Zacks Small-Cap Research

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Ceapro, Inc. (CZO - TSXV)

CZO: Initiating Coverage of Ceapro, Inc.; Focusing on Natural, Renewable Resources via a Unique Technology Platform

Current Recommendation	**Buy**
Prior Recommendation	N/A
Date of Last Change	10/05/2015
Current Price (10/05/15)	CAD $0.22
Target Price	**CAD $0.50**

INITIATION

We are initiating coverage of Ceapro Inc. (TSXV: CZO) with a "Buy" rating and a CAD $0.50 price target. Ceapro is a "green" growth-stage biotechnology company that develops and commercializes health and wellness products for the human and animal industries through its proprietary extraction technology platform and natural, renewable resources.

Ceapro's core product base includes avenanthramides and beta glucan, two natural ingredients that are derived from oats that are currently being used in multiple household products around the globe such as Aveeno®, Burts Bees®, and Nexxus®.

SUMMARY DATA

52-Week High	**$0.75**
52-Week Low	**$0.17**
One-Year Return (%)	**-4.35**
Beta	**3.11**
Average Daily Volume (sh)	**24,144**
Shares Outstanding (mil)	**62**
Market Capitalization ($mil)	**$13.6**
Short Interest Ratio (days)	**N/A**
Institutional Ownership (%)	**N/A**
Insider Ownership (%)	**N/A**
Annual Cash Dividend	**$0.00**
Dividend Yield (%)	**0.00**
5-Yr. Historical Growth Rates	
Sales (%)	**N/A**
Earnings Per Share (%)	**N/A**
Dividend (%)	**N/A**
P/E using TTM EPS	**N/A**
P/E using 2015 Estimate	**N/A**
P/E using 2016 Estimate	**N/A**

Risk Level	**Above Average**
Type of Stock	**Small-Growth**
Industry	**Med-Biomed/Health**

ZACKS ESTIMATES

Revenue
(In millions of $)

	Q1 (Mar)	Q2 (Jun)	Q3 (Sep)	Q4 (Dec)	Year (Dec)
2014	$2.0 A	$2.4 A	$2.4 A	$2.1 A	$8.9 A
2015	$1.7 A	$2.4 A	$2.6 E	$2.7 E	$9.5 E
2016					$10.4 E
2017					$12.0 E

Earnings per Share
(EPS is operating earnings before non-recurring items)

	Q1 (Mar)	Q2 (Jun)	Q3 (Sep)	Q4 (Dec)	Year (Dec)
2014	$0.00 A	$0.01 A	$0.01 A	$0.00 A	$0.03 A
2015	-$0.00 A	$0.01 A	$0.00 E	-$0.00 E	-$0.01 E
2016					-$0.00 E
2017					$0.01 E

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We are initiating coverage of Ceapro, Inc. (TSXV: CZO) with a “Buy” rating and a CAD $0.50 price target.

Ceapro Inc. is a “green” growth-stage biotechnology company that focuses on the identification, isolation, extraction, purification, development and commercialization of natural, functionally active ingredients and extracts from oats, and other renewable botanical sources through the use of proprietary technology and sustainable resources. Headquartered in Edmonton, Alberta, Ceapro is a Canadian biotechnology company that was incorporated in 1997.

Ceapro utilizes a proprietary plant extraction based manufacturing process to supply ingredients that are currently used in multiple household products in the personal care and cosmetics industries. We can find Ceapro ingredients inside well-known branded products like Aveeno®, Burts Bees®, and Nexxus®. Ceapro’s active ingredients are manufactured from proprietary oat varieties and various natural sources grown in many regions around the globe, with extra focus being placed on Canadian crops. The company’s flagship product, avenanthramides, in addition to its value driver, beta glucan, are two oat-derived compounds that make up the core of Ceapro’s product base. Ceapro is the only worldwide commercial manufacturer of natural avenanthramides. Via its unique bio-processing technique, Ceapro continues to improve its ability to take concept to commercialization in a relatively short period of time.

Over the last ten years, the main priority of the company has been to provide novel, natural, environmentally friendly ingredients to cosmetic and personal care product manufacturers and developers of human and animal therapeutics. Ceapro extracts are currently used in the cosmeceutical (cosmetics that have medicinal or drug-like effects) market, with the hope for entry into the pharmaceutical and nutraceutical (derived from food sources that purport health benefits such as vitamins, minerals, herbals, and functional foods and beverages) sectors in the relative near term.

Ceapro has currently positioned its lead products, avenanthramides and beta glucan, to enter clinical testing. With pre-clinical studies of avenanthramides completed, management plans to investigate the use of avenanthramides as it relates to the gastrointestinal system in a Phase 1/2 study at some point in the first half of 2016, and we hope to have a better sense of the market opportunity and the value of avenanthramides once we see more information regarding the study design. Additionally, beta glucan is well-known for its cholesterol lowering properties, and Ceapro has safety studies to analyze the side effect profile of beta-glucan, and a pilot clinical trial also set to start during the first half of 2016. We look forward to learning more about these study designs, and the Ceapro vision regarding both the avenanthramides and beta glucan stories.

We also believe there is growing interest in this area, and our research found that PepsiCo Global R&D is currently evaluating the bioavailability and metabolism of avenanthramides in an ongoing randomized, double blind crossover study. The purpose of the study is to evaluate whether orally ingested avenanthramides through oat flour cookies are bioavailable in humans by plasma and urine concentration measurements of avenanthramides and their metabolites.

As of June 30, 2015, Ceapro had $0.55 million in cash and cash equivalents, as compared to $273k as of December 31, 2014. In 2014, Ceapro had record full-year financial performance as reported in its full-year 2014 financial results. We believe that Ceapro will have to go out and raise additional capital soon in order to support its upcoming clinical studies and the completion of its new manufacturing facility. Despite near-term volatility in the stock, we remain optimistic on the long-term story of Ceapro.

The History & Benefit of Topical Oat Applications

The oat (*Avena sativa)* has been used as part of the human diet and as feed for livestock since the Bronze Age, but it was the ancient Romans that first described the benefits from topical usage of oat to the skin (Gibson *et. al*, 2002 and Melardi, 2013). Medical texts by Pliny, the Roman author and naturalist highlighted the use of oatmeal flour to promote healing of a variety of dermatological conditions (Kurtz *et. al*, 2007). The powerful healing nature of oats has been incorporated into conventional medical practice in more recent centuries (Wren, 1988). However, the ability of oats to serve as a skin protectant and to soothe itchy skin in bath oils and facial mask preparations wasn't scientifically documented until the 1930s (Webster *et. al*, 1986).

Colloidal oatmeal was deemed safe and effective by the end of the 20th century, and later approved in 2003 by the U.S. Food and Drug Administration (FDA) to be used as a skin protectant for the temporary protection and relief of minor skin irritations and itching due to cuts, scrapes, burns, chapped or cracked skin and lips, eczema (also known as atopic dermatitis), poison ivy, poison oak, poison sumac, and insect bites (Federal Register CFR 21 - FDA, 2003, Revised 2012).

There is a wide range of present-day applications for oats and the potential for further expansion of its use is tremendous. Over the years, many studies have been conducted that show oatmeal, most often used as an adjunctive therapy, can be beneficial in treating inflammatory dermatologic conditions. Colloidal oatmeal preparations contain natural ingredients that cleanse, moisturize, protect the skin barrier, and have potent anti-inflammatory effects. Colloidal oatmeal preparations are stable, safe, non-irritating and have shown to promote skin reparation after chemical exposure to harsh agents such as bleaches, surfactants and α-hydroxy acids in addition to other environmental insults (Hart *et. al*, 1998 and Baumann, 2004). Extensive research has shown that many different dermatologic conditions including allergic or irritant contact dermatitis, hives, rashes, sunburn, prickly heat, chicken pox, winter itch, and ichthyosis can also benefit from the use of oats as adjunctive therapy (AveenoMD).

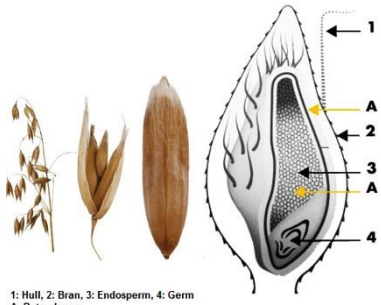


Source: Ceapro, Inc.

In addition to the dermatologic applications of oats, it has been documented as early as the 1930s that food that was susceptible to oxidation, and thus spoilage (such as dairy products like milk, ice cream and butter) were protected by the incorporation of finely ground up oats (Webster *et. al*, 1986). In the last 20 or so years, further exploration into the benefits of oats as an antioxidant in food and beverage products has been of great interest (Dimberg *et. al,* 1993 and Chen *et. al*, 2004).

Oat Beta-Glucan: An Important Component of the Oat Grain

Oats have a soft internal kernel surrounded by an inedible protective outer hull. This hull, which makes up 25% of the grain, is removed before processing, leaving an oat kernel that contains elevated quantities of protein, soluble dietary fibers known as oat beta glucan, unsaturated fatty acids as well as various vitamins and minerals (*right*). In particular, oat beta glucan is a soluble fiber derived from the cell walls of oat kernels, and is present at a very high level. Hundreds of scientific studies have shown the positive effects of oat beta glucan, with the beneficial effect on cholesterol levels being first documented in the 1960's.



1: Hull, 2: Bran, 3: Endosperm, 4: Germ
A: Beta-glucan

Source: http://www.friendoatwell.ch/en/

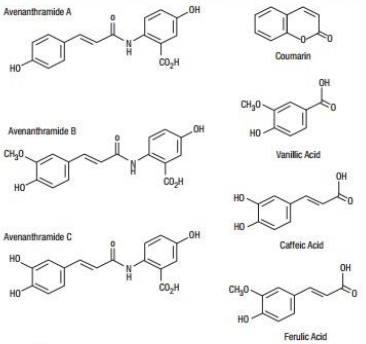
Oat beta glucan (β-Glucan) are polysaccharides of D-Glucose monomers linked by β-glycosidic bonds and have been long studied for their role in the maintenance of normal blood cholesterol levels. In 1997, the FDA approved a health claim for β-glucan soluble fiber from oats for the reduction of plasma cholesterol levels and the risk of heart disease (Othman, *et al.,* 2011). Beta glucan, as well as other aspects of the oat grain, continue to remain of great interest within the scientific community due to its intrinsic therapeutic and natural, healing properties. For example, studies have also shown that oat beta glucan is effective at stimulating collagen synthesis and plays an important role in wound healing and skin restructuring. Due to its excellent biological properties, oat beta glucan is considered to have ideal wound healing properties (Wei *et. al*, 2002).

The Active Oat Fractions: Phenolics and Avenanthramides

Phenolics belong to a group of greater than 5,000 naturally occurring and functionally similar compounds and are perhaps the biggest group of phytochemicals (chemical compounds that occur naturally in plants) with numerous healthful and disease-preventing benefits. The number of identified phenolics continues to grow with further research and scientific exploration. Phenolics have been the subject of heightened research primarily due to their antioxidant properties (Tsao *et. al*, 2005). The largely antioxidant effects of these compounds may be attributed to the ability of the oat phenolics to scavenge reactive oxygen and nitrogen species and/or by the chelation of transition minerals (Chen *et. al*, 2004). Phenolic compounds have a wide range of biologic activities including prevention of inflammation, oxidation, and atherosclerosis.

These phenolic compounds that are found in oats are considered to be one of the strongest antioxidants found in nature, and include a class of very strong free radical fighters known as avenanthramides (commonly referred to as AVA) (Tsao *et. al*, 2005). Avenanthramides are a class of more than 40 phenolic compounds that are found exclusively in oats. Additionally, oat phenolic compounds include simple forms with one phenol ring, such as vanillic acid, caffeic acid, and ferulic acid; and more complex forms with 2 or more rings such as coumarin (*right*) (Emmons *et. al*, 2001).

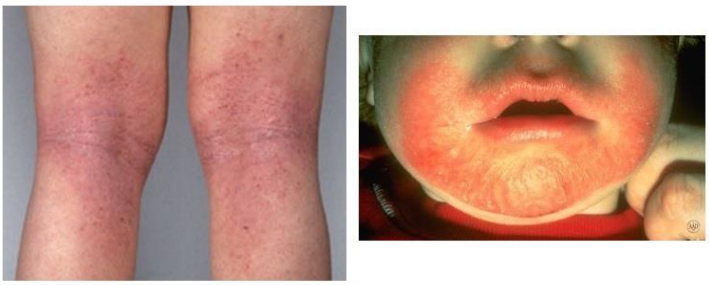
Some of the Biologically Active Phenols/Phytochemicals Found in Oats



Source: AveenoMD

The Biologic Activity of Avenanthramides…

Avenanthramides (AVA) are exclusively found in oats, but are only present in very small quantities. In addition to showing 10 to 30 times more antioxidant activity as compared to other phenols in oats, AVA also have powerful anti-inflammatory effects on diseases (Dimberg *et. al*, 1993). For instance, atopic dermatitis (or eczema), a chronic, relapsing dermatitis that causes inflammation, dryness, skin sensitivity and pruritus (*below*), can be treated with oatmeal, and in particular AVA appear to help restore the cutaneous barrier and reduce symptoms of the disease. Three types of avenanthramides, referred to as avenanthramides A, B, and C, have been linked to the biological activity of oats (Eichenfield et al., 2007).

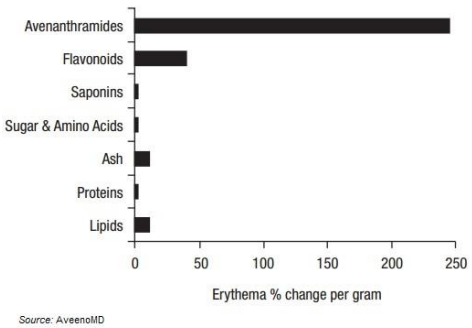


Examples of Atopic Dermatitis (Eczema)

Sources: Mayo Foundation for Medical Education and Research (left), and American Academy of Dermatology (right)

AVA continues to be studied in order to expand upon and further explore its biological and chemical properties. Over 25 years ago, ethanol-water extraction techniques were used to isolate avenanthramides and other phenol compounds, and in vitro prostaglandin biosynthesis assays showed that the oat phenolic fraction (including AVA) was found to inhibit prostaglandin synthesis nearly as well as the well-known anti-inflammatory agent, indomethacin. This goes hand-in-hand with the observation that finely ground oat flour is helpful in relieving itch, sunburn, and skin inflammation, and that prostaglandins are an important component of inflammation from burns, contact eczema, and exposure to radiation (Saeed et. al, 1982 & 2012).

In a more recent model, separated oat fractions were tested in a skin erythema setting to evaluate the functional properties of various oat constituents. The AVA fraction was most effective at reducing UV-induced erythema 24 hours post-treatment, as compared to other compounds like flavonoids, saponins, lipids, proteins, sugars & amino acids, and ash (*below left*). Subsequently, a follow-up dose-response study of highly purified AVA showed significant reduction in erythema at concentrations from below 2 ppm to 45 ppm (*below right)* (Volldhart *et. al*, 2000).

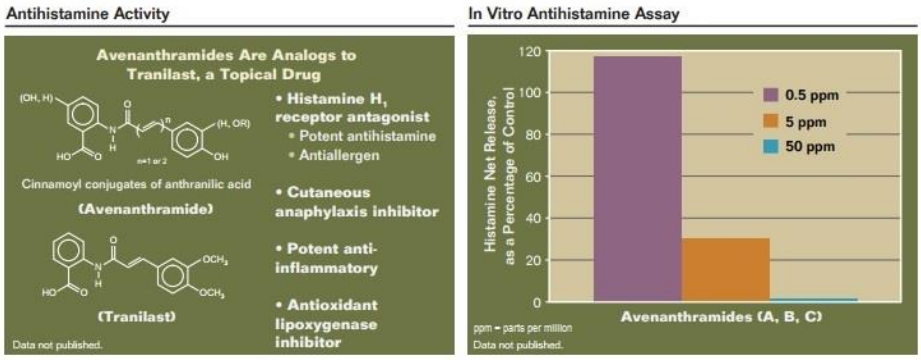


Source: AveenoMD

Avenanthramide Concentration, ppm	Erythema Reduction at 24 Hours, %
45.0	18.7*
15.0	18.4*
5.0	19.4*
1.5	14.0*
0.5	7.1
Untreated	5

*P<.05, t-test

Recent studies have also shown that the anti-inflammatory effect of AVA works by inhibition of nuclear factor NF-κB (a primary factor in promoting transcription of inflammatory pathways in the skin) activation in keratinocytes (epidermal skin cells) that subsequently leads to the reduction of both the skin immune and neurogenic responses (Guo *et. al*, 2007). According to another study, AVA at concentrations as low as 1 part per million, inhibited the release of NF-kB in keratinocytes. Additionally, cells treated with oat AVA also showed a significant decrease in tumor necrosis factor alpha (TNF- α), leading to inhibition of the release of the pro-inflammatory cytokine interleukin-8 (IL-8) that is often elevated in atopic dermatitis and other inflammatory skin diseases. It was further observed that a topical application of 1 to 3 parts per million AVA from oats was comparable to a 1% topical hydrocortisone preparation in terms of lessening inflammation, pruritis (itching) and contact hypersensitivity in murine models. These results together support the claim that avenanthramides are potent anti-inflammatory agents (Sur *et. al*, 2008).



Source: Symrise

Additional activity of avenanthramides from oats has been investigated in laboratory animals. Some animal studies have shown that AVA are bio-available and accumulate in various tissues, such as cardiac and skeletal, in rat models treated with oral gavage (Koenig *et. al*, 2011). Another animal study highlighted that supplementing the diet of rats with AVA enriched oat extract at 100 mg/kg diet (approximately 20 mg AVA/kg BW) showed an increase in superoxide dismutase (SOD) activity, an enzyme known to speed up certain chemical reactions in the body, in skeletal muscles (Ji *et. al*, 2003), while another model showed that the supplementation at 200 mg/kg diet (about 40 mg AVA/kg BW) in rats attenuated the exercise-induced production of reactive oxygen species or ROS (O'Moore *et. al*, 2005).

One human clinical study of postmenopausal women showed that avenanthramides decreased exercise-induced inflammation (Koenig *et. al*, 2014). Other human clinical studies have shown that dietary avenanthramides supplements significantly reduced inflammatory biomarkers in the elderly. Other extensive studies have shown avenanthramides to inhibit the following processes (AveenoMD):

- Inhibition of oxidation of low-density lipoprotein (LDL)
- Inhibition of the autoxidation of linoleic acid and beta carotene
- Inhibition of oxygen consumption following hemin-induced oxidation of linoleic acid
- Inhibition of collagen oxidation by peroxinitrite
- Inhibition of oat oil oxidation

The Avenanthramide Potential in Skin Care…

To summarize, avenanthramides are unique in that they only found in oat grains. For centuries, they have been not only used as a food source, but also for their healing and soothing properties. Numerous in vitro as well as in vivo studies have proven that AVA are highly effective with anti-irritant, anti-inflammatory, anti-oxidant, and skin soothing effects. Due to the powerful properties of AVA, the biological and dermatological applications of AVA are numerous, and make AVA ideal for skin, hair, and scalp care as well as for integration into sun care products, toiletries and cosmetics. There is tremendous application of AVA as it pertains to infants as well for individuals with sensitive skin, sensitive scalp and other dermatologic conditions. The multi-functional nature of AVA makes them ideal for healing dry, itchy skin and reducing redness and inflammation. For these reasons, it doesn't surprise us that AVA is of heightened interest for companies, such as Ceapro.

The Ceapro Pipeline: Products for Human & Animal Health

Ceapro's active ingredients are manufactured from proprietary oat varieties and various natural sources grown in many regions around the globe. Ceapro's flagship product, avenanthramides, in addition to its value driver, beta glucan, are two oat-derived compounds that make up the core of Ceapro's product base. Ceapro is the only worldwide commercial manufacturer of natural avenanthramide product.

Although Ceapro is primarily known for its ingredients derived from oats, the company is also now being recognized as a developer and manufacturer of botanical ingredients with newly discovered functionally active benefits. Ceapro's platform of extraction and purification technologies result in active ingredients with distinct formulation that are used in the manufacture of preferred medical, personal care, veterinary, and cosmetic products worldwide. As a reference, beta glucan and AVA are found in multiple household products including: Aveeno®, Jergens®, Lubriderm®, 3M – Nexcare™, KY®, Neutrogena™, ROC®, Coppertone®, Dove®, Burt's Bees®, The Body Shop®, and Philosophy®. Specifically, we can find Ceapro ingredients inside several household products around the globe that are developed by Aveeno®, Burts Bees®, and Nexxus® (*right*).



Source: Ceapro, Inc.

In addition to beta glucan and avenanthramides, Ceapro markets a commercial line of natural active ingredients such as oat powder, and oat oil to personal care, cosmetic, medical, and animal health industries through direct sales as well as through its distribution partners. Ceapro also markets veterinary therapeutic products, such as an oat shampoo, an ear cleanser, and a dermal complex/conditioner to veterinarians in Japan and other parts of Asia through agreements with Daisen Sangyo Co. Ltd.

Ceapro currently has products and technologies in the R&D or pre-commercial stage, which include a potential delivery platform using its beta glucan formulations to deliver compounds for uses ranging from wound care and therapy to skin care treatments that reduce the signs of aging; an extension to the active ingredients product range, through new formulations; several novel enabling technologies; and a new oat variety and technologies to increase the content of avenanthramides.

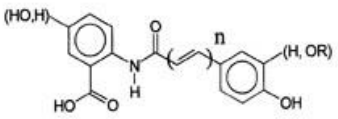
Ceapro's R&D team is involved in all steps of the new product and process development from the field to formulation. As per Ceapro, it is committed to ongoing R&D efforts as it continues to expand its portfolio of new products. Ceapro's process engineers and scientists work to develop new processes and products from natural sources in the laboratory and then have the ability to scale them up to full commercial production. It is also worth mentioning that the techniques and technology that Ceapro utilizes are considered green, sustainable, and eco-friendly which is consistent with the natural image of Ceapro and the strategic sector identified in its business plan.

For instance, Ceapro's proprietary processing technologies use only environmentally friendly or "green" solvents and GRAS ("Generally Recognized As Safe") raw and processing ingredients that are acceptable in all food and cosmetic formulations. This is especially of key significance as there is an increasing interest in society for making "greener" choices in daily life that aim to protect the environment for the benefit of all.

The company has plans to involve a steady pipeline of innovative products for both the human and animal healthcare industries. We highlight the Ceapro pipeline below:

- **CP Oat Avenanthramide Extract:**

Ceapro scientists were amongst the first to highlight the relationship between the dermatological activity of avenanthramides and the symptomatic relief from oatmeal. CP Oat Avenanthramide Extract is a colloidal oat extract produced by a patent protected process, and contains naturally soothing compounds associated with oats. CP Oat Avenanthramide Extract is an ECOCERT registered, non-GMO, allergen free product that is not tested on animals.



Source: Ceapro, Inc.

Ceapro is the only commercial manufacturer worldwide of natural avenanthramides product, which is featured in several best-selling global personal care brands. Over the years, Ceapro has developed a proprietary extraction and purification technique for the compounds, but the low concentration of biologically effective avenanthramides A, B and C naturally found in oats has limited Ceapro's involvement in the cosmetic and personal care markets. The relatively small supply of commercial oats that have high concentrations of avenanthramides to be both therapeutically effective as well as commercially profitable is one of the biggest challenges for these markets. Additionally, factors affecting crops such as temperature and humidity can vary the quality of oat from year-to-year, and is an issue in terms of reliability and security of supply.

Accordingly, management has been focusing efforts on ways to grow larger quantities of high yield oats, which would surpass the limitations mentioned above, and allow the company to serve larger markets. In 2012, Ceapro entered into two technology agreements with Agriculture and Agri Food Canada (AAFC) to tackle the challenges mentioned above. Ceapro licensed a methodology to increase concentrations of avenanthramides in oats and also gained access to a new variety of oat that should improve the productivity of manufacturing for the company.

The first agreement granted Ceapro the sole worldwide rights for all fields of use for an innovative AAFC-patented malting technology, which when applied after harvesting a certain oat variety, can dramatically increase the avenanthramide content from non-commercial amounts to much higher amounts. This technology licensed from the Canadian government should allow for Ceapro to extract larger quantities of avenanthramides.

The second agreement provided Ceapro the access to a particular new non-GMO oat variety, which consequently requires Ceapro to grow the variety. This new variety of oat will enable Ceapro to extract larger quantities of its flagship product, avenanthramides, which are normally found in very small concentration by the malting technology. As per management, the agreement will last ten years, with an option to extend.

In 2013, the new oat variety was grown in Alberta and Saskatchewan, and the harvest showed good yields and high quality. Furthermore, management recently reported on April 22, 2015 that encouraging results were obtained for increased yield of avenanthramides in 2014 through the use of the AAFC-patented malting technique. As per management, a commercial scale test was conducted at the ARRGO facility where the concentration was increased by four to five times, and two additional commercial scale runs have been conducted in June-August 2015.

To summarize, as per Ceapro, it has been able to increase the concentrations of avenanthramides from very low, nearly non-detectable levels up to levels more than four to five times what the company usually extracts by using the licensed AAFC-patented malting technique. We look forward to seeing where Ceapro can take this technology in the future. We hope that these strides will allow for Ceapro to continue producing larger quantities and higher concentrations of avenanthramides, which will not only improve their current position in the cosmetics and personal care markets but will also allow for the potential penetration into other markets such as functional food, nutraceuticals, and pharmaceuticals.

The benefits and activities of CP Oat Avenanthramide Extract are highlighted below:

- ✓ Contain natural antioxidants producing superior skin soothing benefits
- ✓ Standardized on its active principle of 100 ppm Avenanthramides A, B, C
- ✓ Fully soluble in aqueous, oil/water, water/oil systems
- ✓ Low odor and yellow-amber color
- ✓ Exhibits effective soothing properties (in vivo) at levels as low as 0.5%
- ✓ Suitable for all water based cosmetic product applications
- ✓ Shown to suppress skin and hair lipid peroxidation

CP Oat Avenanthramide Extract can be formulated into a variety of applications including hair care products (shampoos, and conditioners); baby care products; sun care and after sun products; skin care products (creams, and lotions; antiperspirants as well as liquid foundations.

The Next Step in the Ceapro Avenanthramides Story…

We understand that Ceapro's flagship product, avenanthramides, has applications in the cosmetics and personal care industries, but it has been suggested when taken orally, AVA could be beneficial in conditions like irritable bowel syndrome (IBS), colon cancer (Guo *et. al*, 2010), and other inflammatory conditions. These findings led to the idea that AVA could possibly be developed as an active pharmaceutical ingredient (API). In order to expand the application of AVA to possibly enter into pharma as an API, we know that Ceapro must first be able to produce highly purified, well-characterized, adequate quantities of the product to allow for a bio-available formulation to be used in clinical trials that would hopefully demonstrate the safety and efficacy of the compounds in specific, targeted populations.

Along this front, Ceapro identified a chromatographic method in 2013, and customized it to purify all the naturally occurring avenanthramides from its current wet extraction process product, which was subsequently freeze-dried into a high quality powder (*below*). Additionally, Ceapro has been able to scale up the processing volume. This powder was later assessed for its suitability to be developed as active ingredients for the nutraceutical and pharmaceutical markets. As per Ceapro, a feasibility study to test AVA suitability to be developed as an active ingredient was conducted with a Montreal based organization, and showed positive results. Ceapro believes the stage is now set for clinical trials for avenanthramides. With pre-clinical studies of avenanthramides completed, management plans to investigate the use of avenanthramides as it relates to the gastrointestinal system in a Phase 1/2 study at some point during the first half of 2016, and we hope to have a better sense of the market opportunity here and the value of avenanthramides once we see the IND filing down the road.

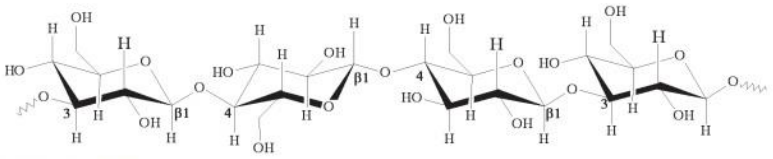


LEFT: Purification steps of avenanthramides from the crude oat extract liquid formulation; RIGHT: High purity, freeze-dried avenanthramides powder

Source: Ceapro, Inc.

- **CP Oat Beta Glucan:**

Ceapro's value driver product, CP Oat Beta Glucan, is known as the anti-aging active ingredient included in several well-established products around the globe. Studies have shown that beta glucan is effective in stimulating collagen synthesis and plays an important role in wound healing and skin restructuring (Wei *et. al*, 2002). Beta glucan that is extracted from oat is water-soluble. CP Beta Glucan is produced by a patented process and is unique in that it is a high molecular weight oat-based beta glucan solution shown to penetrate into the skin (into deep layers as well as into skin cells) regardless of its large molecular weight (Pillai *et. al*, 2005).



Source: Ceapro, Inc.

Management believes other oat beta glucans of high molecular weight (800-1500 kDa) have not been shown to effectively penetrate the skin. It follows that there may be potential to impregnate or encapsulate bioactive compounds with CP Oat Beta Glucan formulations in order to serve as a potential delivery system. According to management, this proprietary beta glucan drug-delivery platform has peaked interest from multiple parties that are looking to improve the delivery of their existing therapeutic products. Through Ceapro's proprietary extraction and formulation technologies, what results is a highly purified liquid beta glucan. CP Oat Beta Glucan is an ECOCERT registered, non-GMO, allergen free product that is not tested on animals.

The benefits and activities of CP Oat Beta Glucan are highlighted below:

- ✓ Acts as a natural moisture barrier and film-forming agent
- ✓ Relieves and alleviates dry and itchy skin by replenishing and protecting the skin's moisture barrier
- ✓ Provides hydration against the drying effects of the sun
- ✓ Smoothes wrinkles, reducing the visible signs of aging
- ✓ Colorless, low odor, clear aqueous solution
- ✓ Not chemically modified

CP Oat Beta Glucan can be formulated into a variety of applications including hair care products (shampoos, conditioners, and styling gels); skin care products (day creams, moisturizers and facial tonic); and sun protectants. As per Ceapro, CP Oat Beta Glucan can be used for anti-aging, damaged skin and to obtain glossy, healthy hair.

The Next Step in the Ceapro CP Beta Glucan Story…

Beta glucan is also well-known for its cholesterol lowering properties as well as regulation of glucose metabolism (Othman, *et al.,* 2011). Safety studies to analyze the side effect profile of beta-glucan, and a pilot clinical trial are both set to start at some point during the first half of 2016. We believe the safety study will take about 10 months to complete. Furthermore, the beta glucan pilot study will enroll approximately 300 patients and will take approximately 16-18 months to complete. Both studies will be conducted in parallel. We look forward to learning more about these study designs, and the Ceapro vision regarding the beta glucan story.

CP Oat Beta Glucan is currently formulated as a liquid, and in order to fully exploit the potential of the product, Ceapro began developing dry formulations of the substance back in 2012. Once again, Ceapro looked to the University of Alberta to utilize its **P**ressurized **G**as e**X**panded (PGX) technology that was developed there, which is based on supercritical conditions, which enabled the development of dry formulations of beta glucan at the lab scale. We discuss PGX technology in further detail below. In 2013, it was the goal of management to scale up and automate the process while at the same time decreasing production costs.

Since the technology and equipment are difficult to come across, Ceapro partnered up with Prince Edward Island (PEI) based BIOFOODTECH, where the process was scaled up. The dried oat beta glucan that was formed, retained all of its properties including high molecular weight and high viscosity. Ceapro reached maximum scale in PEI, and subsequently transferred the work over to a new partner in Boston that was able to offer small-scale, commercial-grade equipment suitable for Ceapro's needs as well as engineering and fabrication services for the required equipment.

In Boston, Ceapro was able to drive costs down and in late 2013, a multi-tonne (equivalent to a metric ton or 1,000 kg) per day flow rate was reached. Further increases in scale and flow rates were tested in Boston. It was the high purity of the powder obtained through this PGX technology that lead Ceapro to look at the development of beta glucan beyond the personal care market, and into the nutraceutical and pharmaceutical markets in order to target metabolic diseases. We will learn more about this as the story continues to develop.

PGX Technology: Taking Liquids to Dry Powder Formulations…

On May 20, 2014, Ceapro signed a Development and Licensing Agreement with the University of Alberta for the use of its **P**ressurized **G**as e**X**panded (PGX) technology. Ceapro intends to utilize PGX technology to develop dry powder formulations of active ingredients in order to enable the transition to other sectors that mostly require the production of dry formulations in the form of tablets and capsules, such as cosmeceuticals, functional food, nutraceutical and pharmaceutical industries. Subsequently, on February 11, 2015, Ceapro announced an expansion to the license agreement with the University of Alberta, granting worldwide rights to the company to develop and commercialize PGX Technology in all industrial fields.

PGX technology was co-invented by Dr. Bernhard Seifried, Senior Researcher at Ceapro, and Dr. Feral Temelli from the Department of Agricultural, Food & Nutritional Science of the University of Alberta. PGX technology is a novel, heat-free, drying technique that utilizes properties of pressurized gas expanded liquids to produce a wide variety of highly porous, preservative free, sterile morphologies of water-soluble biopolymers, such as oat beta glucan, that have large specific surface areas and tunable surface properties. These morphologies include granular powders, fine fibers, granules, aerogels, purified bioactives and exfoliated bio-nanocomposites and, according to management, are similar to those obtained by freeze-drying but at a fraction of the required time and cost.

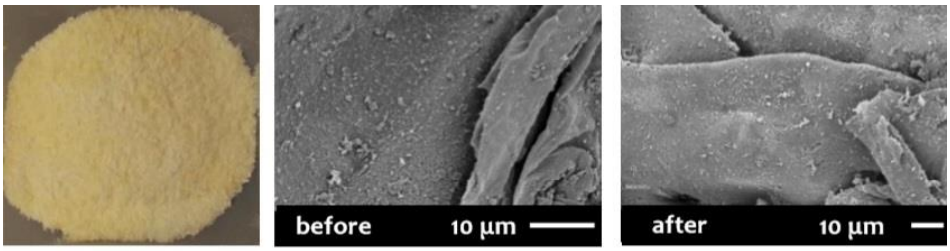
As per management, standard drying methods (like traditional freeze-drying or spray drying) are not the best options when dealing with oat beta glucan and other biopolymers because they tend to be quite expensive and are not capable of removing all impurities. Management believes that a major advantage of PGX over traditional spray drying technologies is the capability of increasing surface area, thus enabling impregnation studies. If this is the case, we see the licensing of PGX technology as a critical step to significantly expand Ceapro's business.

For example, a dry formulation of oat beta glucan allows Ceapro to pursue the large nutraceutical and functional food/drink markets where oat beta glucan has a well-established health claim for LDL and total cholesterol reduction. PGX technology can also be applied to drug delivery, hydrogels, absorbants, biomedical devices, wound healing/scaffolding, paints and biocomposites.

PGX technology works at lower temperatures than the traditional spray drying technique, and thus thermo-sensitive (temperature sensitive) bioactives as well as highly viscous solutions and high molecular weight biopolymers (MW = 600 to 1500 kDa) can be processed. Through this technology, a spray chamber is used in which the polymer matrix is formed in fractions of seconds out of aqueous solutions, thus leading to shortened drying times and the decreased need for large bulky equipment. Ceapro's PGX technology uses a highly tunable pressurized gas expanded liquid as drying fluid, which consists of CO_2 and anhydrous ethanol recyclable natural food grade solvents "Generally Recognized As Safe" (GRAS). Other advantages of PGX technology include the elimination of issues related to surface or interfacial tension that sometimes lead to clumping of biopolymers during the traditional drying processes.

According to Ceapro, the technology is scaleable and has been successfully scaled-up from the laboratory to pilot plant, which is capable of processing 300 kg/hr of aqueous solution. PGX Technology has some distinctive characteristics and properties such as purifying biopolymers by removing contaminants and impurities and extracting valuable bioactives at mild conditions.

- **Applications of PGX Technology**



LEFT: Photograph of PGX-BG homogeneously impregnated with Coenzyme Q10

RIGHT: SEM images of PGX-BG before and after impregnation with CoQ10 showing no visible difference between BG and CoQ10 impregnated BG suggesting that the porous BG structure is not negatively affected by the impregnation step and that CoQ10 is deposited onto the matrix at submicron scale

Sources: Sarah Mayner, Chadd Kiggins, Alexander Kendrick, Prof. Clark Colton, Prof. William Dalzell; subject 10.27, Chemical Engineering Dept., MIT, 2014 & Ceapro, Inc.

In December 2014, Ceapro was awarded a $198,000 funding contribution by Alberta Innovates Bio Solutions (AI Bio) for further development of a prototype functional food ingredient for an energy drink formulation using the company's dry beta glucan impregnated (iBG) with the well-known bioactive CoQ10. The high-purity dry form of beta glucan is produced via PGX technology. We expect the beta glucan/CoQ10 study with University of Alberta will commence in early 2015, and will require at least 1 year to complete. The study builds on preliminary data obtained in a 2014 study conducted by Ceapro in partnership with Massachusetts Institute of Technology (MIT) that showed that CoQ10 was successfully impregnated into Ceapro's highly porous beta glucan powder (*above*). According to management, these findings suggest that its bioavailability may be significantly improved, thus opening up future applications for the nutraceutical market, while this novel iBG formulation could be the first potential commercial application of iBG in a functional food item. We see this as a step in the right direction towards Ceapro's transition into other sectors and potentially show the ability of translational research to go from the laboratory to the marketplace.

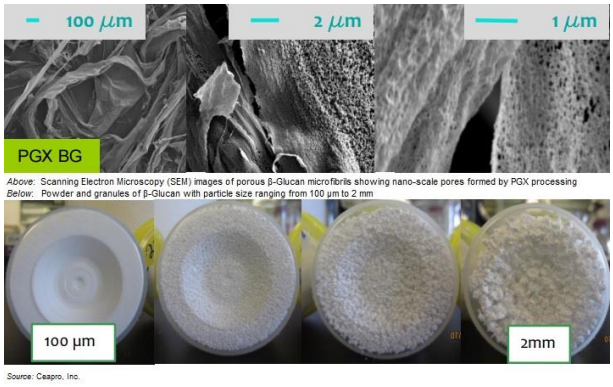
Additionally, on May 28, 2015, Ceapro announced that it will embark on a scale-up of its PGX technology to commercial and demonstration levels. The scale-up is estimated to cost around $2 million, and the company has received additional funding from Al Bio, this time in the amount of an $800K funding contribution, in order to help support the project. Management believes that the implementation of PGX at a commercial scale has the potential to generate many novel products with improved functionality and purity.

Below, we will highlight some visuals that demonstrate additional PGX technology applications:

- ⇨ PGX Oat Beta Glucan (BG): Linear Polysaccharide with Molecular Weight (MW): 500-1500 kDa



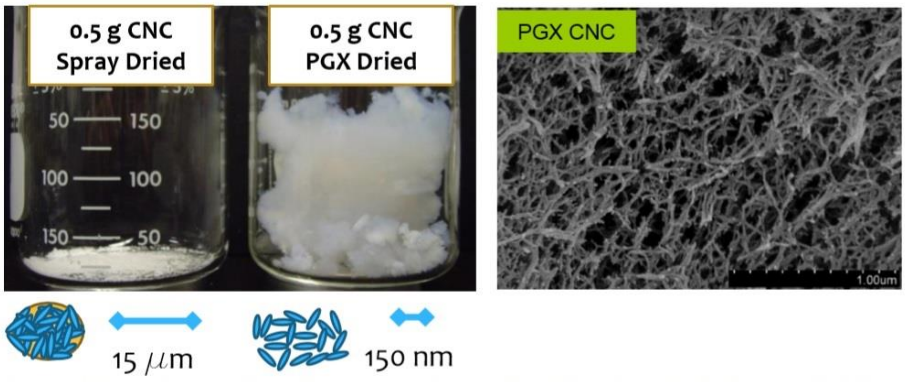
Source: Ceapro, Inc.



Above: Scanning Electron Microscopy (SEM) images of porous β-Glucan microfibrils showing nano-scale pores formed by PGX processing
Below: Powder and granules of β-Glucan with particle size ranging from 100 μm to 2 mm

Source: Ceapro, Inc.

- ⇨ PGX Cellulose Nanocrystals (CNC) or CNC Aerogels: Nanocrystals (150 nm length and 20 nm diameter)



LEFT: Comparison between conventional spray dried (SD) CNC (left) forming compact agglomerated particles and PGX dried CNC aerogel (right). The photos show the same mass of CNC in both beakers.

RIGHT: Scanning Electron Microscopy (SEM) images of the PGX CNC aeorgel open-porous structure

Source: Ceapro, Inc.

- **CP Oat Oil:**

Oat oil is extracted from whole oat kernels by a process that retains all of the important biologically active components. Using a green extraction process, Ceapro's believes its oat oil can fortify other formulation oils while providing significant emollient properties. It contains a high level of key natural antioxidants, including several forms of vitamin E and is rich in essential fatty acids and natural emollients. Ceapro's CP Oat Oil is a naturally, non-GMO, allergen free product that is not tested on animals.

The benefits and activities of CP Oat Oil are highlighted below:

- ✓ High antioxidant content (oil soluble antioxidants; alkyl pheonolates)
- ✓ High water capacity
- ✓ Retention of biologically active components
- ✓ Rich in unsaturated fatty acids: moisturizing, good for skin health
- ✓ Soothing anti-irritant
- ✓ Highly stable plaint oil
- ✓ Soluble in oil phases
- ✓ Pale yellow, low odor liquid

CP Oat Oil can be formulated into a variety of applications including oil based products (cleansing oils, massage oils, and facial oils); hair care products (conditioners, oils & serums, scalp treatments, and styling gels); skin care products (moisturizers, cleansers, and hand creams); anti-aging & sensitive skin products; baby care products (creams, oils, balms, and ointments); sun care products (oils, emulsions, and after-sun products); decorative cosmetics (emulsion based foundations, and lipsticks); men's products (lotions & balms, shaving oils, facial and body care); and, personal care/hygiene products (emulsion based deodorants, and antiperspirants). Additionally, there is potential application of CP Oat Oil as therapeutic product for anti-acne treatments and stretch mark remedies. Management thinks that CP Oat Oil use is ideal for sensitive skin or skin that is prone to inflammation and redness.

Intellectual Property

Ceapro's intellectual property is protected in jurisdictions around the globe. The intellectual capital, knowledge and patent portfolio of the company are the basis of designing, processing, and formulating active ingredients and formulations. Ceapro's patent portfolio covers the following three areas, in order to protect its inventions in the United States, Canada, Australia, Germany, Greece, Italy, Israel, Russia, India, China, and Japan:

- Process Patents for:
  - ✓ Core Technologies
- Composition and Methods of Use Patents for:
  - ✓ Active Ingredients
  - ✓ Therapeutic Products
  - ✓ Diagnostic Products

Financial Summary and Capital Structure

As of June 30, 2015, Ceapro had $0.55 million in cash and cash equivalents, as compared to $273k as of December 31, 2014. We believe that Ceapro will have to go out and raise additional capital soon in order to support its upcoming clinical studies and the completion of its new manufacturing facility.

Revenue in the second quarter 2015 was $2.4 million, which was approximately the same as the second quarter 2014. We would like to point out that the revenue for the first quarter 2015 was $1.7 million, and we believe the decrease in revenue was primarily due to the timing of a significant order of avenanthramides, in addition to the seasonal nature of the industry. R&D investments (net of grants) for the second quarter 2015 were $0.2 million. G&A expenses were $0.6 million in the quarter, as compared to $0.5 million for the same period in 2014. Net profit for the second quarter was roughly $0.65 million.

It's important to mention that for the year ended 2014, Ceapro reported a net income of $1.6 million, compared to a net income of $176k for the same period in 2013. This equates to an 806% growth in net income. Revenues for

2014 increased 36% from the previous year, from $6.5 million in 2013 to $8.9 million for the year ended 2014, primarily as a result of increased sales volumes of Ceapro's flagship product, avenanthramides, and oat oil.

In January 2015, Ceapro received conditional TSX-V approval for and closed a $650k first tranche private placement of eight percent unsecured convertible debentures due December 31, 2106, with interest payable on June 30 and December 31 of each year. The debentures are convertible into common shares of Ceapro at a price of $0.64 per common share and may be called for redemption upon 60 days' notice. The debentures and any common shares issued upon conversion of the convertible debentures are subject to a four-month hold period from the date of issue of the debentures. Ceapro will use proceeds from the first tranche of the debentures transaction for capital expenditures, research and development, new product development, general corporate and working capital purposes. Subsequently, in February 2015, Ceapro closed a $310k second tranche of this previously announced private placement under the same terms. In addition to raising the $960 million in non-brokered private placement as mentioned above, Ceapro also signed a loan agreement with Agriculture Financial Services Corporation in December 2014 for a commercial financing of up to $900k. The five year term loan, with an interest rate of 3.84%, will be used for capital expenditures related to Ceapro's new GMP facility.

MANAGEMENT PROFILES & BOARD OF DIRECTORS

Gilles Gagnon – President & Chief Executive Officer
Mr. Gilles Gagnon is the President and Chief Executive Officer of Ceapro Inc. He has also been President of Prodev Pharma Inc. since May 2007. Previously, he was CEO of AEterna Zentaris. During the past thirty years, Mr. Gagnon has worked at several management levels within the field of health, especially in the hospital environment and pharmaceutical industry where he participated in launching nine pharmaceutical products. Before coming to AEterna in 1999, Mr. Gagnon was Vice President, External Affairs, for Novartis Pharma Canada Inc. Mr. Gagnon holds a Master's degree in Pharmacology (M.Sc.), a Master's degree in Business Administration (MBA) from Sherbrooke University, a certificate in general management from the London Business School, UK, and holds an ICD.D certification for completing the Director's Education Program at the University of Tornoto's Rotman School of Management.

Stacy Prefontaine – Chief Financial Officer & Vice President of Finance
Ms. Prefontaine is a global finance and accounting executive with close to two decades of experience in public company external financial reporting, corporate tax compliance and planning, and accounting practices and controls. Prior to joining Ceapro, Ms. Prefontaine was a Principal at Grant Thornton LLP, where she led assurance services for a variety of public and private organizations for the last four years. She joined Grant Thornton in 2011 when it acquired Stout & Company LLP, an Edmonton accounting and advisory firm, where Ms. Prefontaine was a Partner. Previously, she was a manager for over five years at Collins Barrow Calgary LLP, one of Canada's largest associations of Chartered Accounting firms. Ms. Prefontaine earned her Bachelor of Commerce degree from the University of Alberta, Edmonton, Alberta, and her designation as Chartered Accountant from the Institute of Chartered Accountants of Alberta.

Glenn R. Rourke – Chair of the Board and Chair Audit Committee
Mr. Rourke is a native of Quebec City with degrees from Queen's University and a MBA from the University of Western Ontario. In 2006, he completed the Director's Education Program (DEP) of the Institute for Corporate Directors (ICD) and subsequently received the ICD.D certification. Retired since January 2006, Mr. Rourke worked with BMO Financial Group from 1970. He has worked in Tokyo, Singapore, and Hong Kong, involved in many aspects of International Banking, culminating with overall responsibility for the Bank's business in Hong Kong and The People's Republic of China. In 1981, served as Vice President of World Corporate Banking in Toronto, and then in 1985, served as a Senior Vice President and Head of Corporate Banking for Eastern Canada. Subsequent to the merger of Bank of Montreal Corporate Banking and Nesbitt Burns Investment Banking, he also assumed direct responsibility for a number of major Quebec-based banking relationships. Mr. Rourke holds numerous past and current directorships

William W. Li, M.D. – Board Member
Dr. Li is the President, Medical Director and Co-founder of the Angiogenesis Foundation. He has developed a social enterprise model based on international collaborations with leading medical academic centers, biopharmaceutical companies and government agencies, including the National Institutes of Health, National Cancer Institute and the Food and Drug Administration. Dr. Li's work has been published in Science, The New England Journal of Medicine, Nature Reviews Clinical Oncology, The Lancet and other peer-reviewed medical journals. He has been recognized by O Magazine, The Atlantic, USA Today, The New York Times, TIME Magazine, Wall Street Journal and CNN, as well as the Bill and Melinda Gates Foundation and the Clinton Global Initiative. Additionally, Dr. Li received his A.B. with honors from Harvard College, and his M.D. from the University of Pittsburgh School of Medicine, Pennsylvania. He completed his clinical training in General Internal Medicine at the Massachusetts General Hospital in Boston. Dr. Li has held appointments on the clinical faculties of Harvard Medical School, Tufts University, and at Dartmouth Medical School. He is an Honorary Fellow of the American College of Wound Care Specialists.

Don Oborowsky – Board Member
Mr. Oborowsky has been President and owner of Waiward Steel Fabricators Ltd. since 1972. Prior to co-founding Waiward Steel Fabricators, he spent five years in construction trades in Edmonton, as a carpenter with Mod Contracting, a steel fitter with Collins Steel Products, and as a steel fitter/erector with General Contracting. He is also part owner and president of three other Edmonton-based businesses – Waiward Excavators, Hustle Holdings, and Characters Fine Dining.

John Zupancic – Board Member
Mr. Zupancic is a Professional Engineer, having received his engineering degree from the University of Toronto in 1960. Mr. Zupancic was employed by Imperial Oil in various capacities, including Manager of Supply and Technical Services for the Strathcona Refinery. In 1986, while still employed by Imperial Oil, Mr. Zupancic undertook a secondment with the University of Alberta as the President of the Alberta Microelectronic Centre ("AMC"). AMC was a technology transfer company owned by the University of Alberta, focused on providing researchers from both the University of Alberta and the University of Calgary access to advanced microelectronic tools while undergoing the transfer of advanced electronic technology to the private sector.

Ulrich Kosciessa, Ph.D-Board Member
Dr. Kosciessa is a member of the Executive Management Board of Medac GmbH, Managing Director of Medac International, and Chairman of the Board of Medac Pharma Inc. Dr. Kosciessa has formed several subsidiaries and affiliates as well as established a network of global partners, growing the company's international business more than 50% since 2005. Since 2006, Dr. Kosciessa has also served as Chief Executive Officer of Photonamic, a subsidiary of Medac GmbH focused on research and development of photodynamic therapy and diagnostics. He has successfully developed two Photonamic products currently marketed in Europe, South America and the AsianPacific region plus Australia. From 2006 to 2008, Dr. Kosciessa also served as Chief Executive Officer at Immune Laboratory of Hannover, a research-based organization focused on autologous dendritic cell-based tumor vaccines. Prior to joining Medac GmbH, Dr. Kosciessa was a postdoctoral researcher at the neuroscience/neurodegenerative diseases division of Schering AG, a multinational pharmaceutical company. He received a B.S. in Biology and a Ph.D. in Molecular Biology from Georg-August University of Göttingen, Germany.

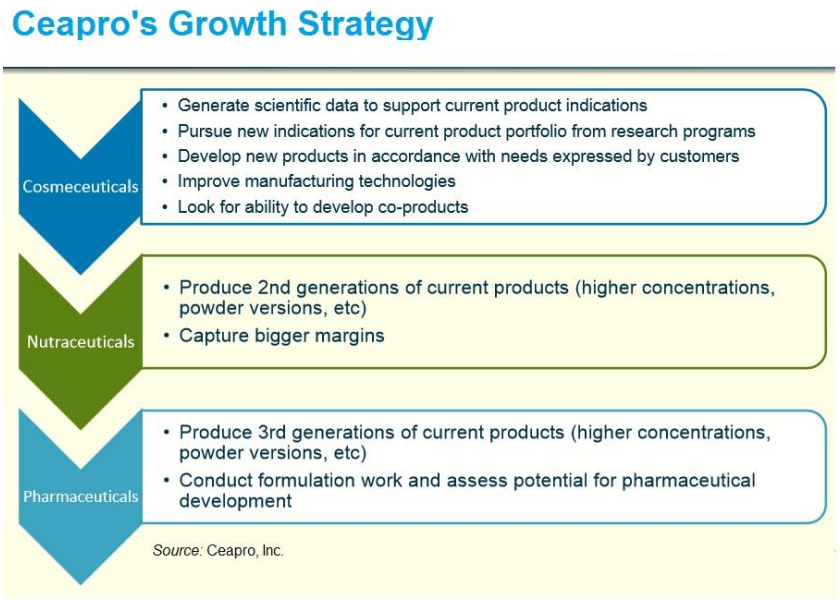
VALUATION AND RECOMMENDATION

We are initiating coverage of Ceapro Inc. (TSXV: CZO) with a “Buy” rating and a price target of CAD $0.50. Ceapro Inc. is a “green” growth-stage biotechnology company that focuses on the identification, isolation, extraction, purification, development and commercialization of natural, functionally active ingredients and extracts from oats, and other renewable botanical sources through the use of proprietary technology and sustainable resources.

The Market Opportunity & Growth Potential for Ceapro

According to market research conducted by Kline & Company, the global personal care/cosmetic market is projected to grow by approximately 9% annually, reaching $46 billion in global sales by 2018, with 7% projected annual growth rate in the U.S. and 6% in Europe. This source also projects $6.7 billion in U.S. sales, $16 billion in Asian sales, and $6 billion Euros in European sales all in 2015, with Brazil being the fastest growing natural personal care/cosmetic market in the world. Approximately 80-85% of all Ceapro sales currently are concentrated in the U.S., with the vast majority of the remainder in Germany. Obviously there is a large opportunity here to continue expanding in the U.S., Europe, Asia, and Brazil as these markets continue to grow.

Ceapro has a growth strategy in place to support the potential for significant market expansion and revenue generation. The company wants to continue to grow its customer base and presence in the personal care and cosmetic markets, while continuing to explore and clinically confirm new product applications for avenanthramides and beta glucan under different formulations. Ceapro is in the process of evaluating investment and financing options so it can move forward as rapidly as possible to assess the safety and efficacy of its value drivers, through clinical research programs to be conducted over the next two years. Ceapro’s core business, in our opinion, will continue to provide a growing revenue stream as the company explores other areas.



We view the Ceapro strategy as being promising and near-term catalysts of dry beta glucan as a potential in the functional food and nutraceutical markets, and long-term catalysts of dry formulations of avenanthramides as a potential for the nutraceutical and pharmaceutical markets are quite interesting. We believe there is significant potential to expand into the functional food/nutraceutical markets for possible metabolic diseases, and the pharma/OTC botanic drug markets for possible wound healing and metabolic diseases. That being said, the more immediate focus is on increasing the market presence in the personal care and cosmetics industries.

Ceapro currently sells its products in 200 kg drums to distributors like German-based Symrise, a global supplier of cosmetic active ingredients, fragrances, flavors, and raw materials, who then in turn sells Ceapro’s products directly to the large CPGs such as Johnson & Johnson. In 2014, according to the Statistics Portal, Aveeno (subsidiary of Johnson & Johnson) Active Naturals Daily Moisturizing brand had total sales of approximately $100 million. J&J

was ranked as the second leading hand and body lotion vendor in the U.S. with sales that were close to $245 million in 2013. Additionally, Ceapro directly supplies 20kg packs of avenanthramides to one of the top North American natural personal care brands, Burt's Bees®, a subsidiary of Clorox. We think that Ceapro has an opportunity to continue to grow its sales within this brand as it is continues to refine its technologies to ramp up high quality production of natural ingredients.

We believe German-based Symrise is currently Ceapro's most important distributor, followed by California based Ross Organic and United Kingdom's Oat Cosmetics. In July 2014, Symrise acquired the Diana Group, which delivers natural and functional food and pet food solutions, as well as dietary supplements. We believe that Symrise currently holds between 10-12% of the market as it pertains to fragrances, flavorings, cosmetic active ingredients, raw materials, functional ingredients, sensorial and nutritional solutions. We believe that if entry into the nutraceutical and functional food markets turns out successful for Ceapro, this would make for an interesting extension of the current relationship between Ceapro and Symrise/Diana Group. This could provide Ceapro with expansive market opportunity to increase its distribution of active ingredients throughout the globe across several different markets.

Additionally, Ceapro is currently working with other strategic world-wide partners to exclusively distribute and/or market its products and we see potential to increase this base in the near-term (*below*). We think there is substantial opportunity to attract other natural product distributors and manufacturers like International Flavors & Fragrances, Givaudan, and Firmenich International once Ceapro is able to prove that it can sustain a sizeable scale-up of production of their ingredients. Our hope is that Ceapro will remain focused on providing Symrise and other active distributor partners with what they want – purified, natural, "green" ingredients in larger quantities.



We believe that more successful partnerships and collaborations in the remainder of 2015 and 2016 will set the stage for revenue growth for Ceapro's existing products. In the past, Ceapro has developed partnerships and collaborations with research facilities such as the Food Processing Development Centre (FPDC) in Leduc, and NRC's Institute of Nutrisciences and Health, which has resulted in the development of a new laboratory to specifically study Ceapro bioactives in Charlottetown, PEI. Along the same lines, new process development is being investigated through collaborative efforts with the Food Technology Centre (FTC) also located in Charlottetown, PEI.

Ceapro is also currently evaluating newly discovered crops through in-license agreements and is concentrating efforts on bringing new products to market, with focus on Canadian crops. Ceapro notes that new natural plant sources are being investigated internally and amongst research partners and collaborators. Similarly, through strategic partnerships, we believe that Ceapro has the ability to rapidly screen new prototype extracts to reveal new functional activities. This could lead to Ceapro gaining access to additional unique botanical actives, which could pull in additional revenue if they can partner these ingredients the same way as they have done with AVA and beta glucan.

As mentioned previously, Ceapro has signed a series of licensing and development agreements with the University of Alberta for use of its PGX technology in all industrial fields in order to develop dry powder formulations for Ceapro's ingredients for select large markets including cosmeceuticals, functional food, nutraceutical and pharmaceutical industries. Although Ceapro remains largely focused on the personal care industry, we find the ability of PGX to cross over into other industries to be very appealing and, in our opinion, could provide significant upside potential in the near future. We think that Ceapro may have the opportunity to sub-license PGX technology to third parties and/or serve as a contract manufacturer. As per management, several multinational organizations in a variety of different industries have already executed confidentially agreements with Ceapro to assess their material with the proprietary PGX technology. Although this isn't the primary focus for the company at the current moment, there is definitely contract manufacturing potential for the future.

The company moved offices and research laboratories in 2014, and remains focused on implementing and commissioning its production area as a top priority for 2015 at the same time focusing on growth strategies. Ceapro is currently constructing a new 21,000 square foot GMP bio-processing extraction facility in Edmonton and moved its offices and R&D labs in October 2014. This $12 million facility, which is expected to be completed by the end of calendar year 2015, will hold a Natural Health Products license from Health Canada, and will allow for Ceapro to leverage its bio-processing technique to hopefully generate additional revenue from custom bio-processing for third party customers that have their own products and extraction processes. The company will need to raise an additional $3.7 million to complete the project, and we believe Ceapro intends to raise additional cash through some or all of the following methods: public or private equity or debt financing, income offerings, capital leases, collaborative and licensing agreements, and government funding programs. Currently, Ceapro has the ability to manufacture 3-4 tonnes per week (approximately 100-200 tonnes per year) of product using batch mode processes. Ceapro's plan is to implement a more efficient process at the new facility, with a semi-continuous and continuous manufacturing processes which will allow for the simultaneous production of multiple products, and the production of five to six times more material than the current setup. We believe that the first validation batch trials will be conducted during the first quarter of calendar year 2016, and that the facility should be functional later in the year assuming Ceapro is able to get the financing that it needs to complete the project.

With the new bio-processing facility in place, we believe that Ceapro will now be able to focus primarily on R&D efforts and commercial production of its existing core products, namely CP Oat Avenanthramide Extract, which represents close to 70% of revenues, and CP Oat Beta Glucan. Ceapro has graduated from lab scale to having pilot scale capability, which is a critical step for any biotechnology company to truly succeed. In this new facility, Ceapro hopes to continue developing new processes to complement its existing platform in order to develop and commercialize the next generation of products.

Valuation Methodology…

As mentioned above, one of the near term requirements for Ceapro will be to raise the remaining capital required for completion of the manufacturing of its new facility. Although Ceapro has yet to pre-sell the new capacity of the manufacturing facility, we believe with some further investment in sales and marketing, the company has an opportunity to expand its relationship with Symrise and other distributors. Although the company does have significant customer concentration, we believe its partnership with Symrise in particular, will assist them in selling the additional manufacturing capacity once the project is completed. We have not assumed any new sales in our model from the completion of the additional manufacturing capacity, and so this represents potential upside to the model.

Another risk we would also like to point out is that due to the nature of the industry, Ceapro's quarterly sales and results often fluctuate due to variations in the timing of customer orders, different product mixes, and changes in the capacity to manufacture products.

Our valuation model does not yet take into account commercialization of Ceapro's avenanthramides and/or beta glucan as pharmaceutical products, as we believe it is still very early on in the process. In the near future, we hope to learn more about the path forward for Ceapro's AVA and beta glucan products, and the potential indications and applications of these candidates in future clinical trial settings. If these potential candidates are eventually approved, we believe that there may be significant upside to our Ceapro valuation, and the overall Ceapro story.

In order to arrive at our target price, we chose a universe of comparable companies that include some larger, more mature chemicals and additives companies and some smaller, faster growing companies with more upside potential. The median trading range of the comparable company analysis is around 3.1x forward sales and the mean is around 3.9x. We split the difference and valued the company on a blended basis of approximately 3.5x sales. Using our full year 2016 estimate of $10.4 million in total revenues, we calculate an enterprise value of $36 million which translates to an equity value of $32.1 million after taking into account the current debt and cash positions. Based on a fully diluted share count of 65 million, we are initiating coverage with a target price of CAD $0.50 per share and a "Buy" rating.

PROJECTED FINANCIALS

Ceapro Inc. Income Statement

Ceapro Inc.	2014 A	Q1 A	Q2 A	Q3 E	Q4 E	2015 E	2016 E	2017 E	2018 E
AVA, Beta Glucan & Others	$8.9	$1.7	$2.4	$2.6	$2.7	$9.5	$10.4	$12.0	$13.8
YOY Growth	*36%*	*-12%*	*0%*	*6%*	*31%*	*6%*	*10%*	*15%*	*15%*
Total Revenues	**$8.9**	**$1.7**	**$2.4**	**$2.6**	**$2.7**	**$9.5**	**$10.4**	**$12.0**	**$13.8**
YOY Growth	*36%*	*-12%*	*0%*	*6%*	*31%*	*6%*	*10%*	*15%*	*15%*
Cost of goods sold	$4.1	$0.9	$0.7	$1.3	$1.4	$4.3	$5.2	$5.4	$6.2
Product Gross Margin	*54%*	*46%*	*72%*	*50%*	*50%*	*55%*	*52%*	*55%*	*55%*
R&D	$0.6	$0.1	$0.2	$0.3	$0.4	$1.0	$1.6	$2.1	$3.0
G&A	$2.0	$0.8	$0.6	$0.7	$0.8	$2.9	$3.0	$3.1	$3.2
Finance costs	$0.2	$0.1	$0.0	$0.0	$0.0	$0.2	$0.2	$0.2	$0.2
Income from operations	$2.0	($0.2)	$0.8	$0.3	$0.1	$1.0	$0.3	$1.1	$1.1
Operating Margin	*22%*	*-13%*	*35%*	*10%*	*4%*	*10%*	*3%*	*9%*	*8%*
Other operating loss	($0.4)	($0.0)	($0.2)	($0.0)	($0.1)	($0.4)	($0.4)	($0.4)	($0.4)
Pre-Tax Income	$1.6	($0.2)	$0.7	$0.2	($0.0)	$0.6	($0.0)	$0.7	$0.7
Income Taxes Paid	$0.0	($0.0)	$0.0	$0.0	$0.0	($0.0)	$0.0	$0.0	$0.0
Tax Rate	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
Net Income	**$1.6**	**($0.2)**	**$0.7**	**$0.2**	**($0.0)**	**$0.7**	**($0.0)**	**$0.7**	**$0.7**
Net Margin	*18%*	*-11%*	*27%*	*8%*	*-1%*	*7%*	*0%*	*6%*	*5%*
Reported EPS	**$0.03**	**($0.00)**	**$0.01**	**$0.00**	**($0.00)**	**$0.01**	**($0.0)**	**$0.01**	**$0.01**
YOY Growth	*893%*	*-207%*	*3%*	*-73%*	*-116%*	*-63%*	*-101%*	*-2630%*	*-5%*
Basic Shares Outstanding	60.9	61.5	61.7	70.1	78.5	68.0	79.0	80.0	81.0

Source: Company Filing // Zacks Investment Research, Inc. Estimates

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