

Sona Nanotech's gold nanorods improve cancer treatments

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For virtually everyone on the planet, cancer is a four letter word. One has to have a pretty rosy outlook on life for any form of cancer diagnosis to not be earth shattering. Fortunately, great strides have been made in the identification and treatment of most forms of cancer that provide us all with hope and optimism. Nevertheless, you never want to go through a situation where you, or someone close to you, hears the words "you have cancer", as I can attest to from recent and historical experience. That's why I'm always paying attention to advancements in every regard to prevention, early detection and treatment of this far too common malady.

Having just found out a family member will soon be undergoing radiation therapy, I thought it might be a good time to have a look at a company that could be making a dramatic improvement in the application thereof. [Sona Nanotech Inc.](#) (CSE: SONA | OTCQB: SNANF) is a nanotechnology life sciences firm that has developed multiple proprietary methods for the manufacture of various types of gold nanoparticles. Sona Nanotech's gold nanorod (GNR) particles are CTAB (cetyltrimethylammonium) free, eliminating the toxicity risks associated with the use of other gold nanorod technologies in medical applications. It is expected that Sona's gold nanotechnologies may be adapted for use in applications, as a safe and effective delivery system for multiple medical treatments, subject to the approval of various regulatory boards, including Health Canada and the FDA.

However, what currently intrigues me the most about this Company is their work in improving the effectiveness and reducing the

harmful effects of radiation treatments. Drugs and radiation used in treatment of cancers, while effective at killing tumor cells, cause damage to organs and healthy cells. Traditional methods of radiation treatment involve non-selective irradiation, damaging the normal tissue surrounding a tumor as well as the cancerous cells. Evidence suggests that GNRs could be more effective at killing tumors with less or no adverse reactions to healthy cells. Photothermal therapy using GNRs involves the placement of specifically tuned GNRs at the tumor site, accumulating the GNRs within the cancer cells, and the use of a near infrared light generating laser, harmless to skin, to penetrate the tumor, triggering the GNR's surface electrons to vibrate strongly and increase the local temperature of the cancerous cells, thereby killing them safely. This method is less invasive and can be more precise than surgery.

I may be a little preoccupied at present on this particular item in Sona's arsenal, so I'll take a step back and quickly discuss other GNR applications that Sona is developing. Their primary focus right now is a saliva based rapid screening test for Coronavirus. On November 8th the Company announced a [U.S. partnership and preliminary evaluation results](#) for its COVID-19 saliva test. Sona entered into a binding licensing agreement with U.S. FDA registered Arlington Scientific Inc. of Springville, Utah, to bring Sona's rapid saliva COVID-19 test to market. The market was pretty excited about this news as the stock popped 87% the day after the press release, and that was before anyone was aware of the omicron variant. If an FDA Emergency Use Authorization is granted, Arlington will coordinate manufacturing and distribution of the test in the U.S. exclusively on a profit-sharing basis. Albeit, many have suggested we are moving from pandemic to endemic so it remains to be seen if this product will be viewed as importantly as it was three and a half months ago.

Other developments going on at Sona include a rapid screening tool to help farmers combat the threat of Bovine Tuberculosis in herds, which is being developed with a consortium of companies as part of a Canada/UK industrial research and development program. Currently, a diagnosis is typically made either through a skin test, with a turnaround of 48-72 hours, or through post-mortem examination and tissue culture, which can take up to 12 weeks. It has cost the taxpayer [£500 million to control the disease in England](#) in the last 10 years. It is estimated that the costs of bovine TB control will [top £1 billion over the next decade](#), if no action is taken.

There is also a concussion test for mild traumatic brain injury that aims to detect a series of biomarkers enabling the screening for mild concussions. The test is intended to detect the presence of GFAP (Glial Fibrillary Acidic Protein), a biological marker associated with concussions, typically released into the blood stream within minutes of an impact to the head. This could be a tremendous benefit to society as a whole, particularly children. But the capitalist in me is thinking about how much the NFL would pay for a product that could see a player be cleared to resume play in a matter of minutes.

I'm always appreciative of the smart people around the world who work hard every day to make life a little bit better for all of us. I hope the team at Sona Nanotech continues to make inroads with their GNR technology to make the world a better place. And with a market cap of just under C\$24 million, any success could translate well for investors.

Sona Nanotech is seeking U.S. FDA approval for its rapid COVID-19 saliva test

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Much to my chagrin, it appears this damn COVID virus is refusing to let us be. I guess one positive take-away is that we are learning about the Greek alphabet. I can't say I was familiar with omicron prior to last Thursday, but all of a sudden it's the most talked about Greek letter in the world. Along those lines it would appear we aren't going to shed this virus anytime soon (pun intended), so we are going to have to adapt to it so we can get back to as normal a lifestyle as possible. In my opinion, an easy to administer, reliable rapid test could go a long way towards returning us to our normal day-to-day activities while still giving confidence to all those around us that they are in a safe environment. Obviously, it would have to be more convenient than the one where it seems like they are trying to swab brain tissue behind your eyes, because I know I certainly won't be signing up to do that every day or two. But a simple saliva swab in the mouth, and 15 minutes later you've got the green light to do whatever, seems like a reasonable solution.

There are a lot of companies out there that are pursuing this holy grail of a reliable rapid test, but the one I want to talk about today is developing a saliva-based rapid screening test, for Coronavirus, derived from a bunch of other interesting applications for their technology. The company is [Sona Nanotech Inc.](#) (CSE: SONA | OTCQB: SNANF), and they have developed multiple proprietary methods for the manufacture of various types of gold nanoparticles and are experienced in the

development of rapid, lateral flow assay, in-vitro, diagnostic tests. The Company is also involved in research and development into other potential applications for its proprietary technologies.

What makes Sona (the Hindi word for gold) unique is that it has patented, **non-toxic**, metallic gold nanorods (GNRs) which are small particles whose surface plasmon resonance (SPR) frequencies can be altered by modifying their length and width, giving them properties useful in a host of applications, including diagnostics, optical biomedical imaging, and photothermal therapies, to name a few. I recognize that's a lot of science stuff but the key term in the last sentence to focus on is non-toxic. One of the major barriers in the application of GNR based materials is the presence of cetrimonium bromide (CTAB), a cytotoxin. After years of hard work, Sona was able to perfect the process and develop the ability to synthesize large volumes of high-quality gold nanorods free of CTAB. This opened the door to using GNRs as a drug delivery vehicle and for photothermal therapy.

If you check out the [Sona Nanotech](#) website there is some pretty fascinating stuff, even if I don't understand a bunch of it. However, we'll focus on the investment thesis for today. It should be somewhat obvious that a rapid COVID test is what is of greatest importance right now. On November 8th the Company announced a U.S. partnership and preliminary evaluation results for its [COVID-19 saliva test](#). Sona entered into a binding licensing agreement with U.S. FDA registered Arlington Scientific Inc. of Springville, Utah, to bring Sona's rapid saliva COVID-19 test to market. The market was pretty excited about this news as the stock popped 87% the day after the press release, and that was before anyone was aware of the COVID omicron variant. If an FDA Emergency Use Authorization is

granted, Arlington will coordinate manufacturing and distribution of the test in the U.S. exclusively on a profit-sharing basis. In other words, Arlington will make it and market it, meaning almost zero cost for Sona to move the product forward (Sona is on the hook for providing key biological materials for testing). This is a very important deal for a company that currently has no revenue and is pretty much focused on R&D.

There are plenty of other developments going on at Sona like a concussion test for mild traumatic brain injury that aims to detect a series of biomarkers enabling the screening for mild concussions, and a bovine tuberculosis test, which is being developed with a consortium of companies as part of a Canada/UK industrial research and development program. Both of which could be future sources of income for the Company but not likely on the scale of a rapid COVID test. Another interesting application of their technology is a possible advancement of radiation therapy in cancer cells by focusing on the treatment. Evidence suggests that GNRs could be more effective at killing tumors with less or no adverse reactions to healthy cells given that traditional methods of this type of treatment involve non-selective irradiation, damaging the normal tissue surrounding a tumor. Although maybe we'll save the discussion of these applications for another day.

For now, Sona could be in the right place at the right time. After some initial missteps, they have fine-tuned their rapid, saliva, COVID-19 test just in time for the next variant of concern to come along. With just over 65 million shares outstanding they have a market cap of roughly C\$28 million based on yesterday's close. A near-term catalyst could prove to be a better shot in the arm for Sona Nanotech than any vaccine.