

ZEN Graphene Solutions Moving Rapidly Ahead in Covid Detection and Protection

Two enormous areas of interest nowadays are the 'rapid detection' and the 'prevention' of Covid-19 infections.

Today's company has recently obtained worldwide exclusive rights to a technology that can detect a Covid-19 infection by using a sensitive and accurate 10 minute saliva test that works even on those with low viral loads who may be asymptomatic. The company also has its own technology for protective clothing (masks etc) that uses a graphene biocidal coating, which has been proven to be effective against viruses, bacteria, and fungi; including being 99% effective against Covid-19.

Not surprisingly the company's stock price is **up 527%** over the past year. The company is ZEN Graphene Solutions Ltd. (TSXV:ZEN)(OTC Pink: ZENYF) ("ZEN").



Source: Yahoo Finance

ZEN has rights to commercialize a new, rapid, saliva-based, COVID-19 antigen testing technology, developed at Canada's McMaster University, that can detect much lower quantities of virus than other tests

On June 17, ZEN announced: "Exclusive worldwide rights to commercialize rapid, saliva-based COVID-19 antigen testing technology". The key differentiating factor here is that **the test can detect much lower quantities of virus than other tests**. Lower detection limits significantly increase the likelihood of identifying positive cases in people with low viral loads at the early stages of infection when they may be asymptomatic.

The test is exceptionally accurate (similar to current PCR tests), saliva-based, affordable, scalable and provides results in under 10 minutes. The announcement stated the key advantages of the test:

- "Rapid, point-of-care, saliva-based antigen test utilizes newly developed, patent-pending novel molecular-probes, which specifically recognize the SARS-CoV-2 spike protein
- Evaluation of more than 60 positive and negative patient saliva samples indicated that the sensor had a clinical sensitivity of 82% and specificity of 100%, which meets the FDA regulations for home-based antigen tests and can detect both the Wuhan version and the UK variant. Additional variants of concern can be easily added as they arise. Work is currently underway to incorporate the detection of the Brazilian, South African and Indian strains.
- **Unique combination of sensitivity, specificity and extremely low detection limits (<1,000 copies per ml) differentiate the technology from other rapid saliva-based tests on the market (>10,000-50,000 copies per**

mL)....

- Uses electric readout that can provide a rapid, single-step detection method with high detection sensitivity using simple handheld instrumentation – like a cell phone – for widespread use making it ideal for the home or in large public settings.
- Technology can be used as a platform for detection of many other viral and bacterial pathogens beyond SARS-CoV-2 and its variants
- Future iterations of technology to be co-developed through collaborations between McMaster and ZEN
- Provisional patents for the technology were filed on June 16th, 2021
- Test requires final Health Canada and FDA approval
- The Company entered into the agreement based on review of McMaster clinical test data, review of test components and significant evaluation of the underlying technology.”

ZEN’s Covid-19 saliva test compared to peers

Rapid Test Market Overview*



	Nasal		Plasma	Saliva
	Rapid PCR (Abbott ID NOW)	Rapid Antigen (Abbott Panbio)	Rapid Antibody (BTNX Rapid Response)	ZEN Aptamer-Based Antigen Test
Sensitivity/Specificity %	93.3/98.4	98.1/99.8	94.6/100	82 ¹ /100
Speed	< 13 minutes	~15 minutes	~15 minutes	< 10 minutes
Equipment	Testing equipment required; intended for point-of-care use in healthcare settings	Cassette, buffer, collection tube	Cassette, buffer solution, lancet	Cell phone, mobile electric reader, sensor, other components TBD
Cost	Equipment \$4,500-\$5,000	\$16 per test ²	\$19 per test ²	Highly competitive

Note: FDA regulations for sensitivity and specificity are ≥80% and ≥99%, respectively

We believe our combination of accuracy, speed, simplicity, scalability and affordability is a differentiator based on what is available today

Source: ZEN’s saliva based aptamer-enabled rapid detection presentation

ZEN has signed an exclusive agreement with McMaster University to be the global commercializing partner for a newly developed aptamer-based, SARS-CoV-2 rapid detection technology, developed by a team of researchers at the University. The researchers are recognized as global leaders in biosensing technologies and their applications as point of care diagnostics.

Since this potentially game changing news for ZEN, the stock price has risen 27% from June 17 until today (September 22). This may sound impressive but given ZEN trades on a relatively small market cap of C\$360M, then there should be potentially much more upside ahead if they can achieve a global commercialization of this brilliant Covid-19 saliva test. The one thing to be noted is that the test still requires final Health Canada and FDA approval.

ZEN's CEO and Director, Greg Fenton simply stated that this new test will "revolutionize the way testing is done". You can watch a full video interview with the ZEN CEO here.

Over 2.6 billion Covid-19 tests have been performed globally



Source: ZEN's saliva based aptamer-enabled rapid detection presentation

ZEN's other key recent development is a graphene-based coating for use in personal protective equipment

ZEN (along with Trebor RX Corp.) is currently focused on commercializing ZEN Guard™, a patent pending graphene-based coating with 99% antimicrobial activity, including against COVID-19, and the potential to use similar graphene compounds as pharmaceutical products against infectious diseases.

Currently Health Canada is undergoing a review process for the ZEN Guard™ product, and we await news of the outcome.

Finally the recently announced appointment of Dr. Kenneth Reed, Medical Director at DermASAP, to ZEN's Advisory Board boosts ZEN's experience, particularly in the area of dermatology. Dr. Reed is a Harvard Medical School trained dermatologist, and he has 38 years of clinical experience in the state of Massachusetts. Dr. Reed will devote significant time and attention to advancing ZEN's topical therapeutic applications.

Closing remarks

For investors Zen stock has already had a stellar past year up 527%, but this could be only the beginning if ZEN can achieve global commercialization success with the McMaster University developed rapid Covid-19 test as well as the graphene biocidal coating developed with Trebor RX Corp to be used in personal protective equipment. There are still a few milestones to be achieved in the road ahead with approvals from Health Canada and FDA so some caution is warranted.

ZEN Graphene Solutions is becoming a leading innovator in the world of graphene products and Covid-19 solutions. Added to this ZEN has a significant R&D pipeline with an interest in monomers, polymers, metal alloys, corrosion coatings, and biosensors along with the production of graphene oxide and graphene quantum dots. ZEN owns the unique Albany Graphite Project which provides an ideal source for their graphene production.

Stay tuned as ZEN is a very fast moving company and the year ahead is full of enormous potential for them.

Disclosure: The author is long ZEN Graphene Solutions (TSXV:ZEN).