

# Sixth Wave Innovations leads virus detection through breath testing

## Using nanotechnology to quickly identify pathogens

Imagine if taking a coronavirus test was as simple as an alcohol breathalyzer, or a pregnancy test, and the results just as fast. One company has developed a test that uses **molecular imprinted polymers** with the possibility of detecting almost any pathogen, and is now using their technology to develop a way to detect for COVID-19 as easily as using a saliva test or a swab test.

Sixth Wave Innovations (CSE: SIXW | OTCQB: ATURF | FSE: AHUH) is a development stage nanotechnology company with patented technologies that focus on the extraction and detection of target substances at the molecular level using highly specialized 'molecular imprinted polymers' (MIPs). The target substances can be anything, such as pathogens (viruses & bacteria), gold, or anything made of molecules (that's every substance).

Sixth Wave has technology to make a 'polymer imprint' for molecules including viruses. Sixth Wave is working to develop a molecular imprint for the coronavirus so they can capture the virus in their polymer and then apply various techniques to detect the virus such as colormetrics or electronics.

The company is working toward incorporating the technology into a mask **so you could wear a mask that both protects and detects for COVID-19**. Another concept is to have the MIP inside a coated barcode strip which you would then scan with

your smartphone to see if you have been infected or not. (See: Sixth Wave working on a virus breath test.)

President, CEO and Founder Dr. Jonathan Gluckman explained that a “virus has a size and shape and we create an imprint in our polymer for that exact virus. Then we will detect that directly based on our chemistry.” He continued that Sixth Wave is “working to integrate this into masks and breathalyzers and then we can just utilize the breath, as we all know that’s the main transmission method. If you think about putting a mask on, not only will that mask provide protection, it can also, right there, be the test for COVID-19.”

Highlighting the advantages of Sixth Wave’s COVID-19 test over other tests, Dr. Gluckman also said that **the test will be cheaper, faster, less invasive, and easy to use.**

Dr. Gluckman says that Sixth Wave’s COVID-19 detection technology is currently under development, but the Company has successfully launched and commercialized other products with similar properties. The coronavirus tests are planned to be ready for an early 2021 rollout. The company has received a grant from the Canadian government to work with York University and the CTRI to use its virus detection technology to detect COVID-19 virus in wastewater supplies and in air handling systems.

**Sixth Wave Innovations can detect and extract anything at the molecular level – Target markets include COVID-19 testing, gold extraction, and cannabis purification**



Source

**Sixth Wave Innovations technology can be used for other applications**

### **Gold extraction**

IXOS® is a line of extraction polymers for the gold mining industry 100% developed and owned by Sixth Wave and patented/patent pending in 40+ countries worldwide. CEO Gluckman says the technology can save gold mining companies about US\$100/oz on their processing costs based on pilot scale test results for multiple mines.

**Sixth Wave Innovations IXOS® can save gold miners up to US\$100/oz in gold processing costs**



## IXOS<sup>®</sup> PRODUCT DETAILS

MIPs for the Extraction of Gold



Note: Gold in Chloride changes the color of the beads

### Operational & Performance Capability - Summary

- High Gold capacity (about 25g/kg, 10x more than carbon)
- High selectivity (>97%, vs. about 40% for carbon)
- Easy to unload the gold (carbon needs heat, pressure, and chemicals)
- No regeneration - it's ready to go again after unloading (carbon needs more heat and more chemicals)
- Better for the environment
- Fewer waste products
- Lower carbon footprints
- Less water used in the Adsorption/Desorption Recovery
- \$100 USD/Oz Savings (Based on Pilot Scale Test Results for multiple mines)

Source: Corporate presentation

## Cannabis Purification

Sixth Wave is in the process of commercializing its Affinity™ cannabinoid purification system. The Affinity™ Technology for the medical and recreational cannabis industry is 100% developed and owned by Sixth Wave with a patent pending. Affinity™ products are now rolling out and starting to generate revenue for Sixth Wave, including an initial 300 Affinity units.

## Other applications

Sixth Wave's Molecular Imprinted Polymers (MIPs) have also been applied in industries including security (SAFE-T explosives detective wipes), mining (gold & silver extraction, also removal of mercury), and other pathogen detection. The potential list of applications is enormous.

## Sixth Wave Innovations planned revenue streams



# Revenue Streams

## SHORT TERM VS LONG TERM DEVELOPMENT

### SHORT TERM

- Sixth Wave has completed pilot testing the Affinity™ System for Cannabinoid Purification. We expect to begin system installation in July 2020. Our goal is to have 30 commercial revenue producing units in place by December 2021. (Each standard unit has the ability to generate > \$1MM annually).
- Sixth Wave expects to commercialize its AMIPs™ Technology for biogenic amines, as well as virus detection by 2021.

### MID TERM

- AMIPS: Virus detection pathway to market in 6-8 months with appropriate funding.

### LONG TERM

- Prospective Pipeline of inquiries for ~ 300 Affinity™ units.
- Sixth Wave expects to begin final testing and configuration of the IXOS® Gold Extraction Plant for a major Gold producer in 2021.

Source: Corporate presentation

## Closing remarks

History has repeatedly shown how mankind makes incredible innovative technology during incredible times. Here we are facing one of this century's greatest pandemics and scientists globally are racing to develop better diagnostic tests, treatments and vaccines.

In the case of Sixth Wave Innovations it is fast-tracking the development of an innovative technology to detect and extract polymer molecules. They are now focused on adapting their technology to make a polymer imprint of the coronavirus that can, if successful, make COVID-19 detection as simple and fast as a breath test, whether on a test strip or even on a dual-purpose face mask. Imagine wearing a face mask that can also detect COVID-19. Sixth Wave's COVID-19 detection technology targeted for early 2021, and if successful it will be a massive win-win for the public and also for Sixth Wave Innovations.

Meanwhile, Sixth Wave will be advancing their near term revenues from Affinity™, and later hopefully from IXOS®. The current market cap of Sixth Wave Innovations is only C\$21m thereby presenting a tremendous early stage speculative opportunity for investors.

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## **XPhyto Therapeutics moving forward from successful prototype testing of saliva virus test**

### **Non-invasive test can detect viral RNA in asymptomatic patients**

XPhyto Therapeutics Corp. (CSE: XPHY | OTCQB: XPHYF | FSE: 4XT) (“XPhyto”) is a next generation bioscience company with a rapid pathogen screening systems division, including a new, non-invasive coronavirus saliva test. This is an important addition to rest of their businesses which includes advanced drug delivery systems (Vektor Pharma) and cannabis investments (Vektor Pharma & Bunker).

XPhyto’s core business is drug delivery, diagnostic, and cannabis investment opportunities focused on European markets, especially Germany.





Source: Company presentation

## XPhyto's rapid pathogen screening systems

XPhyto is focused on developing rapid, low-cost, screening tools for pandemic threats. The company, along with their diagnostic partner 3a-Diagnostics GmbH ("3a"), has recently become better known for their COVID-19 RNA testing. The XPhyto team is developing a rapid, disposable, point-of-screening test to detect COVID-19 viral RNA from patient saliva as well as more traditional nasal and throat swabs. On July 6, 2020, XPhyto announced successful validation of its working test prototype. The test, as observed and reported by clinicians and scientists in peer reviewed publications, demonstrated a detection limit capable of identifying viral RNA in the saliva of symptomatic, pre-symptomatic, and asymptomatic patients. Subject to fast track certification by the German government, XPhyto and 3a are targeting Q1 2021 for European regulatory approval and commercial sales.

Being able to detect coronavirus early in patients with no symptoms has been identified as a key factor in halting the spread. A saliva-based test is another huge advantage due to the ease of testing compared to the current nasal swab testing, which can range from uncomfortable to painful.

The technology behind the new test will also be suitable for other types of coronaviruses in the long term. XPhyto and 3a are also in the process of developing rapid screening tests for other pandemic threats, including H1N1 (swine flu) and H5N1 (avian flu), with a specific focus on identifying early pre-symptomatic stages of infection.

### **XPhyto's advanced drug delivery systems**

XPhyto owns Vektor Pharma, a German narcotics manufacturer, importer and researcher. Vektor Pharma is a decade-long leader in design, testing and manufacture of thin film drug delivery systems including transdermal patches, oral dissolvable film (ODF), sub-lingual (oral) strips for the clinical management of pain, and an ODF biosensor delivery platform. Vektor Pharma currently holds numerous narcotics import and manufacturing licenses, including cannabis imports and authorizations related to conventional and cannabis-related prescription medications.

### **XPhyto's cannabis investments**

XPhyto also 100% owns Bunker. Bunker has a unique German cannabis cultivation and extraction license for scientific purposes. Subject to BfArM (the Federal Institute for Drugs and Medical Devices) security requirements, the license authorizes cultivation and extract of 70 different strains of Cannabis Sativa and Cannabis Indica for scientific purposes.

XPhyto also has an exclusive LOI and standstill agreement for cooperation in the field of development, production, and distribution of new cannabis-infused beverages and products with the famous German brewery Oettinger. Oettinger beer is not only one of the best selling beers in Germany, it is also internationally recognized as one of the largest brewery groups in the world.

### **XPhyto Therapeutics Corp. is well-placed in key emerging industries**





**BUILDING A NEXT GENERATION BIOSCIENCE COMPANY: *Intelligent Capital & Human Resources***

*XPhyto is set to leverage its strategic alliances and acquisitions, building the right team at the right time.*

- WORLD-CLASS DRUG DELIVERY EXPERTISE**  
A future investment in a high margin, market-leading technology that is safe for patients;
- EXTENSIVE GLOBAL SUPPLY NETWORKS**  
Premium quality products with no capital investment in cultivation infrastructure;
- DISRUPTIVE DIAGNOSTIC PIPELINE**  
Rapid, low-cost screening tools for pandemic threats;
- EFFICIENT M&A TRANSACTIONS**  
Prudent management committed to building shareholder value;
- UNIQUE GERMAN R&D LICENCES**  
First-mover advantage and industry leadership;
- R&D COLLABORATIONS**  
Access to world-class facilities with limited capital investment;

Source: Company presentation

## Closing remarks

XPhyto is an innovator in the increasingly important fields of virus detection and drug delivery systems, including the vital area of mass rapid pathogen screening testing. Added to that, it has some exciting cannabis related investments, particularly with Bunker in Germany. XPhyto also has R&D collaborations with the technical University of Munich and the University of Alberta.

For investors, XPhyto Therapeutics Corp. trades on a market cap of C\$165m and the stock is up an impressive 132% in the past year. While a non-invasive COVID-19 saliva test that can detect the virus in both symptomatic and asymptomatic patients would have immediate and obvious benefits, it could also have long-term applicability to other pathogens going forward. Added to XPhyto's carefully curated suite of other diagnostic, drug delivery and cannabis licenses, it makes it a company to watch.

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# Rapid and accurate testing the key to a return to normalcy

And here are three companies working on it.

Imagine a global pandemic caused by a new virus. Apparently it has been around for 6, 8 or 10 months and may or may not have come from China (depending on which expert is talking on any given day).

The symptoms are multiple (and variable and inconsistent between infected people, or so it seems) and the test for it is a long nasal swab inserted into your body that is uncomfortable at best but usually quite painful.

Then imagine that the test results (none of which may be accurate) take 2-6 days and may come back as:

- Positive
- Negative
- False Positive
- False Negative

Oh, and apparently, there is also a blood test for antibodies which would tell you if you had the virus... but actually there are many (unreliable) blood tests that may produce the same range of four results as above.

Exhausted yet? We all are, as the current pandemic has set the world on its ear, crippled the global economy and created an

undeniable environment of fear.

However, there are glimmers of hope for accurate testing which would allow the world to get back to an almost pre-virus life. Instead of waiting days for suspect results, companies are focusing on technology using quick, accurate, inexpensive and technologically proven procedures that do not require highly trained staff or expensive equipment.

Three Canadian public companies are at the forefront of developing these new, non-invasive, technology driven coronavirus tests that will be accurate, eliminate (mostly) the need for that sketchy nasal swab, and provide nearly instant, accurate results.

### **Sixth Wave Innovations Inc. (CSE: SIXW | OTCQB: ATURF)**

The newest entrant in the public markets, Sixth Wave began trading in February 2020 after a previous merger with another public company and subsequent financings, etc. Current market capitalization is approximately C\$26 million.



Sixth Wave is a development stage nanotechnology company with patented technologies that focus on extraction and detection of target substances at the molecular level using highly specialized Accelerated Molecularly Imprinted Polymers (AMIPs). Since every substance has a unique size, shape and chemical properties, these attributes can be utilized at the individual molecule level to create highly efficient adsorption/detection media to solve problems that cannot be solved with conventional means.

What does this mean? In simple terms, they can detect anything at the molecular level and this technology has already been successfully deployed in both the cannabis and gold mining industries. In practical terms, by using AMIPs, Six Wave's technology could be used to detect COVID-19 in airborne, water

and wastewater environments. Further, successful development of their technology could also be rolled out to provide accurate, almost immediate testing for the coronavirus in individuals.

Sixth Wave (along with its partners) recently received approval from the Natural Sciences and Engineering Research Council of Canada to advance virus detection technology testing using AMIP. Successful testing could optimistically be completed before year-end with an available product possible for market in early 2021. A publicly available product could be as simple as a face mask that changes colour if positive for COVID-19.

### **Sona Nanotech Inc. (CSE: SONA | OTCQB: SNANF)**

Sona Nanotech is a well-established public company whose technology development of gold nanorods started back in 2013. The company went public in 2018 and has a current market capitalization of approximately C\$677 million, although this has jumped dramatically since February 2020 as a result of the coronavirus pandemic.



Gold nanorods have multiple uses, but the potential for providing near-instant results has very much excited the market. Using lateral flow assay technology testing (comparable to a home pregnancy test), a positive or negative test for coronavirus can be determined without the need for specialist lab equipment or operators. In April 2020, Sona tested a working prototype of the test in a hospital laboratory environment with live, COVID-19 patient samples, achieving positive results. Further testing is underway and of course government approvals will be required

The company's analytical test still requires the dreaded nasal swab for the evaluation source material, but results should be

more accurate and available in minutes.

### **XPhyto Therapeutics Corp. (CSE: XPHY | OTC: XPHYF | FSE: 4XT)**

Originally created for the cannabis industry, Xphyto Therapeutics has subsidiaries in Alberta and in Germany. Established in late 2017, the company went public in mid-2019 and has a current market capitalization of approximately C\$190 million. The company had a strong share price prior to the coronavirus pandemic due to its other products, but application of related technology has caught the market's attention.



Since starting in the cannabis space, the company has branched out in Germany with strategic acquisitions/development agreements in diagnostics and therapeutic films. In part due to the arrival of the coronavirus pandemic, the company first initiated an infectious diseases program in February 2020 which was directly transferable to developing a low-cost, "real time" oral pathogen screening platform for COVID-19 in March 2020. By July, the company had confirmed successful function of its proprietary COVID-19 RNA probes and its universal coronavirus RNA probes in prototype lateral flow assay testing. Visual confirmation of test results was observed in five to seven minutes.

Short of an actual vaccine, rapid and accurate testing continues to be the Holy Grail in the world-wide response to COVID-19 and the key to a return to economic and social normalcy. These are among the companies to watch with innovative testing technologies.

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# Doobie Brothers and Oasis Top the Coronavirus Market Music Hit List.

Amidst the non-prejudicial crucifixion of our markets from the beloved Covid-19 last week, we are all watching helplessly as many of our investment portfolios simply asphyxiate like many suffering from the impact of the coronavirus pandemic.

Call it an **Act of God**, the drowning process has just begun and many a lifetime of savings are presently under water; some will survive, some will not. Trusted sources in our sector reassure me that we will recover for selected stocks equally as fast as we went down – the themes are the same, isolate, utilize creativity and be brave.

Flashback to the lessons from history, let's review the Spanish Flu and rewind to 1918: "The Spanish flu infected 500 million people around the world, or about 27% of the then world population of between 1.8 and 1.9 billion, including people on isolated Pacific islands and in the Arctic. The death toll is estimated to have been anywhere from 17 million to 50 million, and possibly as high as 100 million, making it one of the deadliest epidemics in human history."

*Ugh, I read on...*

The duplication of plot-lines between the past and present seemingly ensues, Wikipedia states: "To maintain morale, wartime censors minimized early reports of illness and mortality in Germany, the United Kingdom, France, and the United States. Papers were free to report the epidemic's effects in neutral Spain (such as the grave illness of King Alfonso XIII). These stories created a false impression of Spain as especially hard hit, giving rise to the pandemic's nickname, **Spanish flu**."

Seemingly similar to today, every other CNN story is about how Italy is probably not the place to live – more local coverage is needed.

While social media has liberated some of us from being the media's pawn, I would like to add that the Spanish Flu in retrospect was just like Covid-19 in that "...analysis of medical journals from the period of the pandemic found that the viral infection was no more aggressive than previous influenza strains."

Flash forward to today, however, Covid-19 is *more aggressive* and is killing more than the flu, we have an unprecedented #StaytheFuckHome social media movement...and like any great moment in any great film, last week's market crash was both fast and furious. The soundtrack was the same everywhere with "I could have/should have/would have sold the week before...if only I saw this coming."

Remembering an award-winning analyst years ago who propagated fame for a report titled "What if I am wrong?" – this resonates with me. *Why?* Because I am going to take a run at discussing how I am going to manage my own finances while the Covid-19 Tango warms up for some serious cha-cha's on our bottom lines. A brutal dance for most of us to finesse at the best of time, going to do it with my own soundtrack selection with Tracy's Top-5 hits to listen to in the background while sharing my truths...

**#5. Let it Breathe, by Water Liars.** I used to reassure my teenagers years ago that "I don't know" was a real answer when they would look alarmed by not knowing how to answer the usual question from returning from a friend's home with "were you smoking?" It was painful for me to watch them attempt to lie; with time they would understand that by answering with "I don't know" they were in fact – buying time. Today, with many readers and associates sending me all kinds of notes, endless toilet paper jokes and providing all kinds of advice on how to



manage the carnage, when asked, my answer is the same: "I just don't know". Not only is the intent to buy time but I am hoping that its just somehow, going to get better as I cling to the news announcement that China is opening Apple stores again on Friday. So, while staying optimistic, one thing I have learned from previous market 'corrections' is that when billionaires resign from boards to rededicate their lives to philanthropy, it's usually not a good sign for any of us...

**#4. Elderly woman behind the counter in a small town, by Pearl Jam.** Perhaps one of the most significant positives from the *Covid-19* is a reminder that we have not prioritized our elderly in our society. We need to examine the knowledge, leadership and value of wisdom our elderly, but more importantly we need to review their care. At InvestorIntel we have been championing Nova Leap Health Corp. (TSXV: NLH) ever since we discovered these rising stars in our market existed. Nova Leap Health, whose CEO has been actively campaigning for the care for seniors at home is overdue a round of applause. Unquestionably companies like Nova Leap deserve greater support from us as investors, I personally plan on seeing what other gems that presently exist in the market for elderly care for the inevitable turnaround of the market. This is important, thank you Covid-19 for making all of us prioritize our health and the care of our family members.

**#3. I will return, by Skylar Grey.** My parents who live on a 28-acre mountain in Tennessee, already in self isolation as a matter of life choice with at least 2 industrial strength freezers fully packed and a solar powered generator prior to the pandemic, called me on Friday evening to check in. "It will return" my mother reassures me with regards to the market, adding "this too will pass" with the comfort that only a mother can bring. My response was that I was reviewing Google News regularly for updates on a vaccine and was delighted that "a Canadian company says it has made a breakthrough in the fight against the coronavirus outbreak,

claiming to have developed a COVID-19 vaccine candidate that could begin human testing as early as this summer.” (click here) Equally as delightful I shared was the story on how U of T and McMaster researchers at Sunnybrook Hospital isolate virus behind COVID-19, indeed the frontline warriors in this battle, are our medical scientists. So just as we see an ambush of market negativity, there is at the same time (as always) a ray of sunshine!

**#2. Should I Stay or Should I go Now, by The Clash.** A classic in any life adventure, has there ever been a time where one has not asked oneself if they may have simply been better by leaving earlier? Well for those of us who were not fully vested in cash as the market plummeted, we now must ask ourselves what do we do today? Today, I am holding. Perhaps I am lying to myself, but I do respect my intuition and over this last week of restless sleeps, I have concluded that the market ‘may’ recover faster than anyone anticipates – again, historically speaking, the market always does. Crazier perhaps to some, I plan on reviewing what companies have been needlessly mired with the belief that they will lead us out of this chaos...example, utilities/energy are being hit with no rhyme or reason, critical materials’ demand will be at an all time high during recovery and biotech, well – this one has my attention as biotech could save us all.

**#1. TIE: Don’t Look Back in Anger, by Oasis and Long Train Running’ by the Doobie Brothers.** Nowhere to go from here, I cancelled all my meetings this week and the Technology Metals Summit for May 14<sup>th</sup> at the Omni King Edward. Now with our final music selection I wrestled with selecting the top track for “Tracy’s Coronavirus Mix”, it was neck and neck with Oasis and the Doobie Brothers. This morning...it feels like the Doobie Brothers had it right with a *Long Train Running*’: “Life keeps moving and doesn’t stop- like a train won’t stop easily with all its momentum and weight. They’re going to go with or without you.” So, this Covid-19 is indeed like a train once it

starts...it just keeps on moving. And our dear friend from Oasis, called it right perhaps as I enter my own period of self isolation, maybe its past due for all of us to "Slip inside the eye of your mind, Don't you know you might find – a better place to play..." Perhaps its time for some introspection, and who knows what we may find?

Here's to everyone's health as we fight this all together.

*Special thanks to our biotech industry as they lead the fight to find a cure for all of us.*