

Trickle Research

Every raging river, every great lake, every
deep blue sea starts ... with a trickle



Initiating Research Coverage



Sonoma Pharmaceuticals, Inc.

(NASDAQ: SNOA)

Report Date: 05/11/23

12- 24 month Price Target: \$3.00

Allocation: 4

Closing Stock Price at Initiation (Closing Px: 05/11/23): \$1.03

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Disclosure: Portions of this report are excerpted from Sonoma's filings, website(s), presentations or other public collateral. We have attempted to identify those excerpts by *italicizing* them in the text.

Company Overview

We are a global healthcare leader for developing and producing stabilized hypochlorous acid, or “HOCl”, products for a wide range of applications, including wound care, animal health care, eye care, oral care and dermatological conditions. Our products reduce infections, itch, pain, scarring and harmful inflammatory responses in a safe and effective manner. In-vitro and clinical studies of HOCl show it to have impressive antipruritic, antimicrobial, antiviral and anti-inflammatory properties. Our stabilized HOCl immediately relieves itch and pain, kills pathogens and breaks down biofilm, does not sting or irritate skin and oxygenates the cells in the area treated, assisting the body in its natural healing process. We sell our products either directly or via partners in 55 countries worldwide, including all 27 members of the European Union. Further, Sonoma’s product suite includes 21 FDA 510K clearances, as well as 39 CE Mark approvals (EU) and 25 patents.

Our core market differentiation is based on being the leading developer and producer of stabilized hypochlorous acid, or HOCl, solutions. Unlike many of our competitors, we have been in business for over 20 years, and in that time we have developed significant scientific knowledge of how best to develop and manufacture HOCl products backed by decades of studies and data collection. HOCl is known to be among the safest and most-effective ways to relieve itch, inflammation and burns while stimulating natural healing through increased oxygenation and eliminating persistent microorganisms and biofilms.

After three years of restructuring the Company, we are now focused on growing our revenues while maintaining costs. During 2021, we built out our Boulder, Colorado office with new sales and marketing staff. We are beginning to see growth in the U.S. market with new customer and distributor relationships while concurrently building on organic growth from existing customers. We have also focused on introducing new products into multiple markets around the world and increasing our regulatory reach by seeking new approvals and clearances. Historically, Sonoma has generated approximately 75% of its revenues outside of the U.S.

The Company derives the majority of its revenue through sales of its products directly to end users and to distributors. The Company also sells products to a customer base, including hospitals, medical centers, doctors, pharmacies, distributors and wholesalers. The Company also has entered into agreements to license its technology and products.

Sonoma manufactures and ships all its product from its state-of-the-art facility in Guadalajara, Mexico. The current capacity of the Guadalajara plant is several times the Company’s current run rate.

The Company originally incorporated as Micromed Laboratories, Inc. in 1999 changed its name to Oculus Innovative Sciences, Inc. in 2001 and ultimately to Sonoma Pharmaceuticals Inc. in 2016. Since its inception, the business has centered on their proprietary technology, which enables them to cost effectively create *hypochlorous acid* that can maintain its stability (shelf life) for long periods of time (years). That stable state provides marked opportunities for commercial uses of HOCl that are certainly less robust without that advantage. We will address that issue further in this report. That said, since its inception 24 years ago, the Company has embarked on a variety of strategies to try to optimize the commercialization of the technology, which in total have certainly proven *less than* optimal. In retrospect, we think some of their challenges have centered on trying to identify viable iterations of and markets for the product and right sizing the business (overhead) around reasonable expectations therein. Succinctly, current management has spent the past 3 years trying to unwind some of the Company’s missteps in that regard, while at the same time, refocusing on “hitting singles rather than home runs”. Here again, we will cover some of that in the body of this report.

We think it is fair to say that management believes there are many potential opportunities for their stable HOCl offering and those may include adding new distribution partners both domestically and internationally, continued collaboration with relevant partners on new products and then introducing those new products into new markets, increasing their B2C efforts by enhancing their social media presence, pursuing additional high value regulatory designations that can perhaps create higher margin and differentiated versions of the technology. We also think it is fair to say that management believes that after considerable restructuring, they are in a better position to grow the business than they have been in a very long time and as such the wind may now be at their back.

Technology/Product Overview

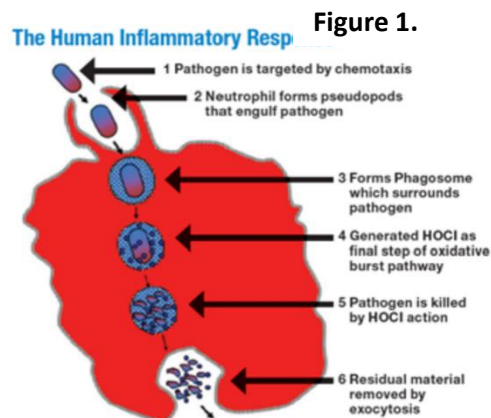
As noted, Sonoma’s technology/product suite is all based on their ability to generate shelf stable hypochlorous acid, (“HOCl”) at scale to and to in turn create commercial products around the technology. The Company refers to its proprietary technology as “Microcyn®”. We would add, the Company notes that there are currently **“over 100 research articles, posters, case and clinical studies that showcase both the efficacy and safety of the Microcyn® technology”**. Further, many of those studies are available on the Company’s website: <https://sonomapharma.com/> . That said, we will start from the 10,000-foot view.

- The Benefits of HOCl

- Immune Response to Pathogens

Hypochlorous acid is produced by the white blood cells (neutrophils) of all mammals as part of their (our) immune systems. More specifically from Wound Care Healing Network ([Hypochlorous Acid: An Ideal Wound Care Agent With Powerful Microbicidal, Antibiofilm, and Wound Healing Potency \(hmpglobelearningnetwork.com\)](http://www.hmpglobelearningnetwork.com)):

“One of the remarkable features of the immune system against invading pathogens is its ability to generate an effective and rapid response by developing a group of highly reactive chemicals, such as reactive oxygen species (ROS). The mitochondrial membrane-bound enzyme nicotinamide adenine dinucleotide phosphate-oxidase (NADPH) is a primary enzyme responsible for ROS production. During the activation of neutrophils, respiratory bursts generate hydrogen peroxide (H₂O₂) and the activated granule enzyme myeloperoxidase converts H₂O₂ to hypochlorous acid (HOCl) in the presence of Cl⁻ and H⁺. Hypochlorous acid leads to cell death by the oxidation of sulfhydryl enzymes and amino acids, ring chlorination of amino acids, loss of intracellular contents, decreased uptake of nutrients, inhibition of protein synthesis, decreased oxygen uptake, oxidation of respiratory components, decreased adenosine triphosphate production, breaks in DNA, and depressed DNA synthesis. Hypochlorous acid is highly active against all bacterial, viral, and fungal human pathogens and a small amount of HOCl can kill spore-forming and non-spore bacteria in a short time period”.



From The scientific bases for the use of hypochlorous acid to avoid pitfalls. Wounds. 2014;26(suppl):s46-s67. Image provided courtesy of Urgo Medical.¹³

- **Inflammation**

Aside from its antipathogenic profile, HOCl has also been indicated in reducing inflammation, which often manifests as itching and/or pain, at the wound (or other compromised) site.

From Status Report on Topical Hypochlorous Acid: Clinical Relevance of Specific Formulations, Potential Modes of Action, and Study Outcomes - PMC (nih.gov) :

*HOCl exhibits broad-spectrum antimicrobial activity that is directly toxic to many bacteria and fungi and might also impart antiviral properties. **Hypochlorous acid exhibits anti-inflammatory and immunomodulatory properties based on multiple laboratory analyses.** These properties appear to correlate with the potential therapeutic benefits of topically applied HOCl for a variety of skin disorders. Topical formulations of stabilized, pH-neutral HOCl (e.g., solution, gel, spray) have been evaluated in several studies **demonstrating both antimicrobial effects and therapeutic benefit in many cutaneous disorders**, including seborrheic dermatitis, atopic dermatitis-associated pruritus, acne vulgaris, diabetic foot ulcers, and hypertrophic scars/keloids. Topical HOCl appears to be well tolerated and safe, without any major adverse events reported.*

- **Wound Healing and Regenerative Care**

Some of HOCl's more remarkable visual attributes include its efficacy in examples of wound healing across a variety of maladies (ulcers, burns, abrasions and others). It is believed that HOCl supports wound healing on multiple fronts.

Again from: Status Report on Topical Hypochlorous Acid: Clinical Relevance of Specific Formulations, Potential Modes of Action, and Study Outcomes - PMC (nih.gov) :

“Most chronic wounds are related to diabetes mellitus, venous stasis, peripheral vascular diseases, and pressure ulcerations. An open wound is a favorable niche for bacterial colonization and infection. Infection in chronic wounds starts with contamination, then colonization and critical colonization take place before an infection forms. Biofilm formation is now recognized as a serious problem in chronic wound infections. Biofilm is a complex structure of microorganisms that generate a protective shell, allowing bacteria to collect and proliferate. Most of the microorganisms that form biofilms can also be found growing in microbial infections. The same species of bacteria have significant differences in existence that range either free floating and living within the biofilm. The biofilm structure of microorganisms renders phagocytosis difficult, increases resistance to antibiotics, and adheres to unfavorable niches such as chronic wounds... These findings support stabilized HOCl solution as an ideal wound care solution with a powerful and rapid killing effect on different types of microorganisms, antibiofilms, and microbicidal effect within the biofilm. Foremost, it has dose-dependent favorable effects on fibroblast and keratinocyte migration. These features lead to a stabilized HOCl solution as an ideal wound care agent...”

To translate this a bit, the formation of biofilm on wounds is both common and undesirable. Biofilm often harbors pathogens such as bacteria and make typical pathogen mitigation (the delivery of white blood cells-phagocytosis, as well as the delivery of antibiotics) less effective. HOCl is effective at breaking down biofilm.

Further it has been demonstrated that HOCl applications are “*a gentle and safe solution that **increases blood/oxygen flow to the wound**, resulting in faster, more effective healing*”.

From: [Oxygen: Implications for Wound Healing - PMC \(nih.gov\)](#)

Oxygen is vital for healing wounds. It is intricately involved in numerous biological processes including cell proliferation, angiogenesis, and protein synthesis, which are required for restoration of tissue function and integrity. Adequate wound tissue oxygenation can trigger healing responses and favorably influence the outcomes of other treatment modalities. Chronic ischemic wounds fail to heal appropriately secondary to extreme hypoxia that leads to cellular demise.

From: [Topical stabilized hypochlorous acid: The future gold standard for wound care and scar management in dermatologic and plastic surgery procedures \(kikgel.com.pl\)](#)

“Oxygen plays a critical role in the formation of collagen, the growth of new capillaries, and the control of infection. Perfusion and delivery of O₂ to tissue are closely related. A study by Bongiovanni investigated effects of topical HOCl in the treatment of patients with venous leg ulcers, including time to wound healing. By assessing micro-circulatory integrity (oxygenation), the author established most patients had elevated transcutaneous oxygen pressure (TcPO₂) levels in peri-wound tissues 15-30 seconds after exposure to HOCl and continued to have elevated TcPO₂ levels some 72 hours after exposure. All venous wounds treated in the study healed, with time to wound closure ranging from 2 to 5 days to ~180 days”.

- **Safety**

While HOCl is effective against a variety of pathogens, reduces inflammation and promotes healing, it also possesses a much better cytotoxicity profile than other topical treatments commonly used to disinfect or otherwise treat skin and/or wounds including things like iodine, chlorhexidine and hydrogen peroxide. Used in moderate concentrations (well capable of killing most pathogens), HOCl will not typically irritate skin (and often makes it feel better), will not irritate mucosa such as the eye and nose, and is *generally* safe (although not recommended) to ingest, making it a viable alternative to common dental rinses such as chlorhexidine. Moreover, it is also safer than other commonly used disinfectants such as bleach and/or ammonia but is considerably more effective. For instance, while both are chlorine derivatives (HOCl vs. NaClO), HOCl is believed to be “100 times more effective than bleach”. In fact, as we will touch on in the Industry Overview of this document, some of the broader uses of HOCl include solutions designed to disperse HOCl in medical facilities, restaurants, sports venues etc. The chart below provides a more specific visual of the efficacy comparison between HOCl and bleach on specific pathogens:

Figure 2.

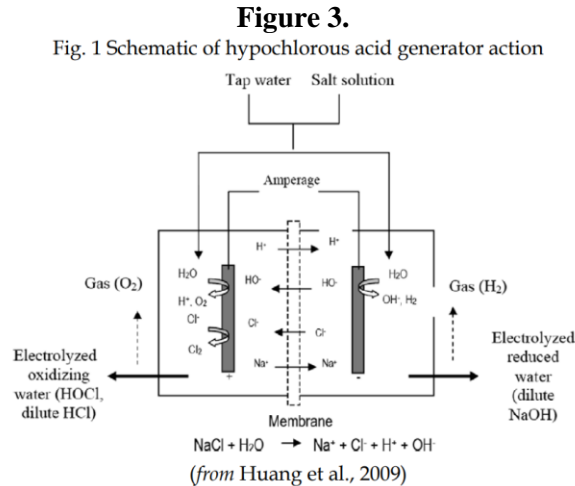
Pathogen	Bleach or HOCl	PPM (based on test evidence)	Contact time for >2Log ₁₀ reduction
E. coli ¹	Bleach	200	10 minutes
E. coli ²	HOCl	100	5 seconds
COVID-19 ³	Bleach	1,000	1 minute
COVID-19 ⁴	HOCl	62	30 seconds
Salmonella ⁵	Bleach	100	1 minute
Salmonella ⁶	HOCl	100	5 seconds
Mycobacterium tuberculosis ⁷	Bleach	10,000	1 minute
Mycobacterium tuberculosis ⁸	HOCl	80	30 seconds
Norovirus ⁹	Bleach	5,000	3.2 minutes
Norovirus ¹⁰	HOCl	50	1 minute
Avian Bronchitis ¹¹	Bleach	5,000	30 minutes
Avian Bronchitis ¹²	HOCl	62	30 seconds

[Hypochlorous acid versus bleach: What’s the difference? – Hypo Source](#)

To summarize the above, HOCl is a non-toxic and highly effective compound that our bodies produce naturally every day to fight pathogens including viruses, bacteria, and fungus. Aside from killing pathogens it also enhances wound healing, reduces inflammation and is a potent surface disinfectant making it an excellent weapon for the healthcare industry. Moreover, it is also simple and inexpensive to generate at scale, which begs the question, “why doesn’t the world use more HOCl”? The answer is, while HOCl is all the things we described above ... there’s a catch.

On one hand, it is relatively simple to produce HOCl, as it is a product of the electrolysis salt water:

From: [Hypochlorous Acid \(usda.gov\)](http://www.usda.gov)



The effectiveness of hypochlorous acid as an active sanitizing agent is determined in large part by the pH, a measure of the acidity or hydrogen ion concentration of the solution. Hypochlorous acid exists interchangeably with other chlorine species, including chlorine, hydrogen chloride (aqueous and gaseous) and hypochlorite. This is supported by the equilibrium chemistry of active chlorine. In a controlled pH environment, hypochlorous acid will exist as the dominant chlorine species under pH conditions ranging from 2 to 7.5.

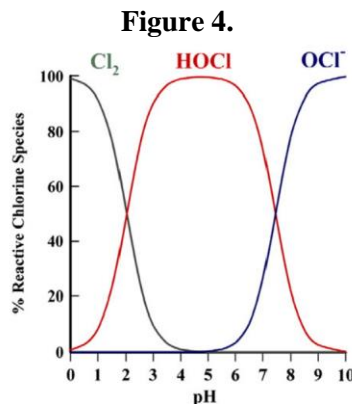


Fig. 2 The pH profile for reactive chlorine species
The relative concentrations of molecular chlorine (Cl₂; green), hypochlorous acid (HOCl; red) and hypochlorite (OCl⁻; blue) were calculated at 140 mM chloride using $K = 1.3 \times 10^{-3} \text{ M}^2$ for reaction 1 and a pKa of 7.44 for the reaction $\text{HOCl} \rightarrow \text{OCl}^- + \text{H}^+$ (Kettle et al., 2014)

Further from: [Hypochlorous Acid: A Review - ScienceDirect](#)

Rossi-Fedele et al investigated the shelf life of HOCl by being either exposed to or protected from sunlight. When the HOCl solution was exposed to sunlight, the chlorine reduction started on day 4. When it was sheltered from sunlight, the chlorine reduction started after day 14. The half-life increases with decreasing pH owing to the decreasing ratio of OCl⁻ to HOCl. The parts per million (ppm) is the concentration of the -OCl, which is the active ingredient and is known as the available free chlorine (AFC) in the solution. HOCl solutions are less stable when exposed to UV radiation, sunlight, or contact with air or when the temperature of the solution is elevated greater than 25°C. HOCl solutions should be stored in cool, dark places, and contact with air should be minimized. The water for fabrication should be water that contains organic and inorganic ion concentrations that are as small as possible.

Given the above, here is “the catch”. While with proper equipment HOCl can be produced at scale and inexpensively with water, salt and electricity, it is innately unstable, which means that over relatively short periods of time its nature is to turn back into water and salt. Further, as **Figure 4** above reflects, creating near pure HOCl via electrolysis also requires achieving (and maintaining) optimal pH levels, which for HOCl is a pH of 5. As a result, to create a commercially viable HOCl solution or other derivative therein, one would need to first figure out how to stabilize it (extend its shelf life), produce it consistently to optimal pH levels, and then develop products with consistent dilutions (parts per million “ppm”) for specific applications. For instance, a product to be used as a general surface disinfectant, might require higher ppm than a topical product for treating wounds. In that regard, Sonoma’s patented technology (25 patents) allows them to create stable HOCl with a 3-year shelf life, in consistent purities and controlled dilutions. As a result, as we will delineate below, they have been able to leverage that intellectual property to create dozens of products, which are currently sold in 55 countries.

- **Products and Marketing Strategy**

Currently, Sonoma has a multipronged marketing approach that involves consumer OTC products, as well as professional versions of the products that require a prescription. All of their products include the Company’s proprietary Microcyn Technology. They sell their OTC products through online direct-to-consumer efforts as well as through distributors, some of which are available at “big box” retailers. They have distributors that sell their products in the U.S as well as internationally, and that includes distributors who have developed their own products around the Microcyn technology (“Microcyn Inside” if you will), and in some of those cases, they have taken those products and introduced them to new markets outside of the distributor’s footprint.



Frankly, we think the marketing process is a bit complex, and we will address some of those arrangements and products briefly below, but before we do that, we think it is important to highlight something that we believe impacts the sales and marketing channels.

Recognize, inasmuch as we are of the view that the world generally is unaware of the benefits of HOCl on multiple fronts, *there are other companies* that sell HOCl based products. However, as we alluded to above over nearly 20 years, the Company has developed an elegant system to produce stable HOCl in consistent pH and dilution iterations at scale. That said, we submit, we have not attempted to chase down and compare all the purveyors of one form of HOCl or another, but we suspect there are competing products that run the gambit between reasonably comparable and junk. From another perspective, while we are not aware of the qualifications and rigors of the competition, we *are aware* of the qualifications and rigors of Sonoma’s

products. Specifically, Sonoma's product suite includes 21 FDA 510K clearances, as well 39 CE Mark approvals (EU) and 25 patents. (To edify, oddly enough, the FDA generally requires products for patient use containing HOCl to be cleared/registered under their 510k medical device protocols). We will revisit that notion later in this report, but we think it speaks to the breadth of their product base.

Currently, the Company sells several products for a variety of indications directed through multiple sales channels. All these products are HOCl based, but with varying pH and/or dilution profiles. We have listed *just some of* the products below to illustrate the diversity of indications (wound care, dental, eyes), varying form factors (sprays, gels), and different sales channels (the "Professional" lines and others are sold via prescription through health care providers, while others are sold over-the-counter). Further, they have products they sell in other parts of the world, but not in the U.S., which is largely driven by the CE Mark vs. FDA clearance for individual products. For instance, instance they sell Microdacyn60 Oral Care outside of the U.S. under CE Mark, but not in the U.S. (yet) as they are currently pursuing 510K clearance. Notice, many of the (same) products are sold under different names in particular parts of the world, as a result of their various regional partners. They also have lines of surface disinfectants they sell internationally (largely the Middle East) and are planning to sell in the U.S. To edify, for surface disinfectants, they already have EPA approval but are awaiting some individual state approvals. In addition, they have an animal health line ("AH"), which they sell through retailers including PetSmart and Tractor Supply, but also sell in some countries outside of the U.S.

Professional/ Rx

Microcyn Professional - Irrigation Solution
Microcyn Professional - Wound Treatment Solution
Regenacyn Plus Professional - Scar Management
Endocyn - Root Canal Irrigation
Acuicyn - Eyelid and Eyelash Cleanser

Animal Health

MicrocynAH - Animal Health

Over The Counter

Ocucyn - Eyelid and Eyelash
Reliefacyn PLUS - Itch-Burn-Pain-Rash Hydrogel
Rejuvacyn Plus -Skin Repair Cooling Mist
Microcyn OTC - Advanced Wound and Skin Cleanser
Pediacycyn - Skin Care & First Aid for Children
Reliefacyn - Itch • Burn • Rash • Pain Relief
Rejuvacyn - Skin Repair
Regenacyn - Scar Management
Podiacycyn - Advanced Everyday Foot Care

Europe

Sinudox - Nasal Irrigation
Ocudox - Eye Lid Solution
Gramaderm - Acne
Microdacyn60 - mouth and throat infections

Hong Kong

Microdacyn60 - mouth and throat infections

Latin America

Microdacyn - Wound Care
Celacycyn - Scar Management Gel
Gramacycyn - Acne

Philippines

Microdacyn - Wound Care

China

Microcyn - Wound Care

Australia

Microdox - Super Oxidized
Bladder & Catheter Rinse

South Korea

Biodacycyn60 - Wound Care

As we noted, much of the Company's business is done through various partners they have around the world, and in some cases, those partners have collaborated on and helped pay for the FDA and/or CE Mark clearances, in exchange for (for instance) exclusive marketing rights in particular parts of the world. As

Figure 5 below reflects, they have forged many of these partnerships (38 to date) but are looking to add several more.

Figure 5.

Our Global Brands & Partners

Growing our own brands and/or partner brands



Below is a sample of specific distributor information excerpted from the Company’s filings regarding *a few* of their more topical distributor arrangements. As we think the following illustrates, the Company’s distribution efforts are robust. Notice, and we think this is important to keep in mind, some of the products mentioned below are not available in all parts of the world. However, part of Sonoma’s growth strategy is to seek appropriate approvals to forge relationships and market them in parts of the world where they currently do not, thus leveraging products that have already been developed.

First Aid and Wound Care

Our HOCl-based wound care products are intended for the treatment of acute and chronic wounds as well as first- and second-degree burns. In the United States, we sell our wound care products directly to hospitals, physicians, nurses, and other healthcare practitioners and indirectly through several non-exclusive distribution arrangements.

- *To respond to market demand for our HOCl technology-based products, we launched our first direct to consumer over-the-counter product in the United States in February 2021. Microcyn® OTC Wound and Skin Cleanser is available without prescription through Sonoma’s online store.*
- *In Europe, we rely on agreements with country-specific distributors for the sale of our wound care products under a variety of brand names into 27 countries, including Austria, Belgium, Croatia, Italy, the Netherlands, Germany, Greece, Hungary, the Czech Republic, Spain, Norway, Switzerland, Poland, Portugal, Slovenia, the Slovak Republic, Finland, Denmark, Montenegro and Serbia.*

Eye Care

Our prescription product Acucyn™ is an antimicrobial prescription solution for the treatment of blepharitis and the daily hygiene of eyelids and lashes and helps manage red, itchy, crusty and inflamed eyes. It is strong enough to kill the bacteria that causes discomfort, fast enough to provide near instant relief, and gentle enough to use as often as needed.

- *In the United States, our partner EMC Pharma is selling our prescription-based eye care product through its distribution network.*
- *On September 28, 2021, we launched Ocucyn Eyelid & Eyelash Cleanser, which is sold directly to consumers on Amazon.com. Ocucyn Eyelid & Eyelash Cleanser, designed for everyday use, is a safe, gentle, and effective solution for good eyelid & eyelash hygiene.*
- *In international markets we rely on a network of distribution partners to sell our eye products. On May 19, 2020, we entered into an expanded license and distribution agreement with our existing partner, Brill International S.L. for our Microdacyn60® Eye Care HOCl-based product. Under the license and distribution agreement, Brill has the right to market and distribute our eye care product under the private label Ocudox™ in Italy, Germany, Spain, Portugal, France, and the United Kingdom for a period of 10 years,*

Oral, Dental and Nasal Care

We sell a variety of oral, dental, and nasal products around the world.

- *In late 2020 we launched two HOCl-based products in the dental, head and neck markets and launched Endocyn®, a biocompatible root canal irrigant. In August 2021, we launched OroGenix Oral Hygiene Rinse. In the U.S., we sell our dental products through U.S.-based distributors.*
- *Internationally, our product Microdacyn60® Oral Care treats mouth and throat infections and thrush. Microdacyn60 solution assists in reducing inflammation, pain, soothing cough relief and does not contain any harmful chemicals. It does not stain teeth, is non-irritating, non-sensitizing, has no contraindications and is ready for use with no mixing or dilution. In New Zealand and Australia, our partner Te Arai BioFarma Ltd. markets our oral product under their label Oracyn® Oral Care. Our partner, Dyamed Biotech, expects to launch Oracyn® Oral Care in parts of Asia this year. On January 18, 2022, we partnered with Anlicare International to seek regulatory clearances for our dental and oral products in China and Macau.*
- *Our international nasal care product Sinudox™ based on our HOCl technology is a solution intended for nasal irrigation. Sinudox Hypotonic Nasal Hygiene clears and cleans a blocked nose, stuffy nose and sinuses by ancillary ingredients that may have a local antimicrobial effect. Sinudox is sold through Amazon in Europe. In New Zealand and Australia, our partner Te Arai markets our nasal product under their label Nasocyn® Nasal Care.*

Animal Health Care

- *For our animal health products sold in the U.S. and Canada, we partnered with Manna Pro Products, LLC to bring relief to pets and peace of mind to their owners. Manna Pro distributes non-prescription products to national pet-store retail chains, farm animal specialty stores, in the*

United States and Canada, such as Chewy.com, PetSmart, Tractor Supply, Cabela's, PetExpress, and Bass Pro Shops. Additionally, we recently expanded our animal health product offerings by adding a MicrocynAH line for felines at PetSmart.

- *For the Asian and European markets, on May 20, 2019, we partnered with Petagon, Limited, an international importer and distributor of quality pet food and products for an initial term of five years. We supply Petagon with all MicrocynAH products sold by Petagon. On August 3, 2020, Petagon received a license from the People's Republic of China for the import of veterinary drug products manufactured by us. This is the highest classification Petagon and Sonoma can receive for animal health products in China.*

Surface Disinfectants

- *In-vitro and clinical studies of HOCl show it to have impressive antipruritic, antimicrobial, antiviral and anti-inflammatory properties. HOCl has been formulated as a disinfectant and sanitizer solution for our partner MicroSafe Group, Dubai, and is sold in numerous countries. It is designed to be used to spray in aerosol format to areas and environments which are suspected to serve as a breeding ground for the spread of infectious disease, likely to result in epidemics or pandemics. The medical-grade surface disinfectant solution is used in hospitals worldwide to keep doctors and patients protected and safe. In May 2020, Nanocyn® Disinfectant & Sanitizer, received approval to be entered into the Australian Register of Therapeutic Goods, or ARTG, as well as in Canada, for use against the coronavirus SARS-CoV-2, or COVID-19.*
- *Through our partner MicroSafe Group DMCC, Dubai, we sell hard surface disinfectant products into the U.S., Europe, the Middle East and Australia.*
- *On July 31, 2021, we granted MicroSafe the non-exclusive right to sell and distribute Nanocyn in the United States provided that MicroSafe secures U.S. EPA approval. In April of 2022, MicroSafe secured the EPA approval for Nanocyn® Disinfectant & Sanitizer, meaning that it can now be sold in the United States as a surface disinfectant, and it was subsequently added to the EPA's list N for use against COVID-19. We intend to build upon this ground-breaking approval by securing further approvals of this nature. Nanocyn® is a hospital-grade disinfectant and manufactured by us using our patented HOCl technology. Nanocyn® is currently sold by MicroSafe in Europe, the Middle East and Australia.*

Dermatology

Sonoma Dermatology has developed unique, differentiated, prescription-strength and safe dermatologic products that support paths to healing among various key dermatologic conditions. Our products are primarily targeted at the treatment of acne, the management of scars and atopic dermatitis.

- *In the United States, we partner with EMC Pharma, LLC to sell our prescription products for an initial term of five years, subject to meeting minimum purchase and other requirements. Pursuant to our agreement with EMC Pharma, we manufacture products for EMC Pharma and EMC Pharma markets, sells and distributes them to patients and customers.*
- *On September 28, 2021, we launched a new over-the-counter product, Regenacyn® Advanced Scar Gel, which is clinically proven to improve the overall appearance of scars while reducing pain, itch, redness, and inflammation. Additionally, on the same day, we launched Regenacyn® Plus, a prescription-strength scar gel which is available as an office-dispense product through physician*

offices. Our consumer products are available through Amazon.com, our website and U.S.-based distributors.

- We sell dermatology products in Europe, Asia, and Brazil through a distributor network. In these international markets, we have a network of partners, ranging from country specific distributors to large pharmaceutical companies to full-service sales and marketing companies. We work with our international partners to create products they can market in their home country. Some products we develop and manufacture are private label while others use branding we have already developed. We have created or co-developed a wide range of products for international markets using our core HOCl technology.

We would add, **Figure 6** is a photo we took on our site visit to the Company’s headquarters in Boulder, Colorado, of a display in their entry, which we included to further illustrate the diversity of products/packaging they sell around the world. We have also included some additional examples of current products/packaging. Thereafter, under the assumption that “a picture is worth a thousand words” we have also provided some “before & after” photos of some of their treatment success.

Figure 6.



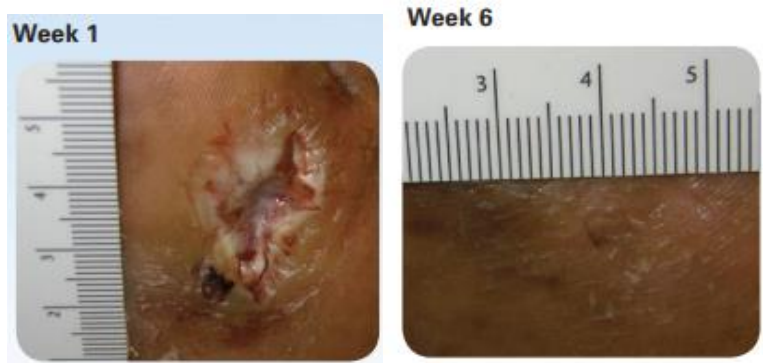
Microsafe
Disinfectant & Sanitizer



MEDICAL HISTORY Sixty-five year old man who developed stage IV decubitus ulcer on left buttock while immobilized following major surgery. At the time of referral to the specialty wound clinic, the lesion had worsened over a six-week period and was found to be infected with methicillin resistant *Staphylococcus aureus* (MRSA)



MEDICAL HISTORY Sixty-two year old male presented with a worsening diabetic ulcer overlying the plantar surface of the second and third metatarsal heads of the left foot. The patient stated that the lesion had been present for many years and had never healed completely despite ongoing medical care. Patient had an extensive history of poor glycemic control for many years and, on initial workup, had a blood glucose level >400 mg/dl. Cultures of this wound were positive for methicillin resistant *Staphylococcus aureus* (MRSA) and *Pseudomonas aeruginosa*; patient's renal failure precluded treatment with vancomycin, the only agent to which both organisms were sensitive. A cerebrovascular accident in 2004 resulted in the patient's inability to walk without a cane for stability. The patient was partially blind and unable to read.



As we alluded to above, we are not sure how to think about the hypochlorous acid “industry” because we are largely of the view that Sonoma’s biggest problem is that there isn’t one. That is, we think there is a general lack of awareness regarding the various attributes of HOCl in terms of its ability to kill pathogens, enhance wound care, disinfect surfaces and others both effectively and safely. However, as we also reflected above, it appears that part of the lack of acceptance of HOCl is related to its unstable nature, which certainly mitigates its practical use in most settings. In part, the market has attempted to work around that issue with solutions like electrolysis machines and premixed applications that can produce HOCl on demand, which of course is subject to a “use it or lose it” scenario. While that may work in some instances, especially in some large-scale applications (agriculture for example) it is likely not practical in most cases. To translate, while we have suggested that a lack of awareness of *the power of HOCl* is a problem, the reality is that the greater problem may be the lack of awareness *around the availability of shelf stable HOCl*. To be clear, one of the primary reasons we are bullish on the Sonoma story is that while they have spent the past 3 years or so cleaning up some of the missteps of the past, we think they are now beginning to focus on driving their shelf stable story in the marketplace.

While HOCl may have some awareness challenges, it certainly addresses some considerable markets worldwide. As most familiar with our research are aware, we often cite industry research, but we are often skeptical of some of its conclusions. That is not because we think those providing it are incapable, we just think it is a difficult task. On the other hand, we do think it often provides a good framework with respect to the size and perhaps trajectory of the industry in question. In that regard, from Grandview Research [Antiseptics And Disinfectants Market Size Report, 2030 \(grandviewresearch.com\)](https://www.grandviewresearch.com) :

The global antiseptics and disinfectants market size was valued at USD 34.9 billion in 2021 and is expected to witness a compound annual growth rate (CAGR) of 10.1% from 2022 to 2030. An increase in the prevalence of diseases such as typhoid, cholera, hepatitis A, food poisoning, and dengue, primarily due to lack of home cleanliness, is one of the major factors expected to drive market growth. For instance, as per a report published by WHO in 2022, Over the last two decades, the number of dengue cases reported to WHO has surged by more than 8-fold, from 505,430 cases in 2000 to over 2.4 million in 2010, and 5.2 million in 2019. Such diseases are mainly caused by viruses, bacteria, and germs, which thrive in unhealthy home environments and unhygienic toilets, latrines, and kitchens.

The application of antiseptic and disinfectant solutions is, therefore, an essential requirement to maintain home cleanliness. Such solutions prevent the growth of harmful bacteria and viruses, reducing the chance of acquiring these diseases. Hence, an increase in awareness about home cleanliness is anticipated to propel the market for antiseptics and disinfectants over the forecast period. The current COVID-19 outbreak is expected to have a substantial impact on the market for antiseptics and disinfectants.

To meet the rising worldwide demand for cleaning, deodorizing, and disinfecting in high-traffic facilities, including office buildings, hotels, schools, nursing homes, and hospitals due to the COVID-19 outbreak, the WHO has urged industry and governments to expand the production of antiseptics and disinfectants. For instance, according to the German Federal Statistical Office, in 2020, demand for disinfectants has risen in the aftermath of the coronavirus pandemic, for example, 80% more hygiene products were produced in Germany between January and September 2020 than in the same period last year. Additionally, antiseptics and disinfectants manufacturing companies use unique and new technologies to design, produce, and sell products to diverse end customers based on the amount of protection required for distinct job risks.

For instance, in November 2020 the Environmental Protection Agency (EPA) of the U.S. approved 3M's disinfectant TB Quat for SARS-CoV-2 which is a ready-to-use cleaner. Third-party lab testing of 3M's disinfectant TB Quat ready-to-use cleaner on hard, non-porous surfaces with a 60-second contact period proved the disinfectant's effectiveness against the virus. As a result, market growth is expected to accelerate in the near future. Moreover, in January 2021, 5 SC Johnson home cleaning products have been added to Health Canada's list of effective disinfectants for use against SARS-CoV-2. SC Johnson has approved the following disinfectants to kill SARS-CoV-2, the virus that causes COVID-19 symptoms like scrubbing bubbles. They come in a variety of fragrances. Thus, due to the past and ongoing advancements through various companies, the positive impact of the COVID-19 pandemic was seen on the market for antiseptics and disinfectants.

The increasing incidence of healthcare-associated infections (“HAI”) due to lack of precaution and sanitation is one of the leading factors contributing to the growth of the market for antiseptics and disinfectants. For instance, as per the Healthcare-Associated Infections in 2020, every year, around one in every 25 hospital patients acquires at least one HAI. Antiseptics and disinfectants offer general anti-contamination protection and can help reduce the incidence of HAIs. They can also keep bacterial and other microbial diseases from entering the body of a patient. Over the forecast period, these factors are expected to drive market expansion.

The growing number of surgeries globally is also a key factor expected to drive the market growth over the forecast period. For instance, as per the Mölnlycke Health Care AB, 70.00 million surgical procedures are performed every year in Europe. Similarly, according to the Healthcare Cost and Utilization Project (HCUP), in 2018, more than 9,942,000 surgeries were performed in the U.S. within ambulatory care settings. In the case of surgeries, the use of antiseptics and disinfectant products is one of the essential requirements in hospitals, clinics, and ambulatory surgery centers. Therefore, such instances are expected to drive the market for antiseptics and disinfectants.

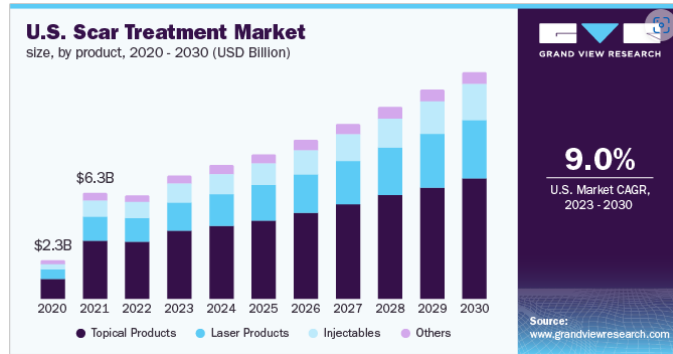
Further, from: [Oxygen: Implications for Wound Healing - PMC \(nih.gov\)](#)

*“Chronic skin wounds are wounds that have failed to proceed through an orderly and timely reparative process to produce anatomic and functional integrity. **Approximately 7 million patients are affected by chronic wounds in the United States alone, and an estimated \$25 billion dollars is spent annually on the treatment of such wounds.** Unfortunately, these numbers continue to increase as a result of an aging patient population and the increased prevalence of diabetes, obesity, and atherosclerosis worldwide. To this end, concentrated scientific efforts have continued to focus on the biological mechanisms that underlie wound complications with the ultimate goal of finding the most effective therapeutic modalities for afflicted patients.*

Also from Grandview Research: [Scar Treatment Market Size & Growth Analysis Report, 2030 \(grandviewresearch.com\)](#) :

The global scar treatment market was valued at USD 23.5 billion in 2022 and is expected to expand at a compound annual growth rate (CAGR) of 9.9% from 2023 to 2030. The growing

concern among people regarding their aesthetic appearance is one of the major factors triggering the rise in demand for scar treatment products in the market. Treating various types of scars helps in complete skin rejuvenation, which improves the aesthetic appeal of a person. Such demand for aesthetics is mainly generated by the women population, owing to their greater concern for appearance. Thus, this population group is expected to be the largest contributor to the market.



Again, the need for products that address the things that HOCl can also address, (in most cases more safely and in many cases more effectively than the status quo), is not the issue here. Further, in our view and as Grandview notes above, while the pandemic may now be behind us, the impact on people’s awareness of these type of events is likely to have very long legs. We think that should create opportunities for companies like Sonoma as people are more focused on the prevention and mitigation of their exposure to these types of pathogens.

From a different perspective, as we noted, we do not have a good handle on the breadth of Sonoma’s competitive landscape as it pertains to others with **stable** HOCl products. We know there are others who sell stable HOCl products, and we know that Sonoma has studies that support their claim that their products have shelf lives of three years (depending on how they are stored etc.), but we do not know how many of their competitors can match (or exceed) that threshold. We suspect there are not many. Moreover, as we also reflected above, Sonoma has 21 FDA 510k clearances and 39 CE Mark clearances covering a variety of indications for stable HOCl based products, which we also suspect is well beyond most of their competitors. That said, we continue to believe Sonoma’s biggest challenge is awareness rather than the competitive landscape of stable HOCl producers. Conceptually, we think they might be better off in a scenario with more competitors helping spread the HOCL word (and *increasing* awareness) than less.

Along those same lines, some of the awareness challenges are about dislodging the status quo, which in this case, means getting consumers as well as healthcare providers and facilities to consider HOCl as an alternative to other entrenched products, most of which are supplied and marketed by large and equally entrenched companies that are not likely to cede market share even to a better product. Moreover, some of *that* is also related to price point. For instance, many legacy competing products for wound care (povidone iodine and chlorhexidine for example) as well as others for disinfecting (bleach for instance) are manufactured and distributed at scale, which ostensibly makes them cheaper and more available. While increasing awareness of HOCl’s better and safer profile will help, we suspect the relative cost of HOCl may continue to provide barriers to some HOCl markets.

Operating Overview

We think it is important to reiterate/emphasize that Sonoma has been in restructuring mode for much of the past three years. Keep in mind, that would place much of that restructuring amid the pandemic era, which made the task a bit more problematic. In short, that restructuring has centered on right-sizing the business (closing several offices, reducing headcounts and other reductions of overhead) as well as refocusing on the strengths of the business. From our perspective, the “strengths of the business” are most obviously, their stable HOCl product, but also the various regulatory approvals and clearances they have garnered along the way as well as their established partner/distributor network. To step back (and this is just our own brief perspective), historically, it appears that the Company focused on specific applications of their technology (eye care for instance) and attempted to position those products to be sold through healthcare providers (as prescription products), which on one hand would presumably afford them better price points, better gross margin and perhaps some differentiation but would also require a robust sales organization and other associated overhead. That approach failed and it left some holes to fill.

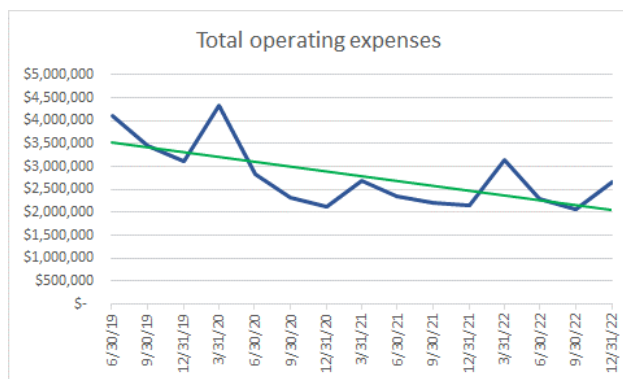
Today we think the focus is almost the opposite of the past approach(es). Today they are focused on providing a variety of products that address multiple indications (wound care, derma, ocular, disinfectants etc.) and the sales process(es) are centered on the development of distributor and partner relationships rather than a dedicated in-house sales organization. To be clear, and as we will expand upon a bit below, they have maintained and still support their provider network with differentiated “professional” products, while at the same time broadening their reach into OTC opportunities through both domestic and international collaborations. Our expectation is that those efforts, adding regulatory approvals and associated new product SKU’s and adding new partnerships, in part around those new SKU’s, is their determined path to growth. For instance, we know the Company has received clearance from the EPA to market HOCl disinfectant products (which they currently sell internationally) and are awaiting some specific state approvals. We suspect they will find a U.S. distributor to sell those new products domestically once all those approvals are in place, which of course would add a new revenue source. Our guess is that they have likely already identified that distributor, but that is just our speculation.

Again, our revenue assessments are based upon them pursuing new approvals for new products some of which, disinfectants for instance, are already being sold under approvals in other jurisdictions, while others will be completely new products such their newly released Podiacyn foot care product. Further, they will continue to seek new distributors/partners both in the U.S and abroad. As a side note, with only about 25% of their revenues coming from domestic sales, we think expanding efforts in the U.S. could provide a marked growth catalyst going forward. To reiterate, we think the restructuring came at the expense of developing new collaborations both domestically and internationally (although the pandemic likely impacted that as well), but with much of that behind them, we think new distribution partnerships will be the focus, which could set the stage for revenue expansion. That is our thesis.

Sanoma’s gross margins have typically run in the 35% to 40% range, as we suspect those differences are a matter of what is being sold where. Looking ahead, we think there are at least two primary dynamics that will impact margins and likely in opposite directions. First, new distributorships could require concessions or other agreements that might reduce overall margins, while increased sales (better manufacturing scale) could work to improve margins. For instance, our understanding is that the manufacturing facility is a long way from full utilization, which means that it can support considerable future growth, but also that it may be able to realize some margin expansion through better utilization and scale. From another perspective, since much of the past three years have been spent right-sizing the business, it’s difficult to extrapolate how

the new focus on growing the business might impact future margins. As we just illustrated, we can make arguments on each side, but for now, we are assuming short and intermediate term gross margins in the 35% to 40% range, but we will monitor that assessment closely as we move forward.

As we mentioned the restructuring has been in process for some time now and has included a marked reduction in SG&A to reduce burn and align expenses with available resources. Those efforts are reflected in their declining operating expenses over the past several quarters.



We think they have wrung much of the excess out of the business, and while there could be a few additional remnants of the restructuring left to be reflected, our modeling/expectation is that current expense run rates may be close to the bottom range of those expenses going forward. While we applaud their efforts to reduce expenses, we also recognize that growing the product and distributor bases to accelerate growth will also require resources. We have cast our models to reflect those notions.

Lastly, the Company is not profitable, which means the specter of additional dilution remains. To that end, the volatility of the equity markets over the past year+ has been particularly destructive for small unprofitable companies that rely on the sale of equity to augment their paths to self-sustaining cash flow. Sonoma has been no exception in that regard. Frankly, we think the current environment has increased the risks for small companies in this position to the point where some of us who have spent our careers in the space are beginning to wonder less about what sort of dilution the next round of capital might require and more about whether some of these companies will be able to attract that additional needed capital *at all*.



To be clear, we are not suggesting that applies to Sonoma, for a variety of reasons we would be happy to discuss, but the point is, funding burn rates for small companies has become more onerous and we do not expect that to change in the foreseeable future. In that regard, as of December 31, 2022, Sonoma had approximately \$2.6 million of cash and we believe they raised an additional \$2.7 million (gross) subsequently through the execution of a standing ATM. Our model reflects the Company reaching cash flow break even in 2H Calendar 2024. If our assessments in that regard prove aggressive, then they will likely require additional capital (dilution) beyond what we have modeled which will negatively impact our associated target assumptions.

Management Overview

Amy Trombly ***Chief Executive Officer***

Amy Trombly is our Chief Executive Officer and also serves on our Board of Directors. She counseled public companies for two decades in corporate and securities law and mergers and acquisitions as the owner and manager of Trombly Business Law, PC. In her earlier career, Ms. Trombly was a Vice President at State Street Bank and Special Counsel at the U.S. Securities and Exchange Commission. Ms. Trombly is a member of the bar in Massachusetts and Colorado.

Bruce Thornton ***Chief Operating Officer***

Bruce Thornton has served as our Chief Operating Officer, Vice President of Global Operations, and US General Manager since 2004. He served as Vice President of Operations for Jomed (formerly EndoSonic Corp.) from January 1999 to September 2003, and as Vice President of Manufacturing for Volcano Therapeutics, an international medical device company, following its acquisition of Jomed, until March 2004. Mr. Thornton received a B.S. in Aeronautical Science from Embry-Riddle Aeronautical University and an M.B.A. from National University. He also has served in the US Army.

Jerry Dvonch ***Interim Chief Financial Officer***

Prior to his time with the Company, Mr. Dvonch was the controller and Senior Vice President of Finance and Accounting for the SpineCenter Atlanta since March 2017. From March 2016 to April 2016 he was a consultant controller for DS Healthcare Group, Inc. Prior to that he was the director for external reporting and director of finance of NeoGenomics Laboratories from July 2005 to July 2015. He has over 10 years of experience with SEC reporting. Mr. Dvonch is a licensed Certified Public Accountant in New York. He holds a Master of Business Administration in Finance from the University of Rochester and a Bachelor of Business Administration in Accounting from Niagara University.

Risks and Caveats

We think the case for HOCl being better and safer than many legacy products in various applications is compelling and supported by various studies. However, as we mentioned above, many of these legacy products are manufactured and distributed by large, entrenched companies that are difficult to displace. Further, the positive attributes of HOCl do not appear to be well known, even in the healthcare space where one might expect otherwise. On top of that, even at greater scale, HOCl will likely still be more expensive than many of these legacy alternatives. Moreover, even if they and/or other HOCl producers are successful in driving awareness of the safer/better profile of HOCl, that does not guarantee that consumers, doctors, healthcare facilities and others will be willing to pay for it.

In conjunction with the above, in our experience, getting healthcare providers to try new things is difficult. That is a dilemma we have seen several small companies we have followed in the past wrestle with. There

are some legitimate reasons for that, including the hours providers have in a day, the risks associated with trying to fix what isn't broken, insurance reimbursements and a host of others. On the other hand, we are not suggesting that Sonoma must figure out how to get into health care facilities to be successful, but it sure might help. To be clear, we remain optimistic about their ability to grow the business in the channels they have established to this point, but again, there are certainly opportunities that could be transformational if they could crack that code.

The Company is not profitable and as a result has had to rely on the capital markets to fund its deficits. While our modeling reflects the Company transitioning to positive cash flow in the next 18 months, we submit, visibility to that end is poor. As a result, they may have to continue accessing the capital markets and diluting the shares beyond what we have modeled. Moreover, there is no guarantee that they will be able to *continue* to access capital with equity in the future. We would add, because revenue visibility is limited, our model and resulting price target assumptions could end up being considerably overstated.

To date, the preponderance of the Company's business has been driven by its ability to attract distributors both domestically and internationally. We think it is likely that growing the business in the future may be predicated on their ability to *continue* to attract/add more distributors and/or partners. If they are unable to do that, they will likely find it more difficult to grow the business in line with our estimates.

Currently the Company manufactures all its products from its single facility in Guadalajara, Mexico. If anything should happen to impair the facility it would likely prove considerably detrimental to the business. While we believe there are many positive attributes associated with manufacturing your own product, a single source supply of product is rarely ideal.

Currently, the Company relies on a small number of people to operate the business. That posture carries obvious risks with respect to the performance and continued employment of those individuals.

While we tend to think that the healthcare industry in general may be more insulated from poor economic conditions than others, it may still be negatively impacted if the current economic climate deteriorates. That would likely be true for Sonoma as well.

The Company's stock is thinly traded, which generally leads to volatile share prices and illiquidity. That may remain the case into the foreseeable future.

These are just some of the more obvious risks we see in the Company. There are likely others we have overlooked as well as others that may arise in the future.

Summary and Conclusion

To summarize the above, our enthusiasm for Sonoma rests on a few items that we think are coalescing and collectively could lead to better results and by extension better valuations. First, as we covered, the Company has spent the past 3 years or so trying to restructure the Company, which included a considerable amount of unwinding. Unfortunately, trying to restructure a company during a pandemic exacerbated that challenge. That said, we think management believes they are better positioned today than they have been for a very long time. To that end, keep in mind that CEO Amy Trombly was the Company's counsel prior to becoming CEO, and COO Bruce Thornton was employee #6 two decades or so ago, so we think they each have sufficient history with the Company to support that claim. We would add, historically, they have

utilized various conferences to attract new distributors. Those conferences ground to a halt during the pandemic, but we know they have been busy on the conference circuit this year, which we sense has been constructive.

Second, inasmuch as the pandemic certainly made things more difficult, the silver lining for Sonoma was that it also raised awareness (and in some markets, sales) regarding mitigating virulent pathogens. That is perhaps serendipitous, because as we also noted, (stabilized) HOCl includes properties that make it better and safer than many entrenched products with sizable markets that address a variety of issues (wound healing, inflammation, disinfection etc.), yet most people do not seem to know anything about it. The pandemic may be helping to drive some of that awareness. We submit that we are woefully underqualified to opine on the future of consumer preferences, but we think products that are more natural, contain fewer (zero) chemicals are safer *and work better* than legacy products must have a reasonable shot at success if they can just get consumers, healthcare providers, restaurants, schools and *many others* to pay attention. For example, we have to believe that a fair number of mothers would rather use HOCl to clean their baby changing tables if they were aware that it works better and is much safer for their baby than a bleach soaked wipe. But maybe not.

Third, as part of its restructuring, the Company has built an impressive network of partner/distributors across the globe, which is the basis for its sales reaching 55 countries. However, they have more work to do on that front. For instance, as we alluded to above, only about 25% of their sales currently come from the U.S. Clearly, they need to work on building domestic distributor relationships. Some of that has been stymied by the pandemic, but it has also been impacted by pending regulatory requirements that we think they need to complete to attract some of those distributors. For instance, we believe they could be successful selling their surface disinfectants in the U.S., however, while they have the required EPA certification to commence those sales, they are awaiting some state requirements (most notably California), which they should get shortly. We think that may lead to multiple distribution agreements for different markets, which should create new revenue sources. There are various instances where they have proven products they are selling in one part of the world, that they will ultimately sell in others once they garner some of these approvals. By the way, those myriads of approvals, in various jurisdictions, covering different indications is one major differentiator between them and other producers of (some form of) stable HOCl. Part of our thesis here is that we think they will be able to leverage existing (and new) products as well as add new distributors to facilitate that leverage, thus adding many new sources of revenue as they move forward. To segue a bit, from a value perspective, we believe the costs associated with duplicating all of their regulatory approvals from scratch, is almost certainly more than the current market cap of the stock.

Fourth, while adding new products in new markets will have obvious sales benefits, we also think that may drive better margins. We know for instance, that they generate better margins in the U.S. and Europe, than they do in parts of Asia and/or the Middle East. Succinctly, that is a relative standard of living issue. By extension, expanding their revenue mix in the U.S should boost margins. Further, we think there is some manufacturing scale that should improve margins as sales increase as well.

Fifth, while they are almost done wringing out the old inefficiencies, we do not think they are quite there yet. Translation, we expect ongoing (“normalized”) SG&A to be lower than Q3 (ended December 31, 2022). Further, if we combine the last two items, improving margins and lower SG&A, it should lead to a lower breakeven threshold, which we think looks like (and we are modeling) something around \$5.2 million per quarter.

Finally, as we noted above, they completed an equity raise in Q4 (ended March 31, 2023) at an average of \$1.76, so if our math is close, they should have ended fiscal 2023 (ended March 31, 2023), with between

\$4 million and \$4.5 million cash. That number is topical on multiple fronts. We submit, they are still burning cash, which in this particular environment can be (has been) ominous for many small public companies. As a result, the fresh cash is a welcome data point. Further, in our view, the stock's recent compression (trading at around 60% of *that* transaction price), represents an attractive entry point given the collective tailwinds we described above. As a result, we are initiating our coverage of Sonoma Pharmaceuticals, Inc., with an allocation of 4 and a 12-24 month price target of \$3.00. That target includes some heavy projected DCF discount rates to handicap the visibility issues we raised. We will revisit each as new data points emerge and/or operating visibility improves.

Projected Operating Model

Sonoma Pharmaceuticals, Inc.									
Projected Operating Model									
By Trickle Research									
	(actual)	(actual)	(actual)	(estimate)	(estimate)	(estimate)	(estimate)	(estimate)	(estimate)
	6/30/2022	9/30/2022	12/31/2022	3/31/2023	Fiscal 2023	6/30/2023	9/30/2023	12/31/2023	3/31/2024
Revenues	\$ 3,983,000	\$ 3,331,000	\$ 2,944,000	\$ 3,298,400	\$ 13,556,400	\$ 3,379,360	\$ 3,672,344	\$ 4,087,403	\$ 4,576,588
Cost of revenues	\$ 2,537,000	\$ 1,995,000	\$ 2,113,000	\$ 2,143,960	\$ 8,788,960	\$ 2,148,982	\$ 2,303,682	\$ 2,553,213	\$ 2,899,284
Gross profit	\$ 1,446,000	\$ 1,336,000	\$ 831,000	\$ 1,154,440	\$ 4,767,440	\$ 1,230,378	\$ 1,368,662	\$ 1,534,190	\$ 1,677,304
Operating expenses									
Research and development	\$ 6,000	\$ -	\$ -		\$ 6,000	\$ 7,703	\$ 7,938	\$ 8,270	\$ 8,661
Selling, general and administrative	\$ 2,295,000	\$ 2,067,000	\$ 2,665,000	\$ 2,400,000	\$ 9,427,000	\$ 1,794,760	\$ 1,806,904	\$ 1,850,852	\$ 1,913,110
Total operating expenses	\$ 2,301,000	\$ 2,067,000	\$ 2,665,000	\$ 2,400,000	\$ 9,433,000	\$ 1,802,463	\$ 1,814,842	\$ 1,859,122	\$ 1,921,772
Loss from operations	\$ (855,000)	\$ (731,000)	\$ (1,834,000)	\$ (1,245,560)	\$ (4,665,560)	\$ (572,086)	\$ (446,180)	\$ (324,932)	\$ (244,468)
Interest income (expense), net	\$ -	\$ 3,000	\$ 1,000		\$ 4,000	\$ 2,196	\$ 1,927	\$ 1,719	\$ 1,573
Forgiveness of PPP Loan	\$ -	\$ -	\$ -		\$ -	\$ -	\$ -	\$ -	\$ -
Other income (expense), net	\$ (67,000)	\$ (189,000)	\$ (73,000)		\$ (329,000)	\$ -	\$ -	\$ -	\$ -
Gain on sale of assets	\$ -	\$ -	\$ 1,000		\$ 1,000	\$ -	\$ -	\$ -	\$ -
Loss before income taxes	\$ (922,000)	\$ (917,000)	\$ (1,905,000)	\$ (1,245,560)	\$ (4,989,560)	\$ (569,889)	\$ (444,253)	\$ (323,213)	\$ (242,895)
Income tax benefit (expense)	\$ 35,000	\$ (100,000)	\$ (34,000)		\$ (99,000)	\$ -	\$ -	\$ -	\$ -
Income (Loss)Loss from continuing operations, net of tax	\$ (887,000)	\$ (1,017,000)	\$ (1,939,000)	\$ (1,245,560)	\$ (5,088,560)	\$ (569,889)	\$ (444,253)	\$ (323,213)	\$ (242,895)
Income (Loss) from discontinued operations, net of tax	\$ -	\$ -	\$ -		\$ -	\$ -	\$ -	\$ -	\$ -
Net Income (Loss)	\$ (887,000)	\$ (1,017,000)	\$ (1,939,000)	\$ (1,245,560)	\$ (5,088,560)	\$ (569,889)	\$ (444,253)	\$ (323,213)	\$ (242,895)
Net Income (Loss) per share: basic	\$ (0.29)	\$ (0.33)	\$ (0.62)	\$ (0.27)	\$ (1.51)	\$ (0.12)	\$ (0.09)	\$ (0.07)	\$ (0.05)
Net Income (Loss) per share: diluted	\$ (0.29)	\$ (0.33)	\$ (0.62)		\$ (1.24)	\$ (0.12)	\$ (0.09)	\$ (0.07)	\$ (0.05)
Weighted-average number of shares: basic	3,101,000	3,101,000	3,107,000	4,680,370	3,497,343	4,715,370	4,750,370	4,785,370	4,820,370
Weighted-average number of shares: diluted	3,101,000	3,101,000	3,107,000	4,680,370	3,497,343	4,715,370	4,750,370	4,785,370	4,820,370
Foreign currency translation adjustments	\$ (65,000)	\$ (34,000)	\$ 235,000	\$ -	\$ 136,000	\$ -	\$ -	\$ -	\$ -
Comprehensive Gain (Loss)	\$ (952,000)	\$ (1,051,000)	\$ (1,704,000)	\$ (804,486)	\$ (4,511,486)	\$ (569,889)	\$ (444,253)	\$ (323,213)	\$ (242,895)

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Rating System Overview:

There are no letters in the rating system (Buy, Sell Hold), only numbers. The numbers range from 1 to 10, with 1 representing 1 "investment unit" (for my performance purposes, 1 "investment unit" equals \$250) and 10 representing 10 investment units or \$2,500. Obviously, a rating of 10 would suggest that I favor the stock (at respective/current levels) more than a stock with a rating of 1. As a guideline, here is a suggestion on how to use the allocation system.

Our belief at Trickle is that the best way to participate in the micro-cap/small cap space is by employing a diversified strategy. In simple terms, that means you are generally best off owning a number of issues rather than just two or three. To that point, our goal is to have at least 20 companies under coverage at any point in time, so let's use that as a guideline. Hypothetically, if you think you would like to commit \$25,000 to buying micro-cap stocks, that would assume an investment of \$1000 per stock (using the diversification approach we just mentioned, and the 20-stock coverage list we suggested and leaving some room to add to positions around allocation upgrades. We generally start initial coverage stocks with an allocation of 4. Thus, at \$1000 invested per stock and a typical starting allocation of 4, your "investment unit" would be the same \$250 we used in the example above. Thus, if we initiate a stock at a 4, you might consider putting \$1000 into the position ($\$250 * 4$). If we later raise the allocation to 6, you might consider adding two additional units or \$500 to the position. If we then reduce the allocation from 6 to 4 you might consider selling whatever number of shares you purchased with 2 of the original 4 investment units. Again, this is just a suggestion as to how you might be able to use the allocation system to manage your portfolio.

For those attached to more traditional rating systems (Buy, Sell, Hold) we would submit the following guidelines.

A Trickle rating of 1 thru 3 would best correspond to a "Hold" although we would caution that a rating in that range should not assume that the stock is necessarily riskier than a stock with a higher rating. It may carry a lower rating because the stock is trading closer to a price target we are unwilling to raise at that point. This by the way applies to all of our ratings.

A Trickle rating of 4 thru 6 might best (although not perfectly) correspond to a standard "Buy" rating.

A Trickle rating of 7 thru 10 would best correspond to a "Strong Buy" however, ratings at the higher end of that range would indicate something that we deem as quite extraordinary..... an "Extreme Buy" if you will. You will not see a lot of these.