

## Noverra Research

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## Watch List Snapshot – January 31, 2012

# Sirona Biochem Corp. (TSX-V: SBM)

Leveraging an expertise in stable carbohydrate chemistry to develop new therapeutics, cosmeceuticals, and biologics

## **Company Overview**

- Sirona has developed proprietary and patented chemistry techniques to stabilize carbohydrate molecules
- The company is applying its chemistry methods towards the development of therapeutics, cosmetic agents and biological ingredients.
- The Company has attracted a strong leadership and research team with a deep expertise in stable carbohydrate chemistry
- The Company is well capitalized, has received a \$1.9M grant from the French Government, and has sufficient capital to fund its ongoing development activities
- Sirona Biochem is developing cosmetic agents and biological ingredients, which have a shorter development timeline than traditional pharmaceuticals.

## **Development Activities**

- Sirona's chemistry techniques are being used to develop a number of potential new products;
  - SGLT Inibitors for the treatment of Type 2 diabetes
  - Stable Tn antigen that could be used in a cancer vaccine
  - Skin depigmenting agent that is more stable than the current standard
  - Biological inducers that could be used to improve the efficiency of the production of recombinant proteins
- Sirona is focused on completing pre-clinical studies on each of its development programs and will seek partners to advance the clinical trials and commercialization of the projects

#### Potential for Shareholder Value Creation

- The results of several development projects are expected to be announced in 2012, which could be the catalysts to move the share price higher
- Key Board members are expected to be appointed in 2012, expanding on the company's expertise

We are tracking Sirona's progress and will watch for the announcements of the results of the various development activities that will be completed in 2012. These events could position the Company for a significant value-creating transaction for shareholders.

# Summary of Key Information

#### Sirona Biochem Corp.

TSX Venture Exchange: SBM

Biotechnology

#### **Stock Data**

Price	\$0.11
52 – week range	\$0.10 - \$0.35
Average daily volume	63,412

#### Capitalization

65 M
\$7.2 M
\$0
\$7.2 M

Noverra Research has not initiated formal coverage of companies on its Watch List. The progress of these companies are being monitored. Investors should consult their investment advisor as to the appropriateness of an investment in the securities mentioned above.

#### **OVERVIEW AND HISTORY**

#### **Background and History**

Sirona Biochem Corp ("Sirona" or the "Company") was established in 2006 and was listed on the TSX-Venture exchange as a Capital Pool Company in July 2007. The Company was founded by Dr. Howard Verrico, who remains the Company's Chief Executive Officer.

Late in 2007, Sirona entered into a License Agreement with TFChem SARL ("TFC"), a French company that had been researching a core technology of new SGLT inhibitors that could be useful in treating some forms of diabetes. The License Agreement gave Sirona the rights associated with any treatments or drugs that are developed. The License Agreement provided for an ongoing research and development process for the SGLT inhibitors.

Over the subsequent years, Sirona Biochem and TFChem have strengthened the proprietary platform and expanded the program portfolio to include a skin lightener agent, skin anti-aging agent, a cancer vaccine antigen and a biological inducer. In March 2011, the Company acquired TFChem for approximately \$2M in a mix of cash and shares.

### Overview of Carbohydrate Chemistry

Carbohydrates have a number of useful applications but suffer from inherent challenges, specifically instability. The instability of carbohydrate molecules make them susceptible to the body's metabolic processes breaking down or becoming toxic which has limited the applicability in the development of new pharmaceutical technologies.

Sirona's research, including the work previously undertaken by TFC, has led to the development of techniques to increase the stability of carbohydrate molecules. The Company's techniques create a strong chemical bond in carbohydrate molecules. As a result of the Company's techniques, carbohydrates are more stable, safe, and potentially effective for a number pharmaceutical uses. The Company is leveraging its platform of expertise in carbohydrate chemistry to develop a number of potential applications.

#### **DEVELOPMENT PROJECTS**

Sirona has a portfolio of development projects that leverage its proprietary chemistry techniques Sirona's expertise in stabilizing carbohydrate molecules has the potential to be leveraged in a number of different markets. The Company's proprietary techniques may be used in conjunction with expired patents and compounds whereby development had been halted because of the instability of the carbohydrates. The Company has explored a number of alternative uses of its chemistry technology and is in the process of advancing the development of a number of projects, each of which will be described below.

#### SGLT Inhibitor for Type 2 Diabetes

SGLT (sodium-glucose transporter) Inhibitors are a new class of drugs with the potential to treat diabetes by reducing the absorption of glucose into the bloodstream. Worldwide, approximately 200 million people suffer from Type 2 diabetes. This market is increasing rapidly in part due to rising levels of obesity in the developed world. The pharmaceutical treatment of diabetes is currently a greater than \$26B market.

Sirona is developing an SGLT Inhibitor for Type 2 diabetes. The Company applies its chemistry fluorination technique to create an SGLT Inhibitor that has the potential to be a best in class. Sirona's SGLT program is currently in the preclinical stage of development; however initial preclinical studies have demonstrated compelling results. The lead compound that has been developed has demonstrated an ability to trigger glucosuria for up to 24 hours and to reduce blood glucose excursions compared to an untreated group. These results are a positive indication of the potential impact of the

lead compound on the treatment of Type 2 diabetes. The lead compound is orally bioavailable.

The Company's development activities on the SGLT inhibitor, which began in 2008, have included the development of a lead compound and filing of the related patent applications. This lead compound is currently being studied for safety and duration of action in a disease model. The results of these studies, which are expected in early 2012, will form the basis for a preclinical package. Subsequent to these studies, process development and manufacturing of the lead substance will be undertaken and are expected to be completed in 2012. It will then be followed by regulatory toxicology studies and formulation activities. By the end of 2012, the Company is hoping to be positioned to initiate clinical studies, either individually or in partnership with a development partner.

#### Cancer Vaccines

Sirona is exploring the development of a stable Tn antigen (a common tumor associated carbohydrate antigen present in 90% of carcinomas). The presence of cancer leads to the expression of tumour-associated carbohydrate antigens (TACA). A number of attempts to develop anti-TACA cancer vaccines have been undertaken. Several have failed because of the instability of the Tn antigen.

Sirona is attempting to leverage its expertise in stable carbohydrate chemistry to develop a stable Tn antigen. A stable Tn antigen could lead to the development of an anti-TACA cancer vaccine.

In December 2010, Sirona filed a patent on the structure and chemical process for the Company's glycopeptide projects. The Company's ongoing research activities include producing the Tn antigen in sufficient quantities for future serological studies to assess the efficacy.

Sirona's development activities on the Tn antigen will continue to late 2012 at which time a technical package will be developed. The technical package will describe the research results to that point and will be used to identify and establish a partnership to co-develop the program with a larger pharmaceutical company.

#### **Depigmenting Agent**

Depigmenting agents are used around the world as a tool to lighten skin either for the treatment of pigmentation disorders or as a cosmetic. The market for depigmenting agents is estimated to be \$10B worldwide, with a particularly strong demand in Asian markets.

Arbutin reduces the formation of melanin by inhibiting tyrosinase activity. Sirona is attempting to develop a mimic of Arbutin that leverages the Company's proprietary chemistry techniques to develop a more stable form of the active element. The Sirona technology will strive to reduce the degradation of Arbutin. The breakdown of Arbutin results in the release of hydroquinone, but due to its toxicity has been banned in many countries in the European Union. In the U.S., over-the-counter forms of hydroquinone have been banned.

The research on the Arbutin substitute is currently being conducted in Sirona's laboratory in France. This facility, located in the 'Cosmetic Valley' is situated in a cluster of leading laboratories focused on research of cosmetics. This location provides significant learning and expertise advantages. As well, Sirona has received strong support from the French Government, including the provision of a \$1.9M grant to help fund the Company's research and development activities. The Company's work on the Arbutin substitute is being undertaken in collaboration with the University of Rouen and a contract research organization. The Company's

intellectual capital is protected through a number of patents on the chemical structure and processes.

Compound synthesis and chemical stability studies will be carried out in 2012, and completed by the end of Q4. At the same time, collaboration partners will be working on various *in vitro* testing. From mid-2012 to end of 2013, Sirona will establish safety and efficacy on human skin explants. In parallel, from mid-2012 to Q22014, the Company will optimize chemistry, complete scale-up and develop formulation for clinical evaluation.

It is Sirona's goal to complete these development activities through the preclinical proof-of-concept phase. Once the proof-of-concept has been established, the Company will seek partners to support the development and commercialization of the product.

#### Biologics - Inducers

Inducers are important ingredients used in the manufacturing of recombinant proteins, including insulin, human growth hormone, etc. For example, insulin is produced in E. Coli because it is fast growing, the genetics are well known, and they have a high yield of protein. The inducers that are currently used in recombinant protein manufacturing are unstable and express protein poorly.

Sirona is developing enhanced inducers that leverage the Company's stable chemistry techniques to create more stable and more potent inducers. This could result in more efficient production of recombinant proteins.

Sirona is currently conducting a study to evaluate the effectiveness of its proprietary inducer in the expression of recombinant proteins. The Company is currently examining the qualitative effectiveness of its solution and will proceed to subsequent studies of the quantitative effectiveness of the solution.

Sirona expects key studies to be completed by the end of Q1 2012. At that point, partnerships will be sought to establish licensing agreements to complete the development and commercialization of the inducer compound.

#### Summary of Development Programs

Sirona has taken an approach that leverages its expertise in stable carbohydrate chemistry to pursue a number of potential applications. The Company has diversified its development activities across two therapeutic applications (SGLT Inhibitor for Type 2 diabetes and Cancer vaccines), a cosmeceutical application (depigmentation), and biologics inducers.

This strategy has allowed the Company to take advantage of its existing intellectual capital and patents and to attract executives, scientists, and an advisory board with expertise in the Company's area of focus. In addition, the breadth of opportunities being explored provides a solid pipleline of potential catalysts and sources of value for shareholders. As the Company advances the development of each of its programs, there is a clear path to development and commercialization that could create substantial value across a number of large market opportunities.

#### MANAGEMENT TEAM AND CLINICAL ADVISORY BOARD

#### Management Team

Sirona's management team is led by Dr. Howard Verrico, the Company's founder who has a strong mix of clinical and business experience (including capital markets experience). Over the past number of years the management team has been bolstered by a group of clinical leaders who bring strong technical and research expertise to the Company. The

Company's acquisition of TFC in 2011 has further enhanced the leadership and scientific experience of management.

The company recently appointed Sean Cunliffe to Chief Business Officer. Mr. Cunliffe has 25 years of pharmaceutical sales and marketing experience and has been involved in major pharmaceutical licensing deals. Most recently, Mr. Cunliffe has held executive roles at Angiotech, Neuromed, Wyeth, Glaxo Wellcome and Astra Pharmaceuticals.

Name	Details
Dr. Howard Verrico, MD President and CEO	<ul> <li>Founder, President and CEO of Sirona Biochem</li> <li>Extensive experience as an early stage investor and with the junior capital markets</li> <li>Currently a practicing emergency room physician</li> <li>Obtained a medical degree from the University of Toronto in 1985</li> </ul>
Geraldine Deliencourt- Godefroy, PhD Chief Scientific Officer	<ul> <li>Leading researcher in the field of carbohydrate chemistry with a focus on obesity, cosmetic ingredients, and biological adjuvants</li> <li>Previous experience includes Cofounder TFChem and scientific leader at the National Institute of Applied Research in Rouen France</li> <li>Recipient of the acclaimed Francinov Research and Innovation Medal, French Ministry of Research Award and the French Senate Award</li> </ul>
Sean Cunliffe Chief Business Officer	<ul> <li>25 years pharmaceutical marketing and sales</li> <li>Previously, Sr VP Sales and Marketing at Angiotech, Chief Commercial Officer at Neuromed (now Zalicus), VP of Marketing at Wyeth</li> <li>Negotiated licensing deals with Johnson &amp; Johnson and Merck</li> <li>Leadership roles with Glaxo Wellcome, Astra</li> <li>Led marketing efforts of major global brands</li> </ul>
Bertrand Plouvier, PhD VP Product Development	<ul> <li>Experience includes consulting to start-up pharmaceutical companies</li> <li>Previously was an Associate Director at Cardiome Pharma where he established the chemistry department</li> <li>Distinguished researcher who has coauthored 12 publications and 6 patents</li> <li>PhD from the University of Lille, France and a master in drug design from the Institut de Chimie Pharmaceutique de Lille, France</li> </ul>
Christopher Hopton, CGA Chief Financial Officer	<ul> <li>15 years of financial management experience including his former role as Chief Financial Officer of Central Resources Corp.</li> <li>Significant experience in financial planning, accounting policy and business process improvement</li> <li>Certified General Accountant</li> </ul>

Source: Company documents

### Scientific Advisory Board

The Company's focus on stable carbohydrate chemistry and the number of applications of that technology has attracted an impressive group of clinical and business experts to the Company's Scientific Advisory Board. Collectively the Scientific Advisory Board brings experience in a number of

specific areas of importance to Sirona, including diabetes treatment, cosmetics development, and drug development and strategic partnering. The guidance and advice provided by this Board will support the Company's development and commercialization activities. In addition, the Scientific Advisory Board should help the Company realize the value it creates through strong and profitable development and licensing partnerships.

Name	Details
Stuart Maddin M.D., FRCPC	<ul> <li>Clinical Professor Emeritus at the Department of Dermatology and Skin Science of Dermatology (Active), Faculty of Medicine, University of British Columbia, where he is the Director of the Clinical Trials Unit.</li> </ul>
<b>Michael Walker</b> PhD	<ul> <li>CEO and director Verona Pharma</li> <li>Emeritus Professor at the Department of Anesthesiology, Pharmacology &amp; Therapeutics, University of British Columbia</li> </ul>
<b>Denis Richard</b> PhD	<ul> <li>Professor at the Department of Medicine at Université Laval</li> </ul>
Jacques Warcoin LLB	<ul> <li>CEO of the French IP law firm Cabinet Regimbeau in Paris</li> </ul>
<b>Bruce Verchere</b> PhD	<ul> <li>Head of the Diabetes Research Program, at the Child &amp; Family Research Institute</li> <li>Professor, Departments of Surgery and Pathology &amp; Laboratory Medicine, UBC</li> </ul>
<b>B Mario Pinto</b> PhD	<ul> <li>Vice President of Research at Simon Fraser University</li> </ul>

Source: Company documents

#### FINANCIAL OVERVIEW

Sirona is currently an early stage development company. At July 31, 2011 (the Company's latest financial statements), the Company had \$1.4M in cash on hand. During the first 9 months ended July 31, 2011, the Company spend approximately \$1.4M on development, operating, and administrative activities. The Company's current burn rate is approximately \$140,000 per month. The Company does not have any material debt outstanding. The Company is currently well capitalized given the nature of its development portfolio.

To date Sirona has financed its development activities through a mix of equity capital raises and government grants, both from Canada and France. In September 2011, the Company was awarded a \$1.9M grant from the French Government to support the ongoing research and development on the depigmenting agent being conducted at the Company's laboratory in France.

The Company's strategy is to complete the proof-of-concept and preclinical activities for each of its programs. Once preclinical activities are completed, the Company will seek to partner with other pharmaceutical companies to complete the clinical development and commercialization programs. This strategy is designed to manage the development expenditures that must be financed by the Company and will allow Sirona to derisk as the projects advance.

Based on the Company's strategy for partnering at the clinical testing phase, it is anticipated that only one more significant financing will be required to advance the current pipeline of projects. This should reduce the potential for significant dilution from future financings, which can be a challenge for early stage biotechnology investors.

Sirona's financial position and development budgets provide the opportunity for signficant value realization for shareholders as the development programs advance. The completion of preclinical studies on each of the development programs could be the catalysts to support an increasing share price. The Company's approach to establishing partnerships to advance its development programs provides visibility to shareholders and could result in substantial value creation for patient investors.

#### ADDITION TO THE WATCH LIST

The results of 2012 development activities could be a catalyst for the share price

Sirona has developed a clear strategy to generate value for shareholders. The Company has acquired and continues to develop its expertise and intellectual capital relating to stable carbohydrate chemistry. The Company is seeking to apply its proprietary chemistry techniques to products that would not be feasible otherwise.

Sirona is developing multiple applications across its stable carbohydrate chemistry platform providing the benefits of diversification. The Company's strategy of completing preclinical activities and seeking partners to conduct the clinical studies and commercialization should manage development costs and create a viable path to realization of value from the products that are developed.

The Sirona leadership team and research staff have demonstrated their ability to deliver on preclinical study plans and advance the development of early stage biotechnology. This track record of advancing projects should provide investors with confidence in the Company's ability to deliver on its multiple development programs.

There are a number of important studies that will be completed in 2012 that will drive important announcements from the Company. Several projects, including the SGLT inhibitor, the depigmenting agent, and the biologics inducers, are expected to proceed to important next phases of development which could result in the formation of development partnerships. The activities will provide a number of catalysts that could drive the share price higher in 2012.

The Company is moving towards developing a number of valuable products that could generate strong returns for shareholders. We believe the results of Sirona's development activities in 2012 could result in strong upward pressure on the Company's shares. We have added Sirona to our Watch List and will monitor the Company's progress during this important period.

#### Disclaimers and Disclosures

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