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PURE Bioscience Organizes To Take Prominent Role In Food Safety

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Editors' Note: This article covers a stock trading at less than \$1 per share and/or with less than a \$100 million market cap. Please be aware of the risks associated with these stocks.

Although Americans have one of the safest food supplies in the world, foodborne illness, often called "foodborne disease" or "food poisoning," is a common and costly-yet preventable-public health problem. The [CDC estimates](#) that each year roughly 1 in 6 Americans, or 48 million people, get sick, 128,000 are hospitalized, and 3,000 die of foodborne diseases. Food poisoning costs the U.S. an estimated [\\$152 billion](#) each year in healthcare, workplace, and other economic losses. As the U.S. food supply becomes increasingly globalized, and consumers rely more on convenient, pre-packaged foods and eating out away from home, the risk of exposure to food disease increases. The food industry must shift its focus solely from responding to foodborne disease outbreaks to also a pro-active strategy of preventing contaminated foods from entering the food supply in the first place. PURE Bioscience ([OTCQB:PURE](#)) with its proprietary, non-toxic antimicrobial technology is well positioned to help address this pressing public health issue.

Between January 10th and 17th of 2014, there were [12 major food recalls](#) by the U.S. Food and Drug Administration and the U.S. Department of Agriculture. These recalls involved hundreds of thousands of pounds of meat, poultry, and vegetables produced from Hawaii to California to New Jersey, and from Wisconsin to Texas.

The worst nightmare for any company in the food industry is a food contamination incident. Recall costs, lost sales, potential costs of litigation, PR challenges, loss of investor confidence, declining stock prices, and diminished brand equity have driven corporate responsibility and focus. For example, with over 40 years of success in fast foods, the Jack in the Box restaurant franchise suffered through a [major outbreak](#) in 1993, when four children died and hundreds of other customers fell ill from *E. coli* after eating contaminated meat from the chain's restaurants in five states. The outbreak caused a national panic, and the stock of the chain's parent company, Foodmaker Inc., dropped more than 30 percent. Anxieties about foodborne disease reached the breaking point in 2009 after a [series of outbreaks](#) involving major U.S. food producers, processors, and restaurant firms. Examples include:

- In 2002, sliced turkey deli meat from Pilgrim's Pride Foods was infected with the *listeria virus*; the outbreak resulted in seven deaths and the [recall](#) of 27.4 million pounds of poultry products.
- In 2006, spinach from Dole Foods was contaminated with *E coli*.

- Also in 2006, Taco Bell ([YUM](#)) suffered *E. coli* outbreaks linked to contaminated lettuce.
- And, in 2007, ConAgra ([CAG](#)) had a *salmonella* contamination in its popular Peter Pan brand of peanut butter, which cost the firm an estimated [\\$150 million](#) in product recalls, lost sales, and plant renovation costs.
- Even privately held Cargill, one of the world's largest food and agricultural firms, suffered from a *salmonella* tainted ground turkey recall in 2011.

These and many other incidents disrupted the food system at great economic cost and undermined public confidence in the food system. They led virtually all stakeholders in the food industry to acknowledge that food contamination had become such a serious public health problem that new measures were needed to understand how contaminants entered the food supply and how this could be prevented. The outcome of the concern was the passage of the [Food Safety Modernization Act](#), or FSMA, in 2011, the most sweeping reform of U.S. food safety laws in more than 70 years. FSMA empowered the FDA to implement a revamped, science-based system to address food safety hazards. Also, the law shifted the focus of federal regulators from merely responding to contamination to preventing unsafe foods from entering the food chain in the first place. Furthermore, the law provided FDA new enforcement and inspection authorities over the food industry, instructed FDA to develop regulations for how fruits and vegetables are produced and harvested, and ordered the agency to ramp up its inspection of product from foreign food processors.

If you have ever had food poisoning, you know it is an experience you don't ever want to have again. Bacteria, viruses, and parasites cause most common foodborne illnesses. *Salmonella*, one of the most common bacteria found in food, has been found in products ranging from bologna to chicken to turkey burgers to peanut butter. The *E. coli* pathogen has often been found in beef products but is now also showing up in fruit and vegetable products. Viral gastroenteritis is common worldwide; *noroviruses* and *hepatitis A* are the best known of the many viruses capable of causing foodborne maladies.

While more than [half of all foodborne illness outbreaks](#) in the United States are associated with restaurants, they are an ever-present threat in any part of the food supply and distribution chain. Furthermore, the U.S. is depending more and more on imports, with over 40 percent of all fresh fruit consumed in the U.S. coming from Mexico, Chile, Guatemala, Costa Rica, and other foreign countries, traveling hundreds, even thousands, of miles to reach grocery-store shelves. These factors all raise the risk of food poisoning.

Today, 40 cents out of every U.S. dollar spent on food is spent [outside the home](#) in restaurants and other commercial food services. With a rebound in consumer discretionary income in conjunction with an improving economy, the macro trend to eat out/take out will drive further increases in restaurant sales. These changes, along with growing pressure from insurers, heightened public concerns about foodborne disease, corporate liability concerns, and increasing regulatory scrutiny will drive preventive safety processes in the food industry which will increase the demand for anti-microbial and disinfectant products.

Recognizing this emerging opportunity, PURE announced in July, 2013, a major reorganization and shift in strategic business focus to drive adoption of its proprietary silver dihydrogen citrate, or [SDC](#), technology platform as a broad-spectrum, non-toxic antimicrobial agent for use across the

food industry. With this action, PURE targeted cleaning, disinfecting, and preservative applications in restaurants, quick-serve/fast-food restaurant chains, referred to as QSRs, and food processors and food manufacturers. It's goal? To establish PURE as the innovator and leader in food safety solutions.

PURE estimates that the total market for sanitizers, disinfectants, and cleaners in the food industry represents \$1.5 - \$2.0 billion a year, and the company believes it can quickly achieve \$20 - \$30 million penetration of these markets with existing product and regulatory approvals. In addition to these uses, PURE is also pursuing development of potential applications of SDC technology as a broad-spectrum antimicrobial for use as 1) a "direct contact" wash in produce, meat, and poultry processing as a preventive measure to kill various food-borne pathogens and 2) a preservative to extend food shelf life. Both applications will require regulatory approval. Management believes the market potential for direct food contact pathogen control is an additional \$1 billion per year.

PURE's patented SDC molecule is an electrolytically generated source of stabilized ionic silver that kills microorganisms in two ways: 1) The silver ion deactivates structural and metabolic membrane proteins leading to microbial death; and 2) The microbes view SDC as a food source, allowing the silver ion to enter the microbe. Once inside the organism, the silver ion denatures the DNA, which halts the microbe's ability to replicate and leads to its death. PURE states that SDC is highly effective and works quickly against a broad spectrum of microbes. However, while SDC is highly toxic to bacteria, fungi, and viruses, it is not harmful to humans and animals. Based on the EPA toxicity categorization of antimicrobial products that ranges from Category I (high toxicity) down to Category IV, at use dilutions, SDC is rated in the lowest toxicity category, IV, while traditional disinfectants fall into Categories I and II.

Interestingly, silver's general [anti-bacterial properties](#) have been known for centuries. The ancient Phoenicians knew enough to keep water, wine, and vinegar in silver vessels to ensure freshness. Silver also has been a major therapeutic agent in medicine, especially in infectious disease, surgical infections, and burn and wartime wound care. Today, consumer healthcare companies such as Johnson & Johnson ([JNJ](#)) offer their own lines of bandages and ointments that use silver as an active ingredient. These properties of silver also make it useful in many other modern applications, as discussed by [The Silver Institute's](#) senior technology consultant, Jeffrey Ellis: "With increasing uses of silver in many forms including sprays, gels, and coatings, the use of silver as an antimicrobial agent continues to grow not only in hospitals and other patient treatment centers, but also in public areas such as restaurants, airports, and institutional buildings."

In the food industry, SDC will compete directly against ammonia-based products, which are the most widely used anti-microbial cleaning solutions. SDC has several competitive advantages that PURE believes will allow it to penetrate the food service, because it increases productivity by being fast, effective, and long lasting, and because it is not an irritant and will be preferred by food industry workers and line management:

- Provides broad-spectrum protection as a disinfectant, fungicide, and virucide.
- Kills bacteria, viruses, and fungi in as little as 30 seconds.
- Does not trigger bacterial resistance.
- Provides residual protection for 24 hours.

- Is non-toxic, non-caustic, colorless, odorless and tasteless, and does not produce toxic fumes.
- Holds lowest and safest EPA toxicity rating and is non-hazardous to food industry workers.

Since announcing its strategic reset last year, PURE has largely replaced its former management team and Board of Directors with a seasoned group of food industry veterans from heavyweights including Kellogg, Kraft ([KRFT](#)), Jack in the Box, Nabisco, Pinnacle Foods, and Culvers. The company also signed a five-year strategic collaboration agreement with St. Louis-based Intercon Chemical Company for commercialization of PURE's SDC-based products. Under this arrangement, Intercon will license PURE's patents and IP and serve as its exclusive manufacturer. It also will obtain distribution rights for SDC for its core business as well as launch a new initiative targeted at the hospital, healthcare, and medical industries. PURE benefits from this arrangement through simplified operations, lower product cost, access to new markets, and royalties earned. PURE also entered into a non-exclusive distribution agreement with Brenntag Specialties, Inc., giving Brenntag worldwide rights to distribute SDC-based antimicrobial solutions as an active ingredient and preservative in personal care products.

On December 12th, the [company reported](#) it was pursuing a pipeline of over 25 national food companies that were evaluating and testing PURE in their operations, roughly comprised of 1/3 QSR chains and 2/3 food processors. Test results from proof of concept trials with several of these firms indicated that PURE solutions surpassed incumbent sanitizers by anywhere from 90% to 200% in terms of level and speed of pathogen kill. PURE also indicated that a major food processor had placed an initial order. One month later, on January 16th, PURE [announced](#) it had received initial orders from three additional food processors and was completing the final stage of testing with its first QSR. These companies are part of PURE's previously disclosed customer pipeline of 25 national food companies which represent a potential annualized revenue stream of \$20 - \$30 million when fully rolled out. [Hank Lambert, Chief Executive Officer](#) of PURE Bioscience commented: "Gaining this initial traction with processors, combined with the prospects we see for restaurant chains, serves as strong validation for our strategic positioning of SDC for the food industry."

PURE faces certain risks. First, with only \$1.1 million of cash on hand last quarter, the company will need to raise more funds in the near future; this action would be dilutive to existing shareholders. Secondly, PURE may not be successful winning more customers and taking away market share from long established, heavily funded suppliers. Finally, in the longer term, PURE's product roadmap, including new preventive washing solutions and food preservative applications, may fail to win regulatory approval and market acceptance, thus limiting its growth potential.

Nonetheless, PURE's new strategy appears to be working. Customer trial data and initial sales wins provide encouraging news, and the company on January 23rd [indicated progress](#) in transferring and expanding production capacity with partner ICI. Macro trends in U.S. food consumption and a new regulatory environment will favor innovative, preventative food safety solutions; PURE's proprietary technology has superior performance and long-lasting, non-toxic characteristics that are uniquely suited for this environment. Most importantly, the company has seasoned leadership connected to, and with a deep appreciation for, the challenges of the food industry. Daily volume is trending upward and the stock price is up 15% over the past month. PURE appears to present a reasonable risk for a potentially large reward.