ended March 31, 2014 and June 30, 2014 filed with the SEC on May 15, 2014 and August 14, 2014, respectively;
(c) The registrant's Current Reports on Form 8-K filed with the SEC on (i) January 3, 2014, (ii) March 10, 2014, (iii) March 31, 2014, (iv) April 15, 2014, (v) April 18, 2014, (vi) April 23, 2014, (vii) June 24, 2014, (vii) July 28, 2014, (ix) August 15, 2014 and (x) August 21, 2014;
(d) The description of the registrant's common stock set forth in the Registration Statement on Form S-1 filed with the SEC on February 21, 2011 (File No. 333-171797), including any amendments or reports filed for the purpose of updating such description.

We also incorporate by reference any future filings (other than current reports furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits filed on such form that are related to such items unless such Form 8-K expressly provides to the

contrary) made with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, including those made after the date of the initial filing of the registration statement of which this prospectus is a part and prior to effectiveness of such registration statement, until we file a post-effective amendment that indicates the termination of the offering of the securities made by this prospectus and will become a part of this prospectus from the respective dates that such documents are filed with the SEC. Any statement contained herein or in a document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded for purposes

hereof or of the related prospectus supplement to the extent that a statement contained herein or in any other subsequently filed document which is also incorporated or deemed to be incorporated herein modifies or supersedes such statement. Any such statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this prospectus.

Documents incorporated by reference are available from us, without charge. You may obtain documents incorporated by reference in this prospectus by requesting them in writing or by telephone at the following address:

Vermillion, Inc.

12117 Bee Caves Road, Building Three, Suite 100

Austin, Texas 78738

(512) 519-0400

Attn: Corporate Secretary

Vermillion, Inc.

PROSPECTUS

$50,000,000

Common Stock, Preferred Stock,

Warrants, Rights and Units

70,000
Shares of
Common
Stock
Underlying
Warrants
Offered by
the Selling
Warrant
Holder

, 2014