Greg Fenton on how Zentek's Advancement in Aptamer Technology is Revolutionizing Biotech

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In an interview with host Tracy Weslosky from InvestorNews, Zentek Ltd.'s (NASDAQ: ZTEK | TSXV: ZEN) CEO Greg Fenton began their discussion on the substantial improvement in the aptamer platform's binding affinity and yield as announced in their November 15th, 2023, release. Greg explains how the new platform may reduce the rapid clearance from the body, the researchers have increased the aptamer platform production to a 95% yield, which substantially reduces costs and positions them as potential replacements for monoclonal antibodies, offering efficiency and cost benefits.

Fenton highlights the rapid production capability of aptamers, taking only 6-8 weeks compared to longer durations for vaccines. Aptamers, composed of DNA sequences, are deemed safe and can be synthesized quickly for specific targets. This speed and cost-effectiveness give aptamers a competitive edge in the market, especially against antibody therapies.

He also discusses Zentek's collaboration with McMaster University in medical research, noting that the aptamer platform is still in early stages but shows great potential. He emphasizes the importance of safety, dosing ranges, and further research to establish the platform's market value.

Additionally, Zentek's recent developments include ZenGUARD™ enhanced air filters, which offer significant cost savings in

healthcare and energy efficiency. The filters reduce absenteeism and energy costs by requiring fewer air exchanges, representing economic benefits for building owners, businesses, and public healthcare systems.

Fenton also remarks on Zentek's efficient use of funds, highlighting that their current stage of development would typically cost hundreds of millions of dollars, but they achieved it with a fraction of that amount. This efficiency is attributed to their partnership with McMaster University.

Finally, the addition of John Snisarenko, a former pharma industry executive, to Zentek's board is seen as a strategic move to enhance the company's outreach and partnership engagement in the pharmaceutical industry. His extensive pharmaceutical experience and connections are expected to be valuable for Zentek's future development and commercialization strategy.

The news release from November 15, 2023, corroborates these developments, noting the substantial improvement in the aptamer platform's binding affinity and yield. The release also highlights the potential for Zentek's aptamers in precision therapy, competing with monoclonal antibodies, and the significant cost and timeline advantages inherent to their platform technology. Zentek's CEO comments on the potential of the aptamer platform across various therapeutic areas and the company's shift towards commercialization and partnership strategies. To access the complete interview, click here

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Zentek is an ISO 13485:2016 certified intellectual property technology company focused on the research, development and commercialization of novel products seeking to give the Company's commercial partners a competitive advantage by making their products better, safer, and greener.

Zentek's patented technology platform ZenGUARD™, is shown to have 99-per-cent anti-microbial activity and to significantly increase the bacterial and viral filtration efficiency of both surgical masks and HVAC (heating, ventilation, and air conditioning) systems. Zentek's ZenGUARD™ production facility is located in Guelph, Ontario.

Zentek has a global exclusive license to the Aptamer-based platform technology developed by McMaster University which is being jointly developed Zentek and McMaster for both the diagnostic and therapeutic markets.

To learn more about Zentek Ltd., click here

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Graphene oxide fights antibiotic pollution

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Antibiotics have saved my life. They may have saved your life too dear readers. However there is a very real possibility that they may stop working in the future. Part of the problem is antibiotic pollution and some new research shows that graphene oxide may be able to help. Read on to find out how…

What are Antibiotics and what is the problem?

Antibiotics are medicines used to prevent and treat bacterial infections. The World Health Organisation (WHO) states that '*Antibiotic resistance is rising to dangerously high levels in all parts of the world*' and '*without urgent action, we are heading for a post-antibiotic era, in which common infections and minor injuries can once again kill*'.

Antibiotic resistance

Like other living things bacteria evolve. They change in response to their environment. When a population of infectious bacteria inside our bodies is totally killed this stops the disease. The symptoms can disappear but when the bacteria have not been totally killed off and they can return with increased resistance to the drugs. This is why doctors always state that

we must complete the course of treatment.

The problem comes when a population of bacteria is partially killed. The survivors may be slightly less affected by the antibiotic and so live to reproduce offspring that carry increased resistance to the medicine.

Overuse of antibiotics is part of the problem. Another critical problem is that when our animals or we are given antibiotics some of the medicine passes straight though the body, straight through the sewage system and into our watercourses.

The link between pollution and antibiotic resistance

When antibiotics pass through our bodies and wastewater treatment systems they enter our lakes, rivers and seas. From there antibiotics enter the food chain and end up in fish and shellfish that we later eat. Water is also abstracted from rivers to grow crops and feed farm animals that we consume. The problem with small amounts of antibiotics in the environment is that disease-causing bacteria get exposed to less-than-lethal doses of the medicine. You'll probably be familiar with the expression 'what doesn't kill you makes you stronger' well that applies to bacteria too and this is how we end up with antibiotic resistant microorganisms in our environment.

Why don't we develop new antibiotics?

Because it is really hard to do. A paper in the journal Biochemical pharmacology laid out the problem clearly: '*Most pharmaceutical companies have stopped or have severely limited investments to discover and develop new antibiotics to treat the increasing prevalence of infections caused by multi-drug resistant bacteria, because the return on investment has been*

mostly negative for antibiotics that received marketing approved in the last few decades.'

How does Graphene Oxide help clean up pollution?

Researchers at Qingdao University in China made graphene oxide fibres with calcium alginate.

Tetracycline is one of the most frequently used antibiotics, ranking second in production and usage worldwide. The Chinese team found that this material could selectively adsorb tetracycline from water making it a possible pollution removal treatment for wastewater.

Tetracycline dissolves in water. Most sewage treatment plants are configured to separate solids from water so anything that is dissolved will pass straight through and enter the environment.

Graphene oxide adsorbs 131.6 mg of tetracycline for every gram of graphene oxide and works best at pH6, which is a neutral or slightly acidic condition. The calcium alginate makes graphene fibres that can be separated out as a solid. This is how the pollution control process works.

Summary

This is brand new research just emerging from the laboratory at present. Antibiotic pollution is a pressing public health issue for which there is a government response.

In Europe the Joint Programming Initiative on Antimicrobial Resistance (JPIAMR) supports innovations against antibiotic resistance. It has funded microbial resistance projects with £67.3M over the past four years. These graphene oxide fibres would be an ideal project for governments to fund. Many

successful niche businesses start with government support. Expect to hear more about this in the future.