

ROCKWELL MEDICAL, INC.
Form 424B5
November 17, 2014

Use these links to rapidly review the document

[TABLE OF CONTENTS](#)

[TABLE OF CONTENTS](#)

Table of Contents

The information in this prospectus supplement is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus supplement is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

Filed Pursuant to Rule 424(b)(5)
Registration No. 333-181003

Subject to Completion
Preliminary Prospectus Supplement dated November 17, 2014

PROSPECTUS SUPPLEMENT
(To Prospectus dated June 13, 2012)

\$55,000,000

Common Stock

We are selling up to \$55,000,000 of shares of our common stock.

Our shares trade on the Nasdaq Global Market under the symbol "RMTI." On November 14, 2014, the last sale price of the shares reported on the Nasdaq Global Market was \$10.52 per share.

Investing in the common stock involves risks that are described in the "Risk Factors" section beginning on page S-10 of this prospectus supplement.

	Per Share	Total
Public offering price	\$	\$
Underwriting discount	\$	\$
Proceeds, before expenses, to us	\$	\$

The underwriters may also exercise their option to purchase up to an additional \$8,250,000 of shares from us, at the public offering price, less the underwriting discount, for 30 days after the date of this prospectus supplement.

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

The shares will be ready for delivery on or about _____, 2014.

BofA Merrill Lynch

Stifel

Summer Street

Craig-Hallum

Chardan Capital Markets, LLC

LifeSci Capital

The date of this prospectus supplement is _____, 2014.

TABLE OF CONTENTS

Prospectus Supplement

<u>About this Prospectus Supplement</u>	<u>S-1</u>
<u>Where You Can Get More Information</u>	<u>S-1</u>
<u>Industry and Market Data</u>	<u>S-2</u>
<u>Cautionary Statement Regarding Forward-Looking Statements</u>	<u>S-2</u>
<u>Prospectus Supplement Summary</u>	<u>S-4</u>
<u>Risk Factors</u>	<u>S-10</u>
<u>Use of Proceeds</u>	<u>S-20</u>
<u>Capitalization</u>	<u>S-21</u>
<u>Dilution</u>	<u>S-21</u>
<u>Price Range of Common Stock</u>	<u>S-23</u>
<u>Dividend Policy</u>	<u>S-23</u>
<u>Description of Securities We Are Offering</u>	<u>S-23</u>
<u>Underwriting</u>	<u>S-24</u>
<u>Legal Matters</u>	<u>S-31</u>
<u>Experts</u>	<u>S-31</u>

Prospectus

<u>About this Prospectus</u>	<u>2</u>
<u>Where You Can Get More Information</u>	<u>3</u>
<u>Documents Incorporated by Reference</u>	<u>3</u>
<u>Our Company</u>	<u>4</u>
<u>Risk Factors</u>	<u>6</u>
<u>Cautionary Statement Regarding Forward-Looking Statements</u>	<u>6</u>
<u>Use of Proceeds</u>	<u>6</u>
<u>Description of Capital Stock</u>	<u>7</u>
<u>Description of Warrants</u>	<u>8</u>
<u>Description of 2009 Warrants</u>	<u>9</u>
<u>Plan of Distribution</u>	<u>10</u>
<u>Legal Matters</u>	<u>14</u>
<u>Experts</u>	<u>14</u>

Table of Contents

ABOUT THIS PROSPECTUS SUPPLEMENT

This prospectus supplement is part of a registration statement that we filed with the Securities and Exchange Commission (the "SEC"), using a "shelf" registration process. This document has two parts. The first part is the prospectus supplement, which describes the specific terms of the offering. The second part is the accompanying prospectus, which describes more general information, some of which may not apply to the offering. You should read both this prospectus supplement and the accompanying prospectus, together with the additional information described under the heading "Where You Can Get More Information."

You should rely only on the information contained or incorporated by reference in this prospectus supplement, in the accompanying prospectus, in any other prospectus supplement and in any free writing prospectus filed by us with the SEC. We have not, and the underwriters have not, authorized any other person to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. We are not, and the underwriters are not, making an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. You should assume that the information appearing in this prospectus supplement, the accompanying prospectus and the documents incorporated by reference is accurate only as of each of their respective dates. Our business, financial condition, results of operations and prospects may have changed since those dates. To the extent that any statement that we make in this prospectus supplement differs from or is inconsistent with statements made in the accompanying prospectus or any documents incorporated by reference therein, the statements made in this prospectus supplement will be deemed to modify or supersede those made in the accompanying prospectus and such documents incorporated by reference therein.

Unless the context otherwise requires, references in this prospectus supplement to "Rockwell," "we," "us," and "our" refer to Rockwell Medical, Inc., and include its consolidated subsidiaries where the context so requires.

This prospectus supplement, the accompanying prospectus, and the information incorporated herein and therein by reference includes trademarks, service marks and trade names owned by us or other companies. All trademarks, service marks and trade names included or incorporated by reference into this prospectus supplement or the accompanying prospectus are the property of their respective owners.

WHERE YOU CAN GET MORE INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the SEC. You can inspect or copy all or any part of these materials, at prescribed rates, at the SEC's Public Reference Room at 100 F Street, N.E., Washington D.C. 20549. You may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. The SEC also maintains an Internet site at www.sec.gov that contains reports, proxy and information statements and other information regarding issuers that file electronically with the SEC, including Rockwell.

The SEC allows Rockwell to "incorporate by reference" the information it files with the SEC. This permits us to disclose important information to you by referencing these filed documents. Any information referenced in this way is considered part of this prospectus supplement, and any information filed with the SEC subsequent to this prospectus supplement will automatically update and supersede this information. Rockwell incorporates by reference the documents listed below which have been filed with the SEC:

Annual Report on Form 10-K for the fiscal year ended December 31, 2013 (as amended by the Form 10-K/A filed with the SEC on June 4, 2014), including information from the Definitive Proxy Statement filed in connection with the Annual Meeting of Shareholders

Table of Contents

held on May 22, 2014, as filed with the SEC on April 14, 2014, incorporated therein by reference;

Quarterly Reports on Form 10-Q for the quarters ended March 31, 2014, June 30, 2014, and September 30, 2014;

Current Reports on Form 8-K filed with the SEC on May 28, 2014, June 9, 2014, October 8, 2014, and November 7, 2014;
and

The description of our common shares included in our prospectus, dated July 24, 1997, included in our registration statement on Form SB-2 filed with the SEC on July 24, 1997, under the caption "Description of Securities" on pages 34 through 38 of the prospectus and incorporated by reference into our registration statement on Form 8-A filed with the SEC on January 23, 1998, including any amendment or reports filed for the purpose of updating such description.

In addition, all documents filed by us under Section 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934 after the date of this prospectus supplement but before the termination of this offering are deemed to be incorporated by reference into this prospectus supplement and will constitute a part of this prospectus supplement from the date of filing of those documents.

Any statement contained in a document incorporated by reference or deemed to be incorporated by reference in 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 this prospectus supplement or in any other subsequently filed document that is incorporated by reference modifies or supersedes such statement. Any statement that is so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this prospectus supplement.

Rockwell will provide without charge, upon written or oral request, a copy of any or all of the documents which are incorporated by reference in this prospectus supplement, including any exhibits which are specifically incorporated by reference into such documents. Requests should be directed to Thomas E. Klema, Secretary, at our principal executive offices, located at 30142 Wixom Road, Wixom, Michigan 48393 (telephone number: (248) 960-9009).

INDUSTRY AND MARKET DATA

Industry and market data used throughout this prospectus supplement were obtained through company research, surveys and studies conducted by third parties, and industry and general publications. We have not independently verified any of the data from third party sources nor have we ascertained any underlying economic assumptions relied upon therein. While we are not aware of any misstatements regarding the industry data presented herein, estimates involve risks and uncertainties and are subject to change based on various factors, including those discussed under the heading "Risk Factors."

CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS

We make forward-looking statements in this prospectus supplement and the accompanying prospectus. Our forward-looking statements are subject to risks and uncertainties and include information about our expectations and possible or assumed future results of our operations. When we use words such as "may," "might," "will," "should," "believe," "expect," "anticipate," "estimate," "continue," "predict," "forecast," "projected," "intend" or similar expressions, or make statements regarding our intent, belief or current expectations, we are making forward-looking statements. Our forward looking statements also include, without limitation, statements about our competitors, statements regarding the timing and costs of obtaining FDA approval of our new drug Triferic and

Table of Contents

statements regarding our anticipated future financial condition, operating results, cash flows and business plans.

We claim the protection of the safe harbor for forward-looking statements contained in the Private Securities Litigation Reform Act of 1995 for all of our forward-looking statements. While we believe that our forward-looking statements are reasonable, you should not place undue reliance on any such forward-looking statements, which are based on information available to us on the date of this prospectus supplement or, if made elsewhere, as of the date made. Because these forward-looking statements are based on estimates and assumptions that are subject to significant business, economic and competitive uncertainties, many of which are beyond our control or are subject to change, actual results could be materially different. Factors that might cause such a difference include, without limitation, the risks and uncertainties discussed in this prospectus supplement, including under "Risk Factors" in this prospectus supplement, and from time to time in our reports filed with the Securities and Exchange Commission.

Other factors not currently anticipated may also materially and adversely affect our results of operations, cash flows and financial position. There can be no assurance that future results will meet expectations. We do not undertake, and expressly disclaim, any obligation to update or alter any statements whether as a result of new information, future events or otherwise, except as may be required by law.

Table of Contents

PROSPECTUS SUPPLEMENT SUMMARY

This summary highlights certain information about us, this offering and selected information appearing elsewhere in this prospectus supplement, in the accompanying prospectus and in the documents we incorporate by reference. This summary is not complete and does not contain all of the information that you should consider before investing in our securities. You should read this entire prospectus supplement and the accompanying prospectus, including the information incorporated by reference, carefully before making an investment decision. You should pay special attention to the information referred to under the heading "Risk Factors" in this prospectus supplement beginning on page S-10, and the risk factors and the financial statements and other information contained in our filings with the SEC which have been incorporated by reference in this prospectus supplement, when making an investment decision.

Our Company

General

We are a fully-integrated biopharmaceutical company targeting end-stage renal disease, or ESRD, and chronic kidney disease with innovative products and services for the treatment of iron deficiency, secondary hyperparathyroidism and hemodialysis (also referred to as "dialysis").

Our lead investigational drug, Triferic[®], also known as Soluble Ferric Pyrophosphate or SFP, delivers iron to the bone marrow in a non-invasive, physiologic manner to hemodialysis patients via dialysate during their regular dialysis treatment. We submitted a New Drug Application, or NDA, to the U.S. Food and Drug Administration, or FDA, in the first quarter of 2014 seeking marketing approval of Triferic[®]. We also plan to seek foreign market approval for this product and/or out-license the technology to a company who will seek market approval in foreign markets.

On November 6, 2014, the Oncologic Drugs Advisory Committee, or ODAC, of the FDA recommended that the Phase 3 Triferic[®] clinical efficacy and safety results support a positive benefit/risk for use of ferric pyrophosphate in this patient population, by a vote of 8 to 3. The FDA is not bound by the recommendations of an advisory committee such as ODAC, but it generally follows such recommendations. The FDA requested the ODAC to discuss whether in their opinion there was sufficient evidence for Triferic[®] to be further indicated as reducing the need for erythropoiesis stimulating agent, or ESA, and the ODAC indicated that it believed more evidence should be required for that claim to be included in the indication.

Triferic[®] has a Prescription Drug User Fee Act, or PDUFA, date of January 24, 2015. The PDUFA date is the goal date for the FDA to complete its review of the NDA. There can be no assurance that the FDA will complete its review of the NDA by this date. When and if we obtain FDA approval, we intend to market Triferic[®]. We cannot, however, give any assurance that Triferic[®] will be approved by the FDA or, if approved, what will be included in the approved label or whether Triferic[®] once launched will be successfully marketed.

The majority of ESRD patients receive iron on a routine basis. Based upon clinical data, we believe Triferic[®] has unique and substantive benefits compared to current treatment options. We successfully completed the two pivotal studies, CRUISE-1 and CRUISE-2, in Triferic[®]'s Phase 3 clinical program during 2013. Both studies met their primary efficacy endpoint and achieved statistical significance. We also completed an extensive longer term safety study in early 2014 which showed that Triferic[®] has an exceptionally good safety profile, with over 100,000 administrations in its clinical program.

In addition, in early 2013, we completed our PRIME study which demonstrated that Triferic[®] could achieve a significant reduction in the need for erythropoiesis stimulating agents, or ESA, in kidney disease patients who receive Triferic[®] during dialysis. ESA drugs are the most expensive drugs used in dialysis.

Table of Contents

We are also preparing to launch an FDA approved generic drug called Calcitriol. Calcitriol is active vitamin D injection and indicated for the treatment of secondary hyperparathyroidism in dialysis patients. The majority of ESRD patients receive vitamin D on a routine basis. We recently received regulatory approval for a change in manufacturing location and are targeting the first half of 2015 to begin marketing Calcitriol.

We are also an established manufacturer and leader in delivering high-quality hemodialysis concentrates/dialysates to dialysis providers and distributors in the U.S. and abroad. These products are used in the hemodialysis process to maintain human life by removing toxins and replacing critical nutrients in the patient's bloodstream. We have three manufacturing and distribution facilities in the United States.

Distribution Agreement with Baxter

On October 2, 2014, we entered into an Exclusive Distribution Agreement, which we refer to as the Distribution Agreement, with Baxter Healthcare Corporation, which we refer to as Baxter. Pursuant to the terms of the Distribution Agreement, Baxter will become our exclusive agent for commercializing our hemodialysis concentrate and ancillary products in the United States and various foreign countries for an initial term of 10 years. We retain sales, marketing and distribution rights for our hemodialysis concentrate products for our current international customers and in those countries in which we have an established commercial presence. During the term of the Distribution Agreement, Baxter has agreed not to manufacture or sell any competitive concentrate products in the United States hemodialysis market, other than specified products.

Under the Distribution Agreement, Baxter will purchase products from us at pre-determined gross margin-based prices per unit adjusted each year during the term and subject to an annual true up. The Distribution Agreement also requires Baxter to meet minimum annual purchase levels, subject to a cure period and certain other relief, in order to maintain its exclusive distribution rights. The minimum purchase levels increase each year over the term of the Distribution Agreement. Purchases in any contract year that exceed the minimum may be carried forward and applied to future years' minimum requirements. The Distribution Agreement also contains provisions governing the operating relationship between the parties, our obligations to maintain specified manufacturing capacity and quality levels, remedies, as well as representations, warranties and indemnification obligations of the parties. We will continue to manage customer service, transportation and certain other functions for our current customers through at least December 31, 2017, for which Baxter will pay us an amount equal to our related costs plus a slight mark-up.

We received an upfront fee of \$20 million under the Distribution Agreement. Baxter has also agreed to pay us \$10 million during the initial term of the Distribution Agreement to build a new manufacturing facility in the Pacific time zone that will serve customers in the Western United States. The fee payable in connection with building the facility will be reduced to the extent that the facility is not operational within 12 months after the start of construction. Except for any leased components, we will own the facility when completed.

In October 2014, Baxter also purchased approximately 1.3 million common shares from us at \$11.39 per share (the average closing price over the preceding 12 months) in a private placement for a total of \$15 million in net proceeds.

The Distribution Agreement requires us to prepay our outstanding secured indebtedness of approximately \$18.3 million by March 31, 2015 and prohibits us from entering into a subsequent contract encumbering the assets used in our concentrate business without Baxter's prior written consent.

Table of Contents

Our Business Strategy

We intend to become a leading biopharmaceutical company focused primarily on renal indications, while leveraging our operating business infrastructure to market and sell approved drugs commercially. The following are the key elements of our business strategy:

Obtain Regulatory Approval of our Lead Drug Candidate Triferic for the Treatment of Iron Deficiency in Hemodialysis Patients.

We are seeking and intend to obtain FDA regulatory approval to market Triferic commercially. Based on a report from a manufacturer of intravenous iron products from 2012 and industry estimates, we believe the market size in the United States for IV iron therapy for ESRD patients is between approximately \$300 and \$600 million per year. Through the Distribution Agreement with Baxter, we expect to sell to and service a significant number of dialysis providers in the United States and intend to market Triferic to those dialysis providers.

Launch Calcitriol (Active Vitamin D) Injection for the Treatment of Secondary Hyperparathyroidism in Dialysis Patients.

We have approval from the FDA to begin manufacturing our FDA approved generic drug Calcitriol and are targeting the first half of 2015 to launch our marketing efforts. Based on a manufacturer's report from 2012 and industry estimates, we believe the market size in the United States for vitamin D therapy for ESRD patients is approximately \$250 million per year. We intend to market Calcitriol to dialysis providers, many of whom we have an established commercial relationship with through our dialysis concentrate business.

Obtain License/Marketing Partners to Leverage Our Products Globally for Commercialization.

We continue seek commercial collaborations to license and develop our products and to realize financial benefits on an international basis. We intend to leverage the development, regulatory and marketing presence and expertise of potential business partners to accelerate the development of our products throughout the world.

Continue Development of our Commercial Concentrate Business and Market Position and Leverage that Infrastructure to Sell our Renal Drugs When and If Approved by the FDA.

We intend to continue to increase our market presence in our concentrate products business in the United States and internationally by continuing to develop and offer innovative products that improve patient outcomes and lower provider costs. We expect to expand our concentrate market presence in the United States through our Distribution Agreement with Baxter. Based on the 2013 industry estimates, we believe the global market for IV iron therapy could be as much as \$1 billion per year and that the U. S. market for vitamin D (calcitriol) is approximately \$250 million per year. We intend to use our sales and marketing operating infrastructure to sell our renal drugs into the same market, with minimal additional sales and marketing expense.

Leverage Our Triferic Technology to Develop Other Drugs for Other Indications in Iron Therapy Management.

We intend to pursue clinical development and or business partnerships to leverage Triferic iron delivery technology to address other indications for treating anemia in the U.S. and globally.

Table of Contents

Identify Novel Drugs to Address Unmet Needs and Market Opportunities.

We will pursue opportunities to secure other drugs inside and outside the renal market that we believe hold great potential to address unmet needs, and that we believe will enable us to expand our reach further into drug development.

Acquire Rights to and Commercially Implement Complementary Drug Candidates and Technologies.

We intend to continue to selectively pursue and acquire rights to drug products in various stages of development, or FDA approved drugs, with the intention to commercialize and/or realize their business potential.

The Hemodialysis Market

The great majority of hemodialysis patients receive dialysis treatment three times per week, or 156 times per year. Most have their dialysis treatment performed at a free-standing clinic; these are called "chronic" patients. Some have their treatment performed at hospitals; these are called "acute" patients. A small percentage receive their treatment at home; these are called "home" patients. In each setting, a dialysis machine dilutes concentrated solution, such as our concentrate products, with purified water. The resulting solution is called dialysate. Dialysate is pumped through an artificial kidney (or dialyzer) while the patient's blood is pumped through a semi-permeable membrane inside the dialyzer, in the opposite direction the dialysate is flowing. The dialysate infuses calcium and bicarbonate into the patient's blood while removing water and waste. Dialysate generally contains dextrose, sodium chloride, calcium, potassium, magnesium, sodium bicarbonate, and acetic or citric acid. The patient's physician chooses the proper concentrations required for each patient based on each particular patient's needs. In addition to using reusable concentrate products, a dialysis provider also uses other ancillary products such as blood tubing, fistula needles, specialized component kits, dressings, cleaning agents, filtration salts and other supplies, many of which we sell.

Dialysis Industry Trends

Hemodialysis is the primary treatment modality employed in the United States with over 90% of all dialysis patients receiving hemodialysis. We do not compete in the peritoneal or home dialysis segments. Hemodialysis treatments are generally performed in independent clinics or hospitals with the majority of dialysis services performed by national and regional for profit dialysis chains. Based on data published by the U.S. Renal Data Systems, or USRDS, we estimate that there are approximately 6,000 Medicare-certified treatment clinics in the United States. The two largest national for-profit dialysis chains service approximately 70% of the domestic hemodialysis market. According to the most recent industry statistics published by USRDS, there were over 400,000 dialysis patients in the United States in 2011. Based on a manufacturer's report from 2012, between 2010 and 2011 the U.S. dialysis patient population grew approximately 4%. In view of this data and our observations of steady growth over the past several decades, we expect it to grow 4-6% annually over the next several years.

Based on a manufacturers' report from 2012, the global ESRD population receiving some form of dialysis treatment was approximately 2.1 million in 2011, and we estimate that this population is currently over 2.5 million patients. The report indicates that Incidence rates vary by country, with the overall global patient population growing approximately 6% annually. According to the 2012 report, the three largest dialysis markets are the United States, the European Union and Japan, which together represent approximately half of the total global treatments based on industry estimates. The Asia-Pacific market is projected to experience rapid growth in the incidence of kidney disease over the decade ahead.

Table of Contents**Our Recent Financial Results**

Our audited results of operations for the years ended December 31, 2013, 2012 and 2011, certain balance sheet items as of the end of each such year, our unaudited results of operations for the nine-month periods ended September 30, 2014 and 2013, and certain balance sheet items as of September 30, 2014 are as follows:

(in thousands)	Nine Months Ended September 30,			Years Ended December 31,	
	2014	2013	2013	2012	2011
Sales	\$ 39,741	\$ 38,415	\$ 52,380	\$ 49,842	\$ 48,966
Research and Product Development Expense	\$ 6,104	\$ 33,588	\$ 39,382	\$ 48,272	\$ 17,805
Net (Loss)	\$ (14,944)	\$ (40,451)	\$ (48,783)	\$ (54,022)	\$ (21,445)
Cash Used In Operating Activities	\$ 13,298	\$ 42,522	\$ 50,665	\$ 30,747	\$ 10,783

(in thousands)	As of September 30,	As of December 31,		
	2014	2013	2012	2011
Cash and Cash Equivalents(1)	\$ 3,017	\$ 11,881	\$ 4,712	\$ 5,715
Investments Available For Sale	\$ 9,017	\$ 9,076	\$	\$ 11,811
Total Current Assets	\$ 19,894	\$ 31,918	\$ 13,149	\$ 25,897
Total Assets	\$ 23,872	\$ 36,362	\$ 17,025	\$ 31,940
Current Liabilities	\$ 17,280	\$ 17,850	\$ 26,987	\$ 13,692
Long Term Debt	\$ 12,052	\$ 17,917	\$	\$ 2

(1) Amount at September 30, 2014 does not include the \$20.0 million fee received from Baxter in October 2014, the \$15.0 million net proceeds from the equity investment by Baxter received in October 2014 and the \$8.0 million in proceeds from the exercise of warrants received in October 2014.

Our Research and Product Development expenses represented significant expenditures in each of 2011, 2012 and 2013 and were the primary reason for our net losses in those years. We completed our Phase 3 clinical development program for Triferic and submitted a New Drug Application in the first quarter of 2014. As a result, we anticipate future spending on research and development for Triferic to decrease significantly for the remainder of 2014 compared to 2013 and our 2015 research and development spending is expected to be at or below 2014 levels. We anticipate that we will incur losses until we launch our drug products if approved by the FDA. We do not anticipate the need for additional funding for the commercialization of our drug products in the United States following FDA approval.

As of September 30, 2014 we had \$12.0 million in cash, cash equivalents and investments. Subsequent to September 30, 2014, we received an additional \$43.0 million in cash resources as noted above.

Please refer to our most recent annual report on Form 10-K and quarterly reports on Form 10-Q for further details regarding our results of operations and financial position.

Table of Contents

The Offering

Common Stock Offered	Up to \$55,000,000 of shares of common stock.
Common Stock Outstanding After This Offering	shares (based on 41,015,392 common shares outstanding as of September 30, 2014 and assuming no exercise of outstanding options or warrants since that date)
Option to Purchase Additional Shares	We have granted the underwriters an option to purchase up to an additional \$8,250,000 of shares of our common stock within 30 days of the date of this prospectus supplement.
Use of Proceeds	We expect to use the net proceeds from this offering to repay outstanding secured indebtedness and for general corporate purposes, which may include working capital, research and development expenses, acquisition of intellectual property relating to complementary drug therapies, and general and administrative expenses. See "Use of Proceeds."
Risk Factors	See "Risk Factors" and other information included or incorporated by reference in this prospectus supplement and the accompanying prospectus for a discussion of factors you should carefully consider before deciding to invest in our securities.
Listing	Our common stock is listed on The NASDAQ Global Market under the symbol "RMTI." The last reported price of our common stock on November 14, 2014 was \$10.52 per share.

Unless otherwise stated, all information contained in this prospectus supplement assumes no exercise of the underwriters' option to purchase of up to \$8,250,000 of additional shares.

Table of Contents

RISK FACTORS

In considering whether to purchase the securities, you should carefully consider all the information we have included or incorporated by reference in this prospectus supplement and the accompanying prospectus. In particular, you should carefully consider the following risk factors, as well as the factors listed in "Cautionary Statement Regarding Forward-Looking Statements." You should carefully review all the information in this prospectus supplement and the accompanying prospectus about these securities.

RISKS RELATED TO OUR DRUG BUSINESS

There can be no assurance that our NDA submitted to the FDA seeking approval to market Triferic will be approved, nor can there be any assurance that the FDA will complete its review of our NDA by the PDUFA date.

We submitted a New Drug Application, or NDA, to the U.S. Food and Drug Administration, or FDA, in the first quarter of 2014 seeking marketing approval of our lead investigational drug, Triferic, also known as Soluble Ferric Pyrophosphate or SFP, for the delivery of iron and maintenance of hemoglobin to hemodialysis patients, via dialysate during their regular dialysis treatment. Triferic has a Prescription Drug User Fee Act, or PDUFA, date of January 24, 2015. The PDUFA date is the goal date for the FDA to complete its review of the NDA. There can be no assurance that the FDA will complete its review of the NDA by this date.

On November 6, 2014, the FDA convened a meeting of the Oncologic Drugs Advisory Committee, or ODAC, to review the safety and efficacy data included in our NDA for Triferic. The FDA asked the ODAC to consider and discuss the following:

whether the primary efficacy endpoint analysis adequately captured the benefit of the treatment and adequate end of treatment hemoglobin values given the extent of subjects who withdrew from the study before the 48 week period due to safety-related protocol-mandated changes in anemia management; and

whether the ODAC had comments or recommendations regarding safety considerations.

The FDA asked ODAC to vote on whether the efficacy and safety results in the Phase 3 clinical studies support a positive benefit/risk for use of ferric pyrophosphate (Triferic) to treat iron loss. The ODAC voted in favor of Triferic 8 to 3.

ODAC also considered the limitations of the NIH-FP-01 study, and whether additional studies should be required to establish efficacy of ferric pyrophosphate for the proposed labeling claim to reduce the prescribed dose of ESA. ODAC members indicated that although it appears Triferic reduces ESA use, additional studies should be required for including this claim as part of the indication.

While the FDA is not bound by the views or recommendations of its advisory committees, they will be considered by the FDA in its review of our NDA. There can be no assurance as to the timing or outcome of FDA's ultimate decision on our NDA. The FDA may deny approval of the application altogether, or may require additional testing or data before it may be approved. The FDA may approve the application but limit its use in certain patients or under specified conditions resulting in a narrower label than we propose, or could require post-approval testing. In the event the FDA takes any such action, it could have a material adverse effect on our operations and financial condition.

Even if Triferic is approved by the FDA, we may not be able to market it successfully.

Even if approval is granted by the FDA, the commercial success of Triferic will depend on a number of factors, including the following:

one drug currently dominates treatment for iron deficiency and Triferic will have to compete against it and possibly other existing and future products;

Table of Contents

it may be difficult to gain market acceptance from dialysis chains, anemia managers and nephrologists or such acceptance may be slower than expected. Moreover, dialysis chains, anemia managers and nephrologists may want to conduct an evaluation prior to adoption. Market acceptance will depend on a number of factors, such as demonstration of Triferic's safety and efficacy, cost-effectiveness, advantages over existing products, and the reimbursement policies of government and third party payers, including Medicare;

maintaining compliance with ongoing regulatory requirements applicable to Triferic which may be imposed by the FDA as part of the approval or which apply generally to the manufacturing processes, labeling, packaging, distribution, adverse event reporting, storage, advertising, promotion and recordkeeping applicable to the product;

the effectiveness of our marketing, sales and distribution strategies and operations for development and commercialization, and our ability to execute our marketing strategy without significant additional expenditures;

our ability to avoid third party patent interference or patent infringement claims; and

a continued acceptable safety profile of Triferic following approval. Later discovery of previously unknown problems with Triferic or with any third-party manufacturers or manufacturing processes, or failure to comply with regulatory requirements, may result in regulatory action that could have a material adverse effect on our ability to manufacture and market Triferic.

Many of these factors are beyond our control. Accordingly, we cannot assure you that we will be able to generate revenues through the sale of Triferic. If we are not successful in commercializing Triferic, or are significantly delayed in doing so, our entire investment in Triferic may be worthless, our licensing rights could be forfeited and the price of our common stock could substantially decline. Even if we were successful in commercializing Triferic, due to the highly concentrated nature of the market, our continued success may depend on the adoption by a few customers.

If we do not obtain protection under the Hatch-Waxman Act to extend patent protection for Triferic, our business may be harmed.

The United States Drug Price Competition and Patent Term Restoration Act of 1984, more commonly known as the "Hatch-Waxman Act," provides that patent holders may apply for an extension of patent term for drugs for a period of up to five years to compensate for time spent in development and regulatory approval. There can be no assurance that we will receive the extension of the patent term provided under the Hatch-Waxman Act for either of the licensed Triferic patents expiring in 2016. If we fail to receive such extension, our ability to prevent competitors from manufacturing, marketing and selling generic versions of Triferic could be impaired and we would have to rely on the protection afforded us by the U.S. patent we hold on the synthesis and formulation of our pharmaceutical grade formulation of Triferic which expires in 2029 or on other patents related to Triferic that may be issued to us in the future.

Commercial launch of Calcitriol vitamin D injection may be delayed or it may not be widely adopted when launched.

We recently received FDA approval to manufacture a generic version of Calcitriol. Although we have received approval to manufacture Calcitriol, we still must meet certain ongoing regulatory requirements for product testing and stability of our commercially marketed products. If our testing does not meet approvable standards, if we are unable to find one or more approved suppliers that can make the product in sufficient quantities or if we experience operational issues with our supplier, we may not be able to market Calcitriol or the launch may be delayed.

Table of Contents

The market for generic drugs such as Calcitriol is generally very competitive, which may make it difficult for us to capture significant market share. If we have success in capturing market share with Calcitriol, it may attract other entrants to market their own Calcitriol product, which could have a material adverse effect on our future revenues and results of operations. Branded competitors may aggressively lower their prices to maintain market share.

We may not be successful in obtaining foreign regulatory approvals or in arranging an out-licensing or other venture to realize commercialization of our drug products outside of the United States.

The approval procedures for marketing our new drug products, such as Triferic , outside the U.S. vary from country to country, can be difficult to obtain and carry the same risks as FDA approval. In particular, regulatory approval in foreign countries may require additional testing and may otherwise be expensive and time consuming to undertake. Even after foreign approvals are obtained, further delays may be encountered before products may be marketed. Many countries require additional government approval for price reimbursement under national health insurance systems.

Even if we obtain the necessary foreign approval in a particular market, we do not have substantial expertise selling and marketing on an international level and therefore may not be successful in realizing commercial value from our products. Our strategy for addressing the need for expertise in obtaining foreign approvals and marketing in foreign markets is to out-license rights to our drugs in markets outside the United States. However, we may not be successful in finding a partner or partners who will be willing to invest in our drugs outside the United States. If we are not successful in out-licensing our drugs outside of the United States or entering into some other business development arrangement to obtain the necessary approvals to commercialize them, we may be forced to seek regulatory approval and market these products ourselves. If we elect to seek approval ourselves, it may take longer than expected to obtain regulatory approval and to market and manufacture our drugs, and we may decide to delay or abandon development efforts in certain markets.

Any such delay or abandonment, or any failure to receive one or more foreign approvals, may have a material adverse effect on the benefits otherwise expected from marketing in foreign countries.

We will rely on third party suppliers for raw materials, packaging components and manufacturing of our drug products once they are approved. We may not be able to obtain the raw materials, proper components or manufacturing capacity we need, or the cost of the materials, components or manufacturing capacity may be higher than expected, any of which could have a material adverse effect on our expected results of operations, financial position and cash flows.

We may not be able to obtain needed raw materials, packaging components and manufacturing capacity for a variety of reasons, including among others:

we may be required to purchase certain raw materials and packaging components from unaffiliated third-party suppliers who may not be able to supply us consistently or at all;

regulatory requirements or action by regulatory agencies or others;

adverse financial or other strategic developments at or affecting the supplier or contract manufacturer;

unexpected demand for or shortage of raw materials or packaging components;

failure to comply with cGMP standards which results in quality or product failures, adulteration, contamination and/or recall;

limitations in capacity of contract manufacturers; and

changes in product demand.

Table of Contents

If we are unable to obtain the raw materials, components and manufacturing capacity we require, or if we are charged more than expected for these items, we may not be able to produce our drug products or our gross profit margins may be materially adversely affected.

Before it can be marketed, an investigational drug requires FDA approval, which is a long, expensive process with no guarantee of success.

Performing clinical trials and obtaining FDA approval for any drug can take a long time. Clinical trials typically take months or years to complete. Once trials are completed and the New Drug Application, or NDA, is submitted to the FDA, the FDA may find deficiencies in our NDA, may raise safety or efficacy concerns or may otherwise require additional clinical testing or impose other requirements before granting approval, which could significantly delay approval or result in us not receiving approval at all.

Clinical trials and the NDA approval process are also expensive. Any such delays, additional testing or other requirements may require us to raise additional capital, which may not be available when needed or may be available only on terms that are not in the best interests of the Company and its shareholders, or which result in substantial dilution of shareholders' voting power and ownership. If approval is not granted, our entire investment in the related products may be worthless, any licensing rights could be forfeited and the price of our common stock could substantially decline.

Our drug business will depend on government funding of health care, and changes could impact our ability to be paid in full for our products, increase prices or cause consolidation in the dialysis provider market.

Many dialysis providers receive the majority of their funding from the government and are supplemented by payments from private health care insurers. These providers depend on Medicare and Medicaid funding to be viable businesses. A variety of changes to health insurance and reimbursement are included in health reform legislation enacted by Congress in recent years. Some of these changes could have a negative impact on Medicare and Medicaid funding, which fund the majority of dialysis costs in the United States, and on reimbursement protocols. If Medicare and Medicaid funding were to be materially decreased, these providers would be severely impacted, increasing our risk of not being paid in full. An increase in our exposure to uncollectible accounts could have a material adverse effect on our financial position, results of operations and cash flows.

In the United States, the Medicare Improvements for Patients and Providers Act of 2008 or "MIPPA" changed the dialysis reimbursement method from the prior practice of separately billed services and medications to a single bundled prospective rate for Medicare outpatient ESRD facilities beginning January 1, 2011, with full implementation by January 1, 2012. We anticipate that dialysis providers will continue to seek ways to reduce their costs per treatment due to this change in reimbursement practice which could reduce our sales and profitability and have a material adverse effect on our business, financial condition and results of operations.

As a result of these changes to Medicare reimbursement, the dialysis provider industry may continue to consolidate. This may result in increased purchasing leverage for providers across all dialysis product categories and increased pricing pressure on all suppliers to the industry.

Health care reform could adversely affect our business.

The federal and state governments in the United States, as well as many foreign governments, from time to time explore ways to reduce medical care costs through health care reform. The federal Medicare and Medicaid programs are facing financial challenges and are looking at ways to reduce the costs of the Medicare and Medicaid programs. Similarly, many states have large deficits which may prove unsustainable, resulting in defaults on state debt obligations which may ultimately result in the reduction or curtailment of health care benefits or state Medicaid reimbursement.

Table of Contents

In the United States, Congress enacted the Patient Protection and Affordable Care Act in 2010, as amended by the Health Care and Education Affordability Reconciliation Act, referred to collectively as PPACA, which has resulted in significant changes to the health care payment and delivery system. The PPACA requires employers to provide employees with insurance coverage that meets minimum eligibility and coverage requirements or face penalties. The PPACA also includes provisions that impact the number of individuals with insurance coverage, including expansion of those eligible for Medicaid in some states, the types of coverage and level of health benefits that are required and the amount of payment providers performing health care services receive. The PPACA imposes implementation through 2020. The U.S. government faces structural deficits that may require changes to government funded healthcare programs such as Medicare and Medicaid which may negatively impact customers of our products. On March 1, 2013, the President issued a sequestration order that imposed a 2% "across the board" reduction in Medicare reimbursement. Our financial position, results of operations, and cash flows and ability to commercialize our drug products could be materially impacted by the PPACA, future health care reform or reduced Medicare and Medicaid spending by the federal government.

Beginning in early 2014 and annually thereafter, device and pharmaceutical manufacturers are required to report to the FDA regarding certain financial relationships they have with physicians and teaching hospitals. This reporting requirement will increase governmental scrutiny on our contractual relationships with physicians and teaching hospitals and will increase the risk that inadvertent violations result in liability under the federal fraud and abuse laws, which could have a material adverse effect on our results of operations, financial position and cash flows.

RISKS RELATED TO OUR CONCENTRATE BUSINESS

The Distribution Agreement with Baxter may be terminated or Baxter may lose exclusivity, requiring us to resume commercialization, which could have a material adverse effect on our financial condition, results of operations and cash flows.

Baxter may terminate the Distribution Agreement at any time at its discretion upon 270 days' written notice to us. In addition, Baxter may terminate the Distribution Agreement if:

We are in bankruptcy or insolvent;

We are in breach of the agreement and have failed to cure the breach within the applicable cure period;

Prices increase beyond certain thresholds and notice is provided within 45 days after the true up payment is due for the year in which the price threshold is exceeded;

We have a change of control; or

Baxter gives us written notice that it has been enjoined by a court of competent jurisdiction from selling in the United States any product covered by the Distribution Agreement due to a claim of intellectual property infringement or misappropriation relating to such product.

In addition, if Baxter were to fail to purchase its minimum purchase requirement, its distribution rights would become non-exclusive. If, after December 31, 2017, the Distribution Agreement is terminated or Baxter's rights become non-exclusive, we would be required to reassume distribution of hemodialysis concentrate and ancillary products in the United States and various foreign countries and re-establish commercial arrangements with our current customers. Further, our concentrate products are distribution-intensive, resulting in a high cost to deliver relative to the selling prices of our products and we may have to re-establish, or may be unable to maintain, competitive pricing for our products in order to be profitable. If the Distribution Agreement is terminated or Baxter's distribution rights become non-exclusive, such events could have a material and adverse effect on our financial condition, results of operations and cash flows.

Table of Contents

We may be required to repay a portion of the fees received from Baxter, which could materially and adversely affect our financial position and cash reserves.

Pursuant to the terms of the Distribution Agreement, we may be required to repay a portion of the upfront fee and facility fee to Baxter upon the occurrence of a "Refund Trigger Event." A "Refund Trigger Event" means any of the following:

A change of control of the Company involving any of certain specified companies;

A termination by Baxter due to our bankruptcy, insolvency or uncured breach, or due to price increases that exceed the stated thresholds;

A termination by either party due to a force majeure;

The settlement or adjudication of any claim, action or litigation relating to a covered product that materially and adversely affects Baxter's commercialization of the product; and

Any regulatory action or ruling relating to a covered product that materially and adversely affects Baxter's commercialization of the product.

Any of these events would obligate us to repay 50% of the upfront fee and facility fee if the event occurs prior to December 31, 2016, 33% if the event occurs in 2017 or 2018, and 25% if the event occurs in 2019, 2020 or 2021. Any such repayment could result in a material negative impact on our financial condition and cash reserves.

In addition, if Baxter terminates the Distribution Agreement because it has been enjoined by a court of competent jurisdiction from selling in the United States any product covered by the Distribution Agreement due to a claim of intellectual property infringement or misappropriation relating to such product prior to the end of 2018, Baxter would be entitled to a refund of up to \$10 million, or \$6.6 million if the termination occurs in 2019.

If we are required to make any such refund payment, we may need to reallocate funds from other parts of our business, which could force us to change or delay plans for use of that capital. We may be forced to obtain financing or raise capital on terms that are unfavorable to us, or financing or additional capital may not be available at all. In any such event, our financial condition, results of operations and cash flows could be materially and adversely affected.

The transition to Baxter of commercialization of our concentrate and ancillary products may not be successful.

In October 2014, we entered into our Distribution Agreement with Baxter pursuant to which Baxter will become our exclusive agent for commercializing our hemodialysis concentrate and ancillary products in the United States and various foreign countries. If Baxter were to commit insufficient financial and other resources to the marketing and distribution of our products, or if our products were to lose focus within Baxter or are otherwise not being marketed as effectively as we have marketed them in the past, unit sales of our products may fall, resulting in lower revenues and gross margin for us, which could have a material adverse effect on our financial condition, results of operations and cash flows.

In addition, we may not be able to transition the sales and marketing activities of these products to Baxter successfully or Baxter could fail to price the product adequately to allow its sales of our products to be profitable to it, either of which could cause Baxter to exercise its right to terminate the Distribution Agreement or to fail to purchase the minimum requirements and allow its distribution rights to become non-exclusive. Any such termination or failure could have a material and adverse effect on our financial condition, results of operations and cash flows.

Table of Contents

A few customers account for a substantial portion of the end user sales of our concentrate products. The loss of any of these customers could have a material adverse effect on our results of operations and cash flow from our concentrate business.

Beginning in October 2014, our concentrate and ancillary products are primarily sold to or through Baxter. Its sales of our products are highly concentrated in a few customers and Baxter's loss of any of those customers could adversely affect our results of operations. One customer in particular accounted for nearly half of our sales in each of the last three years and for a substantial number of the clinics we serve. If Baxter were to lose this customer or the relationship with any other major dialysis chain customers, it could have a substantial negative impact on our cash flow and operating results.

The concentrate market is very competitive and has a large competitor with substantial resources.

There is intense competition in the hemodialysis products market. The primary competitor in the market for our concentrate products is a large diversified company which has substantial financial, technical, manufacturing, marketing, research and management resources. Our distributor, Baxter, may not be able to successfully compete with them or other companies. The primary competitor has historically used product bundling and low pricing as marketing techniques to capture market share of the products we sell. Baxter may be at a disadvantage in competing against their marketing strategies to sell our products. Furthermore, the primary competitor is vertically integrated and is the largest provider of dialysis services in the United States, treating approximately 37% of all U.S. patients through its clinics. This competitor has routinely acquired smaller clinic chain operations that we service and may acquire more of the customers we service in the future. In addition, if the Distribution Agreement were to terminate or if the distribution rights were to become non-exclusive, Baxter may be able to compete with us, which could materially and adversely affect our business.

We may be affected materially and adversely by increases in raw material costs.

A significant portion of our costs relates to chemicals and other raw materials, which are subject to price volatility based on demand and are highly influenced by the overall level of economic activity in the U.S. and abroad. These costs have tended to rise from year to year and are likely to continue to rise in the future. Under our Distribution Agreement with Baxter, such cost inflation may result in increases in the prices we charge Baxter. If these increases exceed specified levels in the Distribution Agreement, Baxter is permitted to terminate the Distribution Agreement and obtain a refund of a portion of the fees we received from Baxter. Any such termination or refund would have a material adverse effect on our business, results of operations, financial position and cash flows.

Our concentrate business is highly regulated, which increases our costs and the risk and consequence of noncompliance.

The testing, manufacture and sale of the concentrate products we manufacture are subject to extensive regulation by the FDA and by other federal, state and foreign authorities. Before medical devices can be commercially marketed in the United States, the FDA must give either 510(k) clearance or pre-market approval for the devices. If we do not comply with these requirements, we may be subject to a variety of sanctions, including fines, injunctions, seizure of products, suspension of production, denial of future regulatory approvals, withdrawal of existing regulatory approvals and criminal prosecution. Our concentrate business could be adversely affected by any of these actions.

Table of Contents

Although our hemodialysis concentrates have been cleared by the FDA, it could rescind these clearances and any new products or modifications to our current products that we develop could fail to receive FDA clearance. If the FDA rescinds or denies any current or future clearances or approvals for our products, we would be prohibited from selling those products in the United States until we obtain such clearances or approvals. Our business would be adversely affected by any such prohibition, any delay in obtaining necessary regulatory approvals, and any limits placed by the FDA on our intended use. Our products are also subject to federal regulations regarding manufacturing quality. Our failure to comply with these regulations could result in FDA action or product liability litigation adverse to us. Any of these events could constitute a breach by us of the Distribution Agreement, providing Baxter with various remedies that would be material and adverse to us, including without limitation, termination of the Distribution Agreement. Moreover, changes in applicable regulatory requirements could significantly increase the costs of our operations and, if such higher costs result in price increases that exceed the thresholds specified in the Distribution Agreement, could give Baxter the right to terminate the Distribution Agreement and obtain a partial refund of certain fees paid to us pursuant to that agreement.

RISKS RELATED TO OUR BUSINESS AS A WHOLE

We depend on key personnel, the loss of which could harm our ability to operate.

Our success depends heavily on the efforts of Robert L. Chioini, our founder and Chief Executive Officer, Dr. Ajay Gupta MD, our Chief Scientific Officer, Dr. Raymond D. Pratt, our Chief Medical Officer, and Thomas E. Klema, our Chief Financial Officer, Secretary and Treasurer. Mr. Chioini is primarily responsible for the strategic direction of the Company and for managing our sales and marketing efforts. Dr. Gupta is primarily responsible for discovery and development of new technologies. Dr. Pratt is primarily responsible for the clinical development, testing and regulatory approval of our products. None of our executive management have current employment agreements with the Company. If we lose the services of Mr. Chioini, Dr. Gupta, Dr. Pratt or Mr. Klema, our business, product development efforts, financial condition and results of operations could be adversely affected.

We could be prevented from selling products, forced to pay damages and compelled to defend against litigation if we infringe the rights of a third party.

Our success, competitive position and future revenues will depend in part on our ability to obtain and maintain patent protection for our products, methods, processes and other technologies, to preserve our trade secrets, to prevent third parties from infringing on our proprietary rights and to operate without infringing the proprietary rights of third parties.

We could incur substantial costs in seeking enforcement of our patent rights against infringement, and we cannot guarantee that such patents will successfully preclude others from using technology that we rely upon. We have no knowledge of any infringement or patent litigation, threatened or filed at this time. It is possible that we may infringe on intellectual property rights of others without being aware of the infringement. If a third party believes that one of our products infringes on the third party's patent, it may sue us even if we have received our own patent protection for the technology. If we infringe the rights of a third party, we could be prevented from selling products, forced to pay damages and compelled to defend against litigation. Moreover, if Baxter is prevented from selling from any of our concentrate or ancillary products due to a patent infringement or if its ability to sell any of our concentrate or ancillary products due to a patent infringement is materially and adversely affected, Baxter may be entitled to terminate our Distribution Agreement and obtain a refund of a portion of the upfront fee and facility fee.

Table of Contents

We may not have sufficient product liability insurance.

As a supplier of medical products, we may face potential liability from a person who claims that he or she suffered harm as a result of using our products. We maintain products liability insurance in the amount of \$5 million per occurrence and \$5 million in the aggregate. We cannot be sure that it will remain economical to retain our current level of insurance, that our current insurance will remain available or that such insurance would be sufficient to protect us against liabilities associated with our business, particularly if it expands substantially in the wake of the potential FDA approval of Triferic . We may be sued, and we may have significant legal expenses that are not covered by insurance. In addition, our reputation could be damaged by product liability litigation and that could harm our marketing ability. Any litigation could also hurt our ability to retain products liability insurance or make such insurance more expensive. Our business, financial condition and results of operations could be adversely affected by an uninsured or inadequately insured product liability claim in the future.

We may be unable to obtain certain debt financing in the future as a result of our arrangement with Baxter.

The Distribution Agreement prohibits us from entering into a subsequent contract encumbering the assets used in our concentrate business without the prior written consent of Baxter, and Baxter would be under no obligation to provide us with consent. The assets used in our concentrate business currently constitute a substantial portion of the assets we own. As a result, unless our cash flows improve enough to support financing through unsecured indebtedness, we may not be able to obtain debt financing and our capital financing options may become limited. If we are unable to obtain adequate capital, our business and our expansion strategy may be materially and adversely affected.

RISKS RELATED TO OUR COMMON STOCK AND THIS OFFERING

Shares eligible for future sale may affect the market price of our common shares.

Any additional future sales of common shares by us may have a negative effect on the market price of our common shares. Sales of substantial amounts of our common shares (including shares issued upon the exercise of stock options), or the possibility of such sales, could adversely affect the market price of our common shares and also impair our ability to raise capital through an offering of our equity securities in the future. In the future, we may issue additional shares or warrants in connection with investments or for other purposes considered advisable by our Board of Directors. Any substantial sale of our common shares may have an adverse effect on the market price of our common shares and may dilute the economic value and voting rights of existing shareholders.

In addition, as of September 30, 2014, there were 4,884,473 shares issuable upon the exercise of outstanding and exercisable stock options, 1,639,778 shares issuable upon the exercise of outstanding stock options that are not yet exercisable and 2,085,498 additional shares available for future grant under our 2007 Long Term Incentive Plan. The market price of the common shares may be depressed by the potential exercise of these options. The holders of these options are likely to exercise them when we would otherwise be able to obtain additional capital on more favorable terms than those provided by the options.

Our stock price could be volatile.

Our stock price, like the market price of many stocks in the biotechnology and pharmaceutical industries, is volatile. Events such as announcements around clinical testing results or regulatory approval of a product, as well as the reporting of sales, operating results and cash resources, may cause significant fluctuations in our share price. In addition, third parties may engage in trading strategies that result in intentional volatility to our share price, given our relatively small public market float.

Table of Contents

We could have a material weakness in our internal control over financial reporting, which, until remedied, could result in errors in our financial statements requiring restatement of our financial statements. As a result, investors may lose confidence in our reported financial information, which could lead to a decline in our stock price.

SEC rules require us to evaluate the effectiveness of our internal control over financial reporting as of the end of each year, and to include a management report assessing the effectiveness of our internal control over financial reporting in each Annual Report on Form 10-K. It is possible, due to the small size of our accounting staff, that we may identify control deficiencies in the future that constitute one or more material weaknesses. If our internal control over financial reporting or disclosure controls and procedures are not effective, there may be errors in our financial statements and in our disclosure that could require restatements. Investors may lose confidence in our reported financial information and in our disclosure, which could lead to a decline in our stock price.

No system of internal control over financial reporting will prevent all errors and all fraud. A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control system's objectives will be met. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Controls can be circumvented by the individual acts of some persons, by collusion of two or more people, or by management override of the controls. Over time, controls may become inadequate because changes in conditions or deterioration in the degree of compliance with policies or procedures may occur. Because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected. As a result, we cannot assure you that significant deficiencies or material weaknesses in our internal control over financial reporting will not be identified in the future.

Since we have broad discretion in how we use the proceeds from this offering, we may use the proceeds in ways with which you disagree.

We have not allocated specific amounts of the net proceeds from this offering for any specific purpose other than repayment of our secured indebtedness. Accordingly, our management will have significant flexibility in applying the net proceeds of this offering. You will be relying on the judgment of our management with regard to the use of these net proceeds, and you will not have the opportunity, as part of your investment decision, to assess whether the proceeds are being used appropriately. It is possible that the net proceeds will be invested in a way that does not yield a favorable, or any, return for us. The failure of our management to use such funds effectively could have a material adverse effect on our business, financial condition, operating results and cash flow.

You will experience immediate dilution in the book value per share of the common stock you purchase.

The price per share of our common stock being offered is substantially higher than the book value per share of our common stock. Therefore, if you purchase shares of our common stock in this offering, you will suffer immediate and substantial dilution in the net tangible book value of the common stock you purchase in this offering.

Structural and anti-takeover provisions reduce the likelihood that you will receive a takeover premium.

The Board of Directors has the authority, without shareholder approval, to issue shares of preferred stock having such rights, preferences and privileges as the Board of Directors may determine. Any such issuance of preferred stock could, under certain circumstances, have the effect of delaying or preventing a change in control and may adversely affect the rights of holders of common shares, including by decreasing the amount of earnings and assets available for distribution to holders of common shares and adversely affect the relative voting power or other rights of the holders of the

Table of Contents

common shares. In addition, we may become subject to Michigan statutes regulating business combinations which might also hinder or delay a change in control. Anti-takeover provisions that could be included in the preferred stock when issued and the Michigan statutes regulating business combinations can have a depressive effect on the market price of our common shares and can limit shareholders' ability to receive a premium on their shares by discouraging takeover and tender offers. In addition, amounts outstanding under our secured loan agreement must be prepaid in the event of a change in control of the Company.

Our shareholders do not have the right to cumulative voting in the election of directors. Moreover, our directors serve staggered three-year terms, and directors may not be removed without cause. These provisions could have an anti-takeover effect by making it more difficult to acquire us by means of a tender offer, a proxy contest or otherwise, or to remove incumbent directors. These provisions could delay, deter or prevent a tender offer or takeover attempt that a shareholder might consider in his or her best interests, including those attempts that might result in a premium over the market price for the common shares.

We do not anticipate paying dividends in the foreseeable future.

Since inception, we have not paid any cash dividend on our common shares and do not anticipate paying such dividends in the foreseeable future. The payment of dividends is within the discretion of our Board of Directors and depends upon our earnings, capital requirements, financial condition and requirements, future prospects, restrictions in future financing agreements, business conditions and other factors deemed relevant by the Board. We intend to retain earnings and any cash resources to finance our operations. Moreover, our secured loan agreement prohibits the payment of dividends. Therefore, it is highly unlikely we will pay cash dividends.

USE OF PROCEEDS

We estimate the net proceeds from this offering to be up to approximately \$ million, or approximately \$ million if the underwriters exercise in full their option to purchase additional shares of common stock, after deducting the estimated underwriter discounts and commissions and other estimated offering expenses payable by us.

We intend to use a portion of the net proceeds from this offering to prepay borrowings, accrued but unpaid interest and related charges under our loan and security agreement (the "Loan Agreement") with Hercules Technology III, L.P. ("Hercules") as required by the Distribution Agreement. The loan under the Loan Agreement is due on March 1, 2017, and bears interest at the greater of (i) 12.50% plus the prime rate as reported in The Wall Street Journal minus 3.25%, or (ii) 12.50%. Amounts outstanding under the Loan Agreement of approximately \$18.3 million currently bear interest at 12.50%. Monthly principal and interest payments are due on the loan following August 31, 2014 through the maturity date. The loan may be prepaid without penalty, but an end of term charge of \$1.1 million will be payable in connection with the prepayment.

We also intend to use the net proceeds from this offering for general corporate purposes, which may include working capital, research and development expenses, acquisition of intellectual property relating to complementary drug therapies, and general and administrative expenses.

As of the date of this prospectus supplement, we cannot specify with certainty all of the particular uses of the proceeds from this offering. Accordingly, we will retain broad discretion over the use of such proceeds. Pending the use of the net proceeds from this offering as described above, we intend to invest the net proceeds in short term marketable securities.

Table of Contents**CAPITALIZATION**

The following table sets forth our capitalization (i) as of September 30, 2014, and (ii) on a pro forma basis after giving effect to the issuance of shares offered by the Company hereby at a price of \$ _____ per share after deducting underwriting discounts and commissions and other estimated offering expenses. The information set forth below should be read in conjunction with the consolidated financial statements and notes thereto incorporated by reference herein.

(in thousands)	September 30, 2014 (unaudited)	
	Actual	As Adjusted
Cash and Cash Equivalents	\$ 3,017	\$ _____
Long Term Debt	\$ 12,052	\$ _____
Common Shares, no par value	164,056	_____
Common Share Purchase Warrants	4,226	4,226
Accumulated Deficit	(173,734)	(173,734)
Accumulated Other Comprehensive Income	(8)	(8)
Total Shareholders' Equity (Deficit)	(5,460)	_____
Total Capitalization	6,592	_____

The table above does not include:

6,524,251 shares of our common stock issuable upon the exercise of outstanding stock options, having a weighted-average exercise price of \$6.81 per share; and

2,085,498 shares of our common stock reserved for future grants under our 2007 Long Term Incentive Plan.

DILUTION

The net tangible book value of our common stock on September 30, 2014 was approximately a negative \$5.5 million, or approximately a negative \$0.13 per share, based on 41,015,392 shares of our common stock outstanding as of September 30, 2014. Net tangible book value per share represents the amount of our total tangible assets, less our total liabilities, divided by the total number of shares of our common stock outstanding. Dilution in net tangible book value per share to new investors represents the difference between the amount per share paid by purchasers of securities in this offering and the net tangible book value per share of our common stock immediately afterwards. Without taking into account any other changes in net tangible book value after September 30, 2014, other than the sale of _____ shares offered by us hereby at a price of \$ _____ per share, after deducting underwriting discounts and commissions and our other estimated offering expenses, our net tangible book value at September 30, 2014 would have been approximately \$ _____, or approximately \$ _____ per share. This represents an immediate increase in net tangible book value of approximately \$ _____ per share to existing shareholders and an immediate dilution in net tangible book value of \$ _____ per share to investors in this offering.

Table of Contents

The following table illustrates this per share dilution:

Public offering price per share	\$
Net tangible book value per share as of September 30, 2014	\$ (0.13)
Increase in net tangible book value per share attributable to this offering	
Net tangible book value per share after giving effect to this offering	\$
Dilution per share to new investors in the offering	\$

If the underwriters exercise in full their option to purchase _____ additional shares of common stock at the public offering price of \$ _____ per share, the net tangible book value per share as of September 30, 2014, after giving effect to this offering, would be \$ _____, representing an increase in net tangible book value of approximately \$ _____ per share to existing shareholders and an immediate dilution in net tangible book value of \$ _____ per share to investors in this offering at the public offering price.

The amounts above assume no exercise of outstanding options or warrants since September 30, 2014. The number of common shares expected to be outstanding after this offering excludes the following as of September 30, 2014:

6,524,251 shares of our common stock issuable upon the exercise of outstanding stock options, having a weighted-average exercise price of \$6.81 per share;

2,085,498 shares of our common stock reserved for future grants under our 2007 Long Term Incentive Plan; and

838,071 shares of our common stock issuable upon the exercise of outstanding warrants with a weighted-average exercise price of \$9.55 per share (all of which were exercised in early October 2014).

Table of Contents**PRICE RANGE OF COMMON STOCK**

Our common stock is listed on The NASDAQ Global Market under the symbol "RMTI". The table below sets forth for the periods indicated the high and low intraday sale prices for common stock on The NASDAQ Global Market for the periods indicated.

	Price Range	
	High	Low
2014		
Fourth Quarter (through November 14, 2014)	\$ 11.75	\$ 8.11
Third Quarter	12.42	9.05
Second Quarter	13.06	9.37
First Quarter	14.80	9.49
2013		
Fourth Quarter	\$ 15.85	\$ 9.51
Third Quarter	12.25	3.40
Second Quarter	4.41	3.25
First Quarter	8.40	3.16
2012		
Fourth Quarter	\$ 8.38	\$ 5.18
Third Quarter	9.60	7.64
Second Quarter	10.70	7.37
First Quarter	11.75	8.08

As of November 14, 2014, there were 23 holders of record of our common shares. The last reported sale price of our common stock on The NASDAQ Global Market on November 14, 2014 was \$10.52 per share.

DIVIDEND POLICY

We have never paid any cash dividends on our common shares and do not anticipate paying dividends in the foreseeable future. We intend to retain earnings, if any, to finance the development and expansion of our operations.

DESCRIPTION OF SECURITIES WE ARE OFFERING

The material terms and provisions of our common stock are described under the caption "Description of Capital Stock" in the accompanying prospectus.

Table of Contents**UNDERWRITING**

Merrill Lynch, Pierce, Fenner & Smith Incorporated is acting as representative of each of the underwriters named below. Subject to the terms and conditions set forth in an underwriting agreement among us and the underwriters, we have agreed to sell to the underwriters, and each of the underwriters has agreed, severally and not jointly, to purchase from us, the number of shares of common stock set forth opposite its name below.

<u>Underwriter</u>	Number of Shares
Merrill Lynch, Pierce, Fenner & Smith Incorporated	
Stifel, Nicolaus & Company, Incorporated	
Summer Street Research Partners	
Craig-Hallum Capital Group LLC	
Chardan Capital Markets, LLC	
LifeSci Capital, 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. If an underwriter defaults, the underwriting agreement provides that the purchase commitments of the nondefaulting underwriters may be increased or the underwriting agreement may be terminated.

We have agreed to indemnify the underwriters against certain liabilities, including liabilities under the Securities Act, or to contribute to payments the underwriters may be required to make in respect of those 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 representative has advised us that the underwriters propose initially to offer the shares to the public at the public offering price set forth on the cover page of this prospectus and to dealers at that price less a concession not in excess of \$ _____ per share. After the initial offering, the public offering price, concession or any other term of the offering may be changed.

The following table shows the public offering price, underwriting discount and proceeds before expenses to us. The information assumes either no exercise or full exercise by the underwriters of their option to purchase additional shares.

	Per Share	Without Option	With Option
Public offering price	\$ _____	\$ _____	\$ _____
Underwriting discount	\$ _____	\$ _____	\$ _____
Proceeds, before expenses, to us	\$ _____	\$ _____	\$ _____

The expenses of the offering payable by us, not including the underwriting discount, are estimated at \$ _____.

Table of Contents

Option to Purchase Additional Shares

We have granted an option to the underwriters, exercisable for 30 days after the date of this prospectus, to purchase up to additional shares at the public offering price, less the underwriting discount. If the underwriters exercise this option, each will be obligated, subject to conditions contained in the underwriting agreement, to purchase a number of additional shares proportionate to that underwriter's initial amount reflected in the above table.

No Sales of Similar Securities

We, our executive officers and directors have agreed not to sell or transfer any common stock or securities convertible into, exchangeable for, exercisable for, or repayable with common stock, for 90 days after the date of this prospectus without first obtaining the written consent of Merrill Lynch, Pierce, Fenner & Smith Incorporated. Specifically, we and these other persons have agreed, with certain limited exceptions, including exceptions permitting executive officers and directors to sell or otherwise dispose of shares (not to exceed 512,500 shares in the aggregate for all executive officers and directors) to cover certain outstanding liabilities, not to directly or indirectly:

offer, pledge, sell or contract to sell any common stock,

sell any option or contract to purchase any common stock,

purchase any option or contract to sell any common stock,

grant any option, right or warrant for the sale of any common stock,

otherwise dispose of or transfer any common stock,

file a registration statement related to the common stock, or

enter into any swap or other agreement or any transaction that transfers, in whole or in part, the economic consequence of ownership of any common stock whether any such swap or transaction is to be settled by delivery of shares or other securities, in cash or otherwise.

This lock-up provision applies to common stock and to securities convertible into or exchangeable or exercisable for or repayable with common stock. It also applies to common stock owned now or acquired later by the person executing the agreement or for which the person executing the agreement later acquires the power of disposition. In the event that either (x) during the last 17 days of the lock-up period referred to above, we issue an earnings release or material news or a material event relating to the Company occurs or (y) prior to the expiration of the lock-up period, we announce that we will release earnings results or become aware that material news or a material event will occur during the 16-day period beginning on the last day of the lock-up period, the restrictions described above shall continue to apply until the expiration of the 18-day period beginning on the issuance of the earnings release or the occurrence of the material news or material event.

Nasdaq Global Market Listing

The shares are listed on the Nasdaq Global Market under the symbol "RMTI."

Price Stabilization, Short Positions

Until the distribution of the shares is completed, SEC rules may limit underwriters and selling group members from bidding for and purchasing our common stock. However, the representatives may engage in transactions that stabilize the price of the common stock, such as bids or purchases to peg, fix or maintain that price.

Table of Contents

In connection with the offering, the underwriters may purchase and sell our common stock in the open market. These transactions may include short sales, purchases on the open market to cover positions created by short sales and stabilizing transactions. Short sales involve the sale by the underwriters of a greater number of shares than they are required to purchase in the offering. "Covered" short sales are sales made in an amount not greater than the underwriters' option to purchase additional shares described above. The underwriters may close out any covered short position by either exercising their option to purchase additional shares or purchasing shares in the open market. In determining the source of shares to close out the covered short position, the underwriters will consider, among other things, the price of shares available for purchase in the open market as compared to the price at which they may purchase shares through the option granted to them. "Naked" short sales are sales in excess of such option. The underwriters must close out any naked short position by purchasing shares 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 our common stock in the open market after pricing that could adversely affect investors who purchase in the offering. Stabilizing transactions consist of various bids for or purchases of shares of common stock made by the underwriters in the open market prior to the completion of the offering.

Similar to other purchase transactions, the underwriters' purchases to cover the syndicate short sales may have the effect of raising or maintaining the market price of our common stock or preventing or retarding a decline in the market price of our common stock. As a result, the price of our common stock may be higher than the price that might otherwise exist in the open market. The underwriters may conduct these transactions on the Nasdaq Global Market, in the over-the-counter market or otherwise.

Neither we nor any of 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 our common stock. In addition, neither we nor any of the underwriters make any representation that the representatives will engage in these transactions or that these transactions, once commenced, will not be discontinued without notice.

Passive Market Making

In connection with this offering, underwriters and selling group members may engage in passive market making transactions in the common stock on the Nasdaq Global Market in accordance with Rule 103 of Regulation M under the Exchange Act during a period before the commencement of offers or sales of common stock 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. Passive market making may cause the price of our common stock to be higher than the price that otherwise would exist in the open market in the absence of those transactions. The underwriters and dealers are not required to engage in passive market making and may end passive market making activities at any time.

Electronic Distribution

In connection with the offering, certain of the underwriters or securities dealers may distribute prospectuses by electronic means.

Other Relationships

LifeSci Advisors, an affiliate of LifeSci Capital, provides investor relations consulting services to us. Some of the underwriters and their affiliates have engaged in, and may in the future engage in, investment banking and other commercial dealings in the ordinary course of business with us or our

Table of Contents

affiliates. They have received, or may in the future receive, customary fees and commissions for these transactions.

In addition, in the ordinary course of their business activities, the underwriters and their affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (including bank loans) for their own account and for the accounts of their customers. Such investments and securities activities may involve securities and/or instruments of ours or our affiliates. The underwriters and their affiliates may also make investment recommendations and/or publish or express independent research views in respect of such securities or financial instruments and may hold, or recommend to clients that they acquire, long and/or short positions in such securities and instruments.

Notice to Prospective Investors in the European Economic Area

In relation to each Member State of the European Economic Area (each, a "Relevant Member State"), no offer of shares may be made to the public in that Relevant Member State other than:

- A. to any legal entity which is a qualified investor as defined in the Prospectus Directive;
- B. to fewer than 100 or, if the Relevant Member State has implemented the relevant provision of the 2010 PD Amending Directive, 150, natural or legal persons (other than qualified investors as defined in the Prospectus Directive), as permitted under the Prospectus Directive, subject to obtaining the prior consent of the representative; or
- C. in any other circumstances falling within Article 3(2) of the Prospectus Directive, provided that no such offer of shares shall require the Company or the representative to publish a prospectus pursuant to Article 3 of the Prospectus Directive or supplement a prospectus pursuant to Article 16 of the Prospectus Directive.

Each person in a Relevant Member State who initially acquires any shares or to whom any offer is made will be deemed to have represented, acknowledged and agreed that it is a "qualified investor" within the meaning of the law in that Relevant Member State implementing Article 2(1)(e) of the Prospectus Directive. In the case of any shares being offered to a financial intermediary as that term is used in Article 3(2) of the Prospectus Directive, each such financial intermediary will be deemed to have represented, acknowledged and agreed that the shares acquired by it in the offer have not been acquired on a non-discretionary basis on behalf of, nor have they been acquired with a view to their offer or resale to, persons in circumstances which may give rise to an offer of any shares to the public other than their offer or resale in a Relevant Member State to qualified investors as so defined or in circumstances in which the prior consent of the representative has been obtained to each such proposed offer or resale.

The Company, the representative and their affiliates will rely upon the truth and accuracy of the foregoing representations, acknowledgements and agreements.

This prospectus has been prepared on the basis that any offer of 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. Accordingly any person making or intending to make an offer in that Relevant Member State of shares which are the subject of the offering contemplated in this prospectus may only do so in circumstances in which no obligation arises for the Company or any of the underwriters to publish a prospectus pursuant to Article 3 of the Prospectus Directive in relation to such offer. Neither the Company nor the underwriters have authorized, nor do they authorize, the making of any offer of shares in circumstances in which an obligation arises for the Company or the underwriters to publish a prospectus for such offer.

Table of Contents

For the purpose of the above provisions, the expression "an offer to the public" in relation to any 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 the shares, as the same may be varied in the Relevant Member State by any measure implementing the Prospectus Directive in the Relevant Member State and the expression "Prospectus Directive" means Directive 2003/71/EC (including the 2010 PD Amending Directive, to the extent implemented in the Relevant Member States) and includes any relevant implementing measure in the Relevant Member State and the expression "2010 PD Amending Directive" means Directive 2010/73/EU.

Notice to Prospective Investors in the United Kingdom

In addition, in the United Kingdom, this document is being distributed only to, and is directed only at, and any offer subsequently made may only be directed at persons who are "qualified investors" (as defined in the Prospectus Directive) (i) 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, as amended (the "Order") and/or (ii) who are high net worth companies (or persons to whom it may otherwise be lawfully communicated) falling within Article 49(2)(a) to (d) of the Order (all such persons together being referred to as "relevant persons"). This document must not be acted on or relied on in the United Kingdom by persons who are not relevant persons. In the United Kingdom, any investment or investment activity to which this document relates is only available to, and will be engaged in with, relevant persons.

Notice to Prospective Investors in Switzerland

The shares may not be publicly offered in Switzerland and will not be listed on the SIX Swiss Exchange ("SIX") or on any other stock exchange or regulated trading facility in Switzerland. This document has been prepared without regard to the disclosure standards for issuance prospectuses under art. 652a or art. 1156 of the Swiss Code of Obligations or the disclosure standards for listing prospectuses under art. 27 ff. of the SIX Listing Rules or the listing rules of any other stock exchange or regulated trading facility in Switzerland. Neither this document nor any other offering or marketing material relating to the shares or the offering may be publicly distributed or otherwise made publicly available in Switzerland.

Neither this document nor any other offering or marketing material relating to the offering, the Company, the shares have been or will be filed with or approved by any Swiss regulatory authority. In particular, this document will not be filed with, and the offer of shares will not be supervised by, the Swiss Financial Market Supervisory Authority ("FINMA"), and the offer of shares has not been and will not be authorized under the Swiss Federal Act on Collective Investment Schemes ("CISA"). The investor protection afforded to acquirers of interests in collective investment schemes under the CISA does not extend to acquirers of shares.

Notice to Prospective Investors in the Dubai International Financial Centre

This prospectus supplement relates to an Exempt Offer in accordance with the Offered Securities Rules of the Dubai Financial Services Authority ("DFSA"). This prospectus supplement is intended for distribution only to persons of a type specified in the Offered Securities Rules of the DFSA. It must not be delivered to, or relied on by, any other person. The DFSA has no responsibility for reviewing or verifying any documents in connection with Exempt Offers. The DFSA has not approved this prospectus supplement nor taken steps to verify the information set forth herein and has no responsibility for the prospectus supplement. The shares to which this prospectus supplement relates may be illiquid and/or subject to restrictions on their resale. Prospective purchasers of the shares

Table of Contents

offered should conduct their own due diligence on the shares. If you do not understand the contents of this prospectus supplement you should consult an authorized financial advisor.

Notice to Prospective Investors in Australia

No placement document, prospectus, product disclosure statement or other disclosure document has been lodged with the Australian Securities and Investments Commission ("ASIC"), in relation to the offering. This prospectus does not constitute a prospectus, product disclosure statement or other disclosure document under the Corporations Act 2001 (the "Corporations Act"), and does not purport to include the information required for a prospectus, product disclosure statement or other disclosure document under the Corporations Act.

Any offer in Australia of the shares may only be made to persons (the "Exempt Investors") who are "sophisticated investors" (within the meaning of section 708(8) of the Corporations Act), "professional investors" (within the meaning of section 708(11) of the Corporations Act) or otherwise pursuant to one or more exemptions contained in section 708 of the Corporations Act so that it is lawful to offer the shares without disclosure to investors under Chapter 6D of the Corporations Act.

The shares applied for by Exempt Investors in Australia must not be offered for sale in Australia in the period of 12 months after the date of allotment under the offering, except in circumstances where disclosure to investors under Chapter 6D of the Corporations Act would not be required pursuant to an exemption under section 708 of the Corporations Act or otherwise or where the offer is pursuant to a disclosure document which complies with Chapter 6D of the Corporations Act. Any person acquiring shares must observe such Australian on-sale restrictions.

This prospectus contains general information only and does not take account of the investment objectives, financial situation or particular needs of any particular person. It does not contain any securities recommendations or financial product advice. Before making an investment decision, investors need to consider whether the information in this prospectus is appropriate to their needs, objectives and circumstances, and, if necessary, seek expert advice on those matters.

Notice to Prospective Investors in Hong Kong

The securities have not been offered or sold and will not be offered or sold in Hong Kong, by means of any document, other than (a) to "professional investors" as defined in the Securities and Futures Ordinance (Cap. 571) of Hong Kong and any rules made under that Ordinance; or (b) in other circumstances which do not result in the document being a "prospectus" as defined in the Companies Ordinance (Cap. 32) of Hong Kong or which do not constitute an offer to the public within the meaning of that Ordinance. No advertisement, invitation or document relating to the securities has been or may be issued or has been or may be in the possession of any person for the purposes of issue, whether in Hong Kong or elsewhere, which is directed at, or the contents of which are likely to be accessed or read by, the public of Hong Kong (except if permitted to do so under the securities laws of Hong Kong) other than with respect to securities which are or are intended to be disposed of only to persons outside Hong Kong or only to "professional investors" as defined in the Securities and Futures Ordinance and any rules made under that Ordinance.

Notice to Prospective Investors in Japan

The securities have not been and will not be registered under the Financial Instruments and Exchange Law of Japan (Law No. 25 of 1948, as amended) and, accordingly, will not be offered or sold, directly or indirectly, in Japan, or for the benefit of any Japanese Person or to others for re-offering or resale, directly or indirectly, in Japan or to any Japanese Person, except in compliance with all applicable laws, regulations and ministerial guidelines promulgated by relevant Japanese governmental or regulatory authorities in effect at the relevant time. For the purposes of this

Table of Contents

paragraph, "Japanese Person" shall mean any person resident in Japan, including any corporation or other entity organized under the laws of Japan.

Notice to Prospective Investors in Singapore

This prospectus has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, this prospectus and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of Non-CIS Securities may not be circulated or distributed, nor may the Non-CIS Securities be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (i) to an institutional investor under Section 274 of the Securities and Futures Act, Chapter 289 of Singapore (the "SFA"), (ii) to a relevant person pursuant to Section 275(1), or any person pursuant to Section 275(1A), and in accordance with the conditions specified in Section 275, of the SFA, or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA.

Where the Non-CIS Securities are subscribed or purchased under Section 275 of the SFA by a relevant person which is:

- (a) a corporation (which is not an accredited investor (as defined in Section 4A of the SFA)) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or
- (b) a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary of the trust is an individual who is an accredited investor,

securities (as defined in Section 239(1) of the SFA) of that corporation or the beneficiaries' rights and interest (however described) in that trust shall not be transferred within six months after that corporation or that trust has acquired the Non-CIS Securities pursuant to an offer made under Section 275 of the SFA except:

- (a) to an institutional investor or to a relevant person defined in Section 275(2) of the SFA, or to any person arising from an offer referred to in Section 275(1A) or Section 276(4)(i)(B) of the SFA;
- (b) where no consideration is or will be given for the transfer;
- (c) where the transfer is by operation of law;
- (d) as specified in Section 276(7) of the SFA; or
- (e) as specified in Regulation 32 of the Securities and Futures (Offers of Investments) (Shares and Debentures) Regulations 2005 of Singapore.

Table of Contents

LEGAL MATTERS

The validity of the issuance of the securities offered hereby will be passed upon by our counsel, Dykema Gossett PLLC, Bloomfield Hills, Michigan. The underwriters are being represented in connection with this offering by Goodwin Procter LLP, New York, New York.

EXPERTS

The consolidated financial statements incorporated in this prospectus supplement by reference from the Company's Annual Report on Form 10-K for the year ended December 31, 2013, and the effectiveness of the Company's internal control over financial reporting as of December 31, 2013, have been audited by Plante & Moran, PLLC, independent auditors, as stated in their reports which are incorporated in this prospectus supplement by reference, and have been so incorporated in reliance upon the reports of such firm given upon their authority as experts in accounting and auditing.

S-31

Table of Contents

PROSPECTUS
COMMON STOCK
WARRANTS

We may offer to sell from time to time, in one or more offerings, in amounts, at prices and on terms determined at the time of any such offering, shares of our common stock and warrants to purchase our common stock.

We may offer and sell these securities to or through one or more underwriters, dealers and agents, or directly to purchasers, on a continuous or delayed basis.

This prospectus describes some of the general terms that may apply to these securities. The specific terms of any securities to be offered will be described in a supplement to this prospectus. The prospectus supplement may also add, update or change information contained in this prospectus. You should read this prospectus and the applicable prospectus supplement carefully before you make your investment decision.

We are also offering up to 968,271 shares of our common stock that are issuable upon the exercise of warrants previously offered and sold by us on October 5, 2009, which we refer to as the 2009 Warrants. Each 2009 Warrant represents the right to purchase one share of our common stock at any time and from time to time (1) through October 5, 2012 as to 85,200 of the 2009 Warrants, and (2) through October 5, 2014 as to the remainder, in each case at an exercise price of \$9.55 per share.

Our common stock is listed on the Nasdaq Global Market and traded under the symbol "RMTI." On May 18, 2012, the closing sale price of our common stock on Nasdaq was \$7.53 per share. You are urged to obtain current market quotations for the common stock. Each prospectus supplement will indicate if the securities offered thereby will be listed on any securities exchange.

Investing in our securities involves a high degree of risk. See the section entitled "Risk Factors," on page 6 of this prospectus and in the documents we file with the Securities and Exchange Commission that are incorporated in this prospectus by reference for certain risks and uncertainties you should consider.

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.

The date of this prospectus is June 13, 2012.

Table of Contents

TABLE OF CONTENTS

	Page
<u>About this Prospectus</u>	<u>2</u>
<u>Where You Can Get More Information</u>	<u>3</u>
<u>Documents Incorporated by Reference</u>	<u>3</u>
<u>Our Company</u>	<u>4</u>
<u>Risk Factors</u>	<u>6</u>
<u>Cautionary Statement Regarding Forward-Looking Statements</u>	<u>6</u>
<u>Use of Proceeds</u>	<u>6</u>
<u>Description of Capital Stock</u>	<u>7</u>
<u>Description of Warrants</u>	<u>8</u>
<u>Description of 2009 Warrants</u>	<u>9</u>
<u>Plan of Distribution</u>	<u>10</u>
<u>Legal Matters</u>	<u>14</u>
<u>Experts</u>	<u>14</u>

Rockwell Medical Technologies, Inc.'s principal executive offices are located at 30142 Wixom Road, Wixom, Michigan 48393, our telephone number at that address is (248) 960-9009 and our Internet address is www.rockwellmed.com. The information on our Internet website is not incorporated by reference in this prospectus, and you should not consider it to be a part of this document. Our website address is included as an inactive textual reference only. Unless the context otherwise requires, references in this prospectus to "Rockwell," "we," "us," and "our" refer to Rockwell Medical Technologies, Inc. and its subsidiaries on a consolidated basis.

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, using a "shelf" registration process. Under this shelf process, we may, from time to time, sell any combination of the securities described in this prospectus together or separately, in one or more offerings, up to a maximum aggregate offering price of \$120,000,000. This prospectus provides you with a general description of those securities which is not meant to be a complete description of each security. Each time we sell securities, we will provide a prospectus supplement that will contain specific information about the terms of that offering, including the specific amounts, prices and terms of the securities offered. The prospectus supplement may also add, update or change information contained in this prospectus. If there is any inconsistency between the information in this prospectus and any prospectus supplement, you should rely on the information in the prospectus supplement. You should read this prospectus and the applicable prospectus supplement together with the additional information described under the heading "Where You Can Get More Information."

In addition, we have an existing "shelf" registration statement on Form S-3, File No. 333-160791, which became effective on August 17, 2009 and which will expire on August 17, 2012 pursuant to Rule 415(a)(5) under the Securities Act. Of the securities issued under such registration statement, 2009 Warrants to purchase 968,271 shares of our common stock remain outstanding and unexercised. The registration statement of which this prospectus is a part registers the sale of these shares upon exercise of the 2009 Warrants in addition to the securities referenced in the preceding paragraph, and ensures that an effective registration statement covers the exercise of the 2009 Warrants.

You should not assume that the information contained in this prospectus or any prospectus supplement is accurate as of any date other than the date on the front cover of such documents. Neither the delivery of this prospectus or any applicable prospectus supplement nor any distribution of

Table of Contents

securities pursuant to such documents shall, under any circumstances, create any implication that there has been no change in the information set forth in this prospectus or any applicable prospectus supplement or in our affairs since the date of this prospectus or any applicable prospectus supplement.

WHERE YOU CAN GET MORE INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the SEC. You can inspect or copy all or any part of these materials, at prescribed rates, at the SEC's Public Reference Room at 100 F Street, N.E., Washington D.C. 20549. You may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. The SEC also maintains an Internet site at www.sec.gov that contains reports, proxy and information statements and other information regarding issuers that file electronically with the SEC, including Rockwell.

DOCUMENTS INCORPORATED BY REFERENCE

The SEC allows Rockwell to "incorporate by reference" the information it files with the SEC. This permits us to disclose important information to you by referencing these filed documents. Any information referenced in this way is considered part of this prospectus, and any information filed with the SEC subsequent to this prospectus will automatically update and supersede this information. Rockwell incorporates by reference the documents listed below which have been filed with the SEC:

Annual Report on Form 10-K for the fiscal year ended December 31, 2011 (including information from the Definitive Proxy Statement filed in connection with the 2012 Annual Meeting of Shareholders, as filed with the SEC and incorporated therein by reference);

Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2012;

Current Reports on Form 8-K filed January 27, 2012, February 10, 2012, February 15, 2012, March 7, 2012, April 20, 2012, May 16, 2012 and May 30, 2012; and

The description of our common shares included in our prospectus, dated July 24, 1997, included in our registration statement on Form SB-2 filed with the SEC on July 24, 1997, under the caption "Description of Securities" on pages 34 through 38 of the prospectus and incorporated by reference into our registration statement on Form 8-A filed with the SEC on January 23, 1998, including any amendment or reports filed for the purpose of updating such description.

In addition, all documents filed by us under Section 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934 after this prospectus but before the termination of this offering are deemed to be incorporated by reference into this prospectus and will constitute a part of this prospectus from the date of filing of those documents.

Information in this prospectus supersedes information incorporated by reference that we filed with the Commission prior to the date of the prospectus. Information that we file later with the Commission will automatically update and supersede previously filed information.

Rockwell will provide without charge, upon written or oral request, a copy of any or all of the documents which are incorporated by reference in this prospectus, including any exhibits which are specifically incorporated by reference into such documents. Requests should be directed to Thomas E. Klema, Secretary, at our principal executive offices, located at 30142 Wixom Road, Wixom, Michigan 48393 (telephone number: (248) 960-9009).

You should rely only on the information contained or incorporated by reference in this prospectus, in any accompanying prospectus supplement or in any free writing prospectus filed by us with the SEC and any information about the terms of securities offered conveyed to you by us, our underwriters or agents. We have not authorized anyone else to provide you with additional or different information. These securities are only being offered in jurisdictions where the offer is permitted. You should not assume that the information contained in this prospectus, any accompanying prospectus supplement or any free writing prospectus is accurate as of any date other than their respective dates.

Table of Contents

OUR COMPANY

Our Business

We are an integrated biopharmaceutical company targeting end-stage renal disease and chronic kidney disease with innovative products and services for the treatment of iron deficiency and secondary hyperparathyroidism. We are an established manufacturer and supplier of high-quality hemodialysis dry and liquid dialysate concentrates to dialysis providers and distributors in the U.S. and abroad, which is currently our primary business. Hemodialysis is a treatment that duplicates kidney function for patients with failed kidneys resulting from End Stage Renal Disease, or ESRD. Our dialysis products are used to maintain human life by removing toxins and replacing critical nutrients in the hemodialysis patient's bloodstream.

Our lead drug candidate for iron therapy treatment is soluble ferric pyrophosphate, or SFP. We have licensed exclusive global rights for SFP. SFP delivers iron in a non-invasive, physiologic manner to hemodialysis patients via dialysate during their regular dialysis treatment. The majority of ESRD patients receive iron on a routine basis. To realize a commercial benefit from SFP, we must complete clinical trials and obtain U.S. Food and Drug Administration, or FDA, approval. We also plan to seek foreign market approval for this product or to license the technology to a pharmaceutical company who will seek market approval in the licensed markets. We believe this product will substantially improve iron therapy and, if approved, will compete for the global hemodialysis iron therapy market. We are conducting ongoing Phase III clinical trials on SFP, which we refer to as CRUISE-1 and CRUISE-2. Based on reports from manufacturers of intravenous, or IV, iron products and industry estimates, the market size in the United States for IV iron therapy for ESRD patients is approximately \$600 million per year. We estimate the global market for IV iron therapy is in excess of \$1 billion per year. There can be no assurance, however, that SFP will be approved by the FDA or, if approved, that it will be successfully marketed.

The Company has acquired an approved Abbreviated New Drug Application for Calcitriol injection, a generic FDA-approved drug. Calcitriol is an active vitamin D analogue indicated for the treatment of secondary hyperparathyroidism. The majority of ESRD patients receive a form of vitamin D on a routine basis. We are required to gain FDA regulatory approval for changes in manufacturing location prior to marketing Calcitriol. We anticipate obtaining the necessary approval in late 2012 and to begin marketing Calcitriol commercially thereafter. Based on manufacturers' reports and industry estimates, we believe the market size in the United States for vitamin D therapy for ESRD patients is in excess of \$350 million per year.

Dialysis patients, or ESRD stage 5 patients, are those patients whose kidneys no longer function properly and must receive routine dialysis treatments to survive. Most of these "chronic" patients receive hemodialysis treatments three times per week, or 156 times per year. Most chronic patients have their dialysis treatment performed at a free-standing clinic while those patients with temporary or "acute" kidney failure generally have their treatments performed at hospitals. In either setting, a dialysis machine dilutes concentrated solution, such as our liquid or dry concentrate products, with purified water. The resulting solution is called dialysate. Dialysate is pumped through an artificial kidney machine (or dialyzer) while the patient's blood is pumped through a semi-permeable membrane inside the dialyzer in the opposite direction from the dialysate. The dialysate infuses dextrose, sodium chloride, calcium, potassium, magnesium, sodium bicarbonate and either acetic acid or citric acid into the patient's blood while removing water and waste. The patient's physician chooses the proper concentrations required for each patient based on each particular patient's needs. In addition to using concentrate products, which must be replaced for each use for each patient, a dialysis provider also uses other ancillary products such as blood tubing, fistula needles, specialized component kits, dressings, cleaning agents, filtration salts and other supplies, many of which we sell.

Table of Contents

Hemodialysis is the primary treatment modality employed in the United States with over 90% of all dialysis patients receiving hemodialysis. We do not compete in the peritoneal or home dialysis segments. Hemodialysis treatments are generally performed in independent clinics or hospitals with the majority of dialysis services performed by national and regional for profit dialysis chains. Based on data published by the U.S. Renal Data Systems, or USRDS, we estimate that there are approximately 5,800 Medicare-certified hemodialysis treatment clinics in the United States. The two largest national for-profit dialysis chains service approximately 65% of the domestic hemodialysis market. According to industry statistics published by USRDS, at the end of 2009, 387,000 patients in the United States were receiving dialysis treatments. The domestic dialysis industry has experienced steady patient population growth over the last several decades. U.S. patient population growth has averaged approximately 4% per year over the last five years.

ESRD incidence rates vary by country. Based on industry reports, the global ESRD population receiving some form of dialysis treatment is estimated to be over two million and to be growing at a rate of approximately 6% annually. The three major dialysis markets are the United States, the European Union and Japan, which together represent approximately half of the total global treatments based on industry estimates. The Asia-Pacific market area is projected to experience rapid growth in the incidence of kidney disease over the decade ahead.

Our Recent Financial Results

Our results of operations for the years ended December 31, 2011 and 2010 and the three months ended March 31, 2012, and our total assets as of the end of each of these periods, are as follows:

(in thousands)	Three Months Ended March 31,		Years Ended December 31,	
	2012	2011	2011	2010
Net Loss	\$ (10,567)	\$ (21,445)	\$ (21,445)	\$ (2,683)

	As of March 31,		As of December 31,	
	2012	2011	2011	2010
Total Assets	\$ 39,423	\$ 31,940	\$ 31,940	\$ 36,967

We commenced our Phase III clinical development program for SFP, our lead drug product, in 2011 and our research and development costs have increased substantially in 2011 and the first quarter of 2012 over 2010 as a result. We expect our cash needs for research and development spending to be significant over the next two years as we execute our clinical development program for SFP and that we will continue to incur losses for the duration of the clinical program as a result of these higher costs.

Our total assets increased at March 31, 2012 compared to December 31, 2011 due to the receipt of \$16.2 million in net proceeds from an offering of common stock completed in February 2012, partially offset by cash used in operations to fund the increased research and development spending. Total assets at December 31, 2011 decreased compared to December 31, 2010 due to the cash used in operations to fund the increased research and development spending, partially offset by positive cash flow generated from our operations excluding research and development spending and \$4.8 million in proceeds primarily from the exercise of outstanding common stock purchase warrants.

Please refer to our most annual report on Form 10-K and our most recent quarterly report on Form 10-Q for further details regarding our results of operations and financial position.

Our Headquarters

Our principal executive offices are located at 30142 Wixom Road, Wixom, Michigan 48393 (telephone number: (248) 960-9009).

Table of Contents

RISK FACTORS

Before making an investment decision, you should carefully consider the risks described under "Risk Factors" in the applicable prospectus supplement and in our most recent Annual Report on Form 10-K, and in our occasional updates to those Risk Factors in our Quarterly Reports on Form 10-Q, together with all of the other information appearing in this prospectus or incorporated by reference into this prospectus and any applicable prospectus supplement, in light of your particular investment objectives and financial circumstances. In addition to those risk factors, there may be additional risks and uncertainties of which management is not aware or that management deems immaterial. Our business, financial condition or results of operations could be materially adversely affected by any of these risks. The trading price of our securities could decline due to any of these risks, and you may lose all or part of your investment.

CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS

We make forward-looking statements in this prospectus and may make such statements in future filings with the SEC. Our forward-looking statements are subject to risks and uncertainties and include information about our expectations and possible or assumed future results of our operations. When we use words such as "may," "might," "will," "should," "believe," "expect," "anticipate," "estimate," "continue," "predict," "forecast," "projected," "intend" or similar expressions, or make statements regarding our intent, belief, or current expectations, we are making forward-looking statements. Our forward looking statements also include, without limitation, statements (other than historical statements) about our competitors, growth in our markets, the timing and anticipated costs of obtaining FDA approval of our new SFP product, the timing of marketing of Calcitriol, and our anticipated future financial condition, operating results, cash flows and business plans.

We claim the protection of the safe harbor for forward-looking statements contained in the Private Securities Litigation Reform Act of 1995 for all of our forward-looking statements. While we believe that our forward-looking statements are reasonable, you should not place undue reliance on any such forward-looking statements, which are based on information available to us on the date of this prospectus or, if made elsewhere, as of the date made. Because these forward-looking statements are based on estimates and assumptions that are subject to significant business, economic and competitive uncertainties, many of which are beyond our control or are subject to change, actual results could be materially different. Factors that might cause such a difference include, without limitation, the risks and uncertainties discussed in this prospectus, including under "Risk Factors," and from time to time in our reports filed with the Securities and Exchange Commission. Other factors not currently anticipated may also materially and adversely affect our results of operations, cash flows and financial position. We do not undertake, and expressly disclaim, any obligation to update or alter any statements whether as a result of new information, future events or otherwise except as required by law.

USE OF PROCEEDS

Except as may be otherwise set forth in the applicable prospectus supplement accompanying this prospectus, the net proceeds from the sale of the securities will be used for general corporate purposes.

We expect to use the net proceeds from the exercise of 2009 Warrants for general corporate purposes, which may include funding of clinical trials and regulatory activities for SFP and other research and development expenses, and general and administrative expenses.

Table of Contents

DESCRIPTION OF CAPITAL STOCK

Our authorized capital stock is 40,000,000 shares of common stock and 3,416,664 shares of preferred stock (including 1,416,664 shares of Series A Preferred Shares which were previously issued and cancelled and which are not available for issuance). At May 18, 2012, 20,920,720 shares of common stock and no shares of preferred stock were outstanding. This description is subject to, and qualified in its entirety by, the provisions of our amended and restated articles of incorporation and bylaws, as well as the provisions of any applicable laws. A copy of our amended and restated articles of incorporation, was filed with the SEC as Exhibit 3.1 to our Quarterly Report on Form 10-Q for the fiscal quarter ended June 30, 2008. A copy of our amended and restated bylaws was filed with the SEC as Exhibit 3.2 to our Current Report on Form 8-K filed on November 25, 2008.

We may issue shares of our common stock, either separately or together with warrants offered pursuant to this prospectus. Holders of our common stock are entitled to one vote for each share held of record on all matters on which shareholders are generally entitled to vote. The vote of the holders of a majority of the stock represented at a meeting at which a quorum is present is generally required to take shareholder action, unless a greater vote is required by law. Directors are elected by a plurality of the votes cast at any election and there is no cumulative voting of shares.

Holders of our common stock are entitled to receive dividends when, as and if declared by our board of directors out of funds legally available for the payment of dividends. Upon the liquidation, dissolution or winding up of the Company, holders of common stock are entitled to share pro rata in any assets available for distribution to shareholders after payment of all obligations of the Company and after provision has been made with respect to each class of stock, if any, having preference over the common stock. Holders of common stock do not have cumulative voting rights or preemptive, subscription or conversion rights and shares of common stock are not redeemable. The shares of common stock presently outstanding are duly authorized, validly issued, fully paid and non-assessable. There will be a prospectus supplement relating to any offering of common stock and/or warrants offered by this prospectus.

The directors of the Company serve staggered three-year terms. Directors may not be removed without cause. The amended and restated articles of incorporation also set the minimum and maximum number of directors constituting the entire board at three and fifteen, respectively, with the exact number to be determined by the board from time to time.

Our amended and restated articles of incorporation and bylaws contain provisions that could have the effect of delaying, deterring or preventing a merger, tender offer or other takeover attempt. Our amended and restated articles of incorporation authorize the board to issue up to 40 million shares of common stock (less shares already outstanding or reserved for issuance) and up to two million shares of preferred stock without shareholder approval. In addition, the amended and restated articles of incorporation provide that shareholder action without a meeting requires the unanimous consent of the shareholders, unless the applicable action has been approved by the Board prior to execution of the shareholder consent. Our bylaws permit incumbent directors to fill any vacancies on the board of directors, however occurring, whether by an increase in the number of directors, death, resignation, retirement, disqualification, removal from office or otherwise, unless filled by proper action of the shareholders. Furthermore, our bylaws require shareholders to give advance notice of director nominations and proposals to be presented at meetings of shareholders.

These provisions may delay shareholder actions with respect to business combinations and the election of new members to our board of directors. As such, the provisions could discourage open market purchases of our common stock because a shareholder who desires to participate in a business combination or elect a new director may consider them disadvantageous.

Subject to certain exceptions, Chapter 7A of the Michigan Business Corporation Act prohibits a corporation from engaging in any business combination with an interested shareholder (defined as a

Table of Contents

10% shareholder) unless approved by (1) 90% of the votes of each class of stock entitled to vote and (2) two-thirds of the votes of each class of stock entitled to be cast by the shareholders other than the interested shareholder. We are currently not subject to Chapter 7A but may opt in at any time by resolution of our board of directors.

Listing

Our common stock is listed and traded on the NASDAQ Global Market under the symbol "RMTI."

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is American Stock Transfer and Trust Company.

DESCRIPTION OF WARRANTS

We may issue warrants to purchase common stock. Warrants may be issued independently or together with shares of common stock and may be attached to or separate from the common stock. The warrants will be issued under warrant agreements to be entered into between us and the purchasers or a warrant agent as detailed in the prospectus supplement relating to warrants being offered.

The applicable prospectus supplement will describe the following terms, where applicable, of the warrants in respect of which this prospectus is being delivered:

the title of the warrants;

the aggregate number of the warrants;

the price or prices at which the warrants will be issued;

the currencies in which the exercise price or prices of the warrants may be payable if other than U.S. dollars;

the number of shares of common stock purchasable upon exercise of the warrants;

whether the warrants are issued with shares of common stock and, if so, the number of the warrants issued with each share;

if applicable, the date on and after which the warrants and the common stock purchasable upon exercise of the warrants will be separately transferable;

the price or prices at which the offered securities purchasable upon exercise of the warrants may be purchased and provisions for changes to or adjustments in the exercise price of the warrants;

the date on which the right to exercise the warrants shall commence and the date on which the right shall expire;

the minimum or maximum amount of the warrants which may be exercised at any one time;

the identity of the warrant agent, if any;

information with respect to book-entry procedures, if any;

a discussion of any material federal income tax considerations; and

any other material terms of the warrants, including terms, procedures and limitations relating to the exchange and exercise of the warrants.

No warrant agreement will be qualified as an indenture, and no warrant agent will be required to qualify as a trustee, under the Trust Indenture Act of 1939. Therefore, holders of warrants issued under a warrant agreement will not have the protection of the Trust Indenture Act with respect to their warrants.

Table of Contents

DESCRIPTION OF 2009 WARRANTS

The material terms and provisions of the currently outstanding 2009 Warrants are summarized below.

Exercisability

The 2009 Warrants are exercisable at any time on or before the close of our business on October 5, 2014 (October 5, 2012 with respect to the 85,200 2009 Warrants issued to the placement agents in the 2009 offering as a portion of their compensation, which we refer to as the "Agency Warrants"). The 2009 Warrants are exercisable, at the option of each holder, upon the surrender of the 2009 Warrants to us and the payment in cash, or in the case of a cashless exercise described below, by delivery of shares of common stock by the holder equal in value to the exercise price of the shares being acquired upon exercise of the 2009 Warrants. The holder does not have the right to exercise any portion of the 2009 Warrants if the holder, together with its affiliates, would beneficially own in excess of 4.99% (the "Maximum Percentage") of the number of shares of our common stock outstanding immediately after the exercise, provided however, that upon 61 days' prior written notice, the holder may increase the Maximum Percentage to 9.99%.

Cashless Exercise

The Agency Warrants may be exercised by means of a "cashless exercise" in which the holder will be entitled to surrender a portion of the shares of common stock subject to the Agency Warrants in lieu of cash for the exercise price. With regard to the other 2009 Warrants, the cashless exercise methodology may be used only if there is no effective registration statement registering the shares of common stock underlying the 2009 Warrants or the average closing price of the Company's common stock for five consecutive trading days immediately preceding exercise is greater than \$12.00.

Exercise Price

The exercise price of the 2009 Warrants is \$9.55 per share. The exercise price is subject to appropriate adjustment in the event of stock dividends, stock splits, stock combinations, reclassifications or similar events affecting our common stock.

Transferability

The 2009 Warrants may be transferred at the option of the holder upon surrender of the 2009 Warrants to the Company with the appropriate instruments of transfer.

Effect of Merger, Consolidation or Sale of Assets

If we amend our articles of incorporation to reorganize our capital or reclassify our capital stock, or consolidate or merge with or into another corporation (where we are not the surviving corporation or where there is a change in or distribution with respect to our common stock), or sell, transfer or otherwise dispose of all or substantially all of our property, assets or business to another corporation and, pursuant to the terms of such transaction our common stock is converted into or exchanged for other securities or property, the holder of any 2009 Warrants will thereafter receive upon exercise of the 2009 Warrants, either (i) publicly traded capital stock of the successor entity or (ii) the securities or property to which a holder of the number of shares of common stock then deliverable upon the exercise or conversion of such 2009 Warrants would have been entitled upon such transaction.

Notwithstanding the foregoing, in the event that we consolidate or merge with or into another corporation (where we are not the surviving corporation and, after such transaction, the holders of the Company's voting power immediately prior to such transaction do not continue after such transaction

Table of Contents

to hold publicly traded securities and the voting power of the surviving entity necessary to elect a majority of the board of directors of such entity), then we (or the successor entity to the 2009 Warrants), upon request, will purchase the 2009 Warrants from the holder by paying the holder cash in an amount equal to the value of the remaining unexercised portion of the 2009 Warrants on the date of such transaction determined using a Black-Scholes option pricing model with a specified risk-free rate and an expected volatility equal to the greater of 75% and the 30-day historical price volatility obtained from Bloomberg L.P. as of the trading day immediately following the public announcement of the transaction.

Dividends and Distributions to Shareholders

For 2009 Warrants other than Agency Warrants, if, during any six-month period, the Company declares a cash dividend in an amount that, when combined with all other cash dividends paid and distributed to the holders of the Company's common stock during that six-month period, exceeds five percent of the Company's market capitalization, then the Company will pay to the holders of 2009 Warrants cash payments equal to the aggregate amount of dividends to which the holders would have been entitled if they had exercised their 2009 Warrants.

With respect to Agency Warrants, if we make any dividend or other distribution, the exercise price and number of shares that may be received upon exercise of the Agency Warrants will be adjusted accordingly.

PLAN OF DISTRIBUTION

We may sell the securities being offered hereby in one or more of the following ways from time to time:

through agents;

through underwriters or dealers, or underwriting syndicates represented by managing underwriters;

in short or long transactions;

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;

directly to investors; or

through a combination of any of these methods of sale.

A distribution of the securities offered by this prospectus may also be effected through the issuance of derivative securities, including without limitation, warrants, subscriptions, exchangeable securities, forward delivery contracts and the writing of options.

In addition, the manner in which we may sell some or all of the securities covered by this prospectus includes, without limitation, through:

a block trade in which a broker-dealer will attempt to sell as agent, but may position or resell a portion of the block, as principal, in order to facilitate the transaction;

purchases by a broker-dealer, as principal, and resale by the broker-dealer for its account;

ordinary brokerage transactions and transactions in which a broker solicits purchasers;

competitively bid transactions; or

privately negotiated transactions.

Table of Contents

We may also enter into hedging transactions. For example, we may:

enter into transactions with a broker-dealer or affiliate thereof in connection with which such broker-dealer or affiliate will engage in short sales of the common stock pursuant to this prospectus, in which case such broker-dealer or affiliate may use shares of common stock received from us to close out its short positions;

sell securities short and redeliver such shares to close out our short positions;

enter into option or other types of transactions that require us to deliver common stock to a broker-dealer or an affiliate thereof, who will then resell or transfer the common stock under this prospectus; or

loan or pledge the common stock to a broker-dealer or an affiliate thereof, who may sell the loaned shares or, in an event of default in the case of a pledge, sell the pledged shares pursuant to this prospectus.

We will set forth in a prospectus supplement the terms of the offering of securities, including:

the name or names of any agents, underwriters or dealers and the amounts of securities underwritten or purchased by them;

the purchase price of the securities being offered and the proceeds we will receive from the sale;

any over-allotment options under which underwriters may purchase additional securities from us;

any delayed delivery arrangements;

any agency fees or underwriting discounts or commissions and other items constituting agents' or underwriters' compensation;

the public offering or purchase price;

any discounts or concessions allowed or reallocated or paid to dealers; and

the securities exchanges on which such securities may be listed, if any.

We may enter into derivative transactions with third parties or sell securities not covered by this prospectus to third parties in privately negotiated transactions from time to time. If the applicable prospectus supplement indicates, in connection with those derivative transactions, such third parties (or affiliates of such third parties) may sell securities covered by this prospectus and the applicable prospectus supplement, including in short sale transactions. If so, such third parties (or affiliates of such third parties) may use securities pledged by us or borrowed from us or others to settle those sales or to close out any related open borrowings of stock, and may use securities received from us in settlement of those derivative transactions to close out any related open borrowings of stock. The third parties (or affiliates of such third parties) in such sale transactions will be underwriters and will be identified in an applicable prospectus supplement (or a post-effective amendment).

We may loan or pledge securities to a financial institution or other third party that in turn may sell the securities using this prospectus and an applicable prospectus supplement. Such financial institution or third party may transfer its economic short position to investors in our securities or in connection with a simultaneous offering of other securities offered by this prospectus.

Table of Contents

The offer and sale of the securities described in this prospectus by us, the underwriters or the third parties described above may be effected from time to time in one or more transactions, including privately negotiated transactions, either:

at a fixed price or prices, which may be changed;

at a price or prices determined pursuant to competitive bidding;

at market prices prevailing at the time of sale;

at prices related to the prevailing market prices; or

at negotiated prices.

Any public offering price and any discounts, commissions, concessions or other items constituting compensation allowed or reallocated or paid to underwriters, dealers, agents or remarketing firms may be changed from time to time. Underwriters, dealers, agents and remarketing firms that participate in the distribution of the offered securities may be "underwriters" as defined in the Securities Act. Any discounts or commissions they receive from us and any profits they receive on the resale of the offered securities may be treated as underwriting discounts and commissions under the Securities Act. We will identify any underwriters, agents or dealers and describe their commissions, fees or discounts in the applicable prospectus supplement or pricing supplement, as the case may be.

Underwriters, Agents and Dealers

If we use underwriters for a sale of our securities, the underwriters will acquire the securities for their own account. The underwriters may resell the securities from time to time in one or more transactions, including negotiated transactions, at a fixed public offering price or at varying prices determined at the time of sale.

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. The obligations of the underwriters to purchase our securities will be subject to the conditions set forth in the applicable underwriting agreement. The underwriters may change from time to time any public offering price and any discounts or concessions the underwriters allow or reallow or pay to dealers. We may use underwriters with whom we have a material relationship. We will describe in an applicable prospectus supplement the name of the underwriter and the nature of any such relationship.

If a dealer is utilized in the sale of securities in respect of which this prospectus is delivered, we will sell such securities to the dealer as principal. The dealer may then resell such securities to the public at varying prices to be determined by such dealer at the time of resale.

We may designate agents to sell the offered securities. Unless otherwise specified in connection with any particular offering of securities, the agents will agree to use their reasonable or best efforts to solicit purchases for the period of their appointment or to sell our securities for which they have been appointed an agent on a continuing basis. We may also sell the offered securities to one or more remarketing firms, acting as principals for their own accounts or as agents for us. These firms will remarket the offered securities upon purchasing them in accordance with a redemption or repayment agreement pursuant to the terms of the offered securities. A prospectus supplement or pricing supplement, as the case may be, will identify any remarketing firm and will describe the terms of its agreement, if any, with us and its compensation.

Underwriters, dealers and agents that participate in the distribution of our securities may be underwriters as defined in the Securities Act, and any discounts or commissions they receive from us

Table of Contents

and any profit on their resale of the securities may be treated as underwriting discounts and commissions under the Securities Act.

Institutional Purchasers

We may authorize agents, dealers or underwriters to solicit certain institutional investors to purchase offered securities on a delayed delivery basis pursuant to delayed delivery contracts providing for payment and delivery on a specified future date. The applicable prospectus supplement or pricing supplement, as the case may be, will provide the details of any such arrangement, including the offering price and commissions payable on the solicitations.

We will enter into such delayed contracts only with institutional purchasers that we approve. These institutions may include, without limitation, commercial and savings banks, insurance companies, pension funds, investment companies and educational and charitable institutions.

Indemnification; Other Relationships

We may have agreements with agents, underwriters, dealers and remarketing firms to indemnify them against certain civil liabilities, including liabilities under the Securities Act. Agents, underwriters, dealers and remarketing firms, and their affiliates, may engage in transactions with, or perform services for, us or our subsidiaries or affiliates in the ordinary course of their business. This includes commercial banking and investment banking transactions.

Stabilization Activities

In connection with an offering through underwriters, an underwriter may purchase and sell securities in the open market. These transactions 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 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 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 sales 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.

Direct Sales

We may also sell securities directly to one or more purchasers without using or involving underwriters, dealers or agents. We may sell securities upon the exercise of rights that we may issue to

Table of Contents

our securityholders. We may also 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.

Trading Market and Listing of Securities

Unless otherwise specified in an applicable prospectus supplement, each class or series of securities will be a new issue with no established trading market, other than our common stock, which is listed on the NASDAQ Global Market. We may elect to list any other class or series of securities on any exchange, but we are not obligated to do so. 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.

Shares Issuable upon Exercise of 2009 Warrants

Shares of our common stock may be issued upon exercise of the 2009 Warrants currently outstanding in accordance with the terms described above under "Description of 2009 Warrants." No further fees, expenses or commissions are due to any agent or underwriter in connection with the exercise of the 2009 Warrants and no special efforts are expected with respect to any such exercise.

LEGAL MATTERS

Unless otherwise indicated in an applicable prospectus supplement, the validity of the securities offered by this prospectus will be passed upon for us by Dykema Gossett PLLC, and for any underwriters or agents by counsel named in an applicable prospectus supplement.

EXPERTS

The consolidated financial statements incorporated in this prospectus by reference from the Company's Annual Report on Form 10-K for the year ended December 31, 2011, and the effectiveness of the Company's internal control over financial reporting as of December 31, 2011, have been audited by Plante & Moran, PLLC, independent auditors, as stated in their reports which are incorporated in this prospectus by reference, and have been so incorporated in reliance upon the reports of such firm given upon their authority as experts in accounting and auditing.

Table of Contents

\$55,000,000

Common Stock

PROSPECTUS SUPPLEMENT

BofA Merrill Lynch

Stifel

Summer Street

Craig-Hallum

Chardan Capital Markets, LLC

LifeSci Capital

, 2014
