

# **Investors search for a winner in the vaccine race**

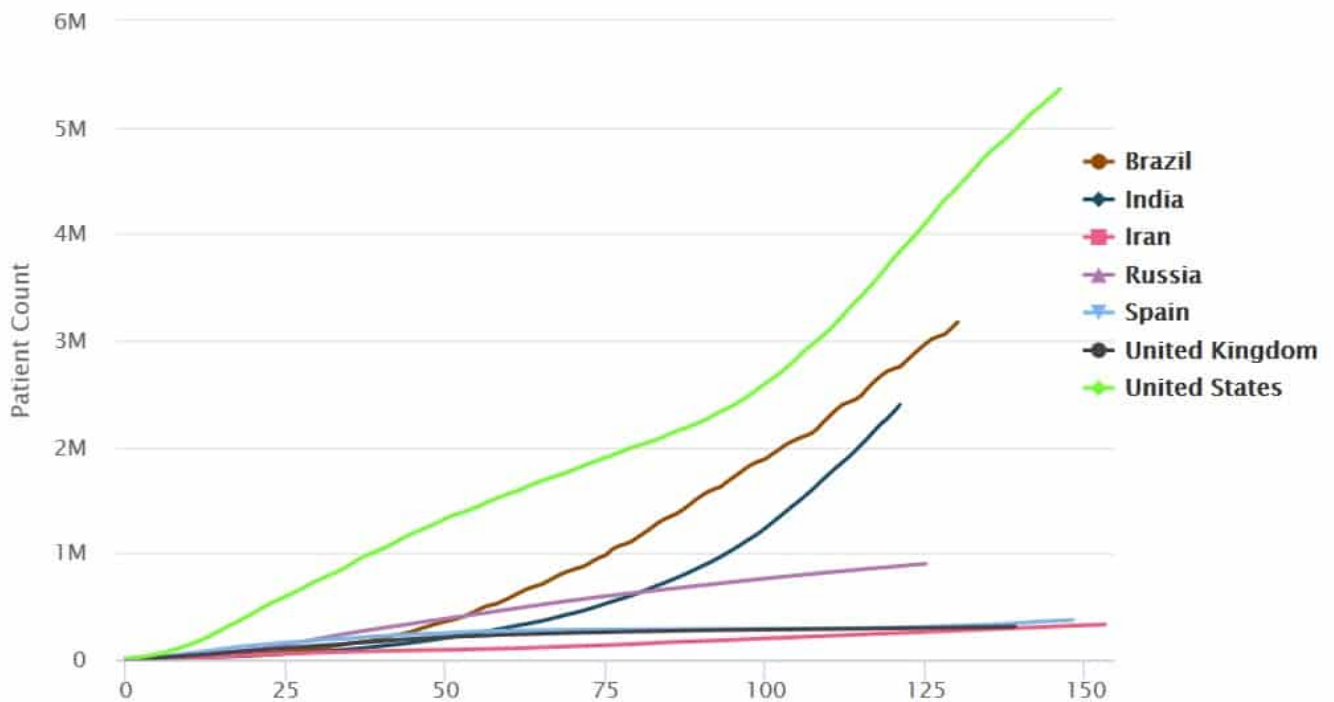
## **It's not just about who's first, but about who can deliver**

The race to develop a COVID-19 coronavirus vaccine is on. There are literally around 100 companies globally as well as numerous government organizations all rushing to get an effective and safe COVID-19 vaccine approved and ready for widespread use. After developing a vaccine comes testing (including 3 phases of human trials with bigger numbers in each phase), then FDA approval in the U.S., and finally production. Normally this process can take up to 10 years, but with the personal and global economic challenges of COVID-19, the goal is to have an effective and safe vaccine in 1-2 years, with the leading companies now moving into phase 3 human trials.

For investors the key question is which companies will win the race to produce a safe and effective vaccine, stopping the pandemic and allowing the global economy to return to some form of normality. Certainly with global cases at a staggering 20,810,774 and 746,411 deaths, the world desperately needs a cure. Worst hit countries are currently the USA, Brazil and India.

**Cumulative global COVID-19 cases by country as of August 12, 2020**

Cumulative number of cases, by number of days since 10,000 cases



Source: [www.worldometers.info](http://www.worldometers.info)

Today I look at which countries and companies are leading the COVID-19 vaccine race to see what may happen next.

## Russia

The world's press lit up this past week with Russia's President Putin's statement that Russia has registered the world's first Covid-19 vaccine, named 'Sputnik V'. While this was met with some skepticism and perhaps jealousy by the West, it appears that Russia is very well advanced and experienced with vaccines and in fact may likely end up with the world's first COVID-19 vaccine, in part due to their fast-tracked testing process. The Gamaleya vaccine (developed through the Russian Direct Investment Fund) began Phase 3 testing last week. Russian officials have said production is likely to start next month (Sept.) and the Health Ministry said mass vaccinations could begin by October, 2020.

The bigger question is who outside of Russia will use it? I highly doubt the western world will choose a Russian vaccine

over a western vaccine. Some industry bodies have called the Russian Covid-19 vaccine a Pandora's Box due to the shortened testing and the risks that come with it.

## **China**

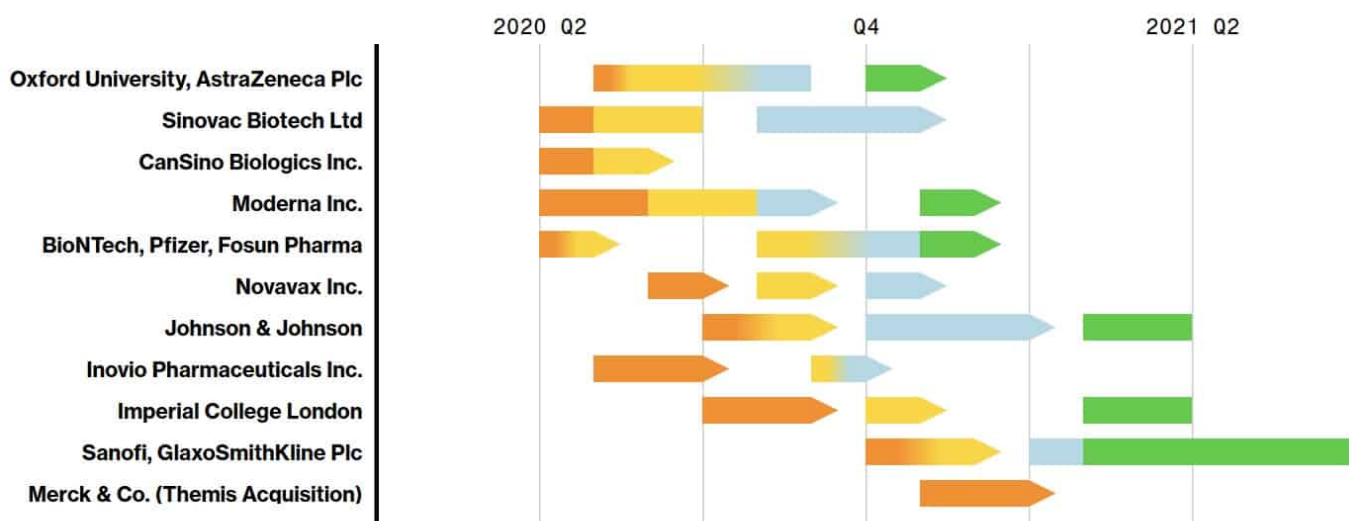
Many see China leading the global vaccine race. Reuters recently reported: "Chinese ventures are leading at least eight of the 26 global vaccine development projects currently testing on humans."

China's leading COVID-19 vaccine company is Sinovac Biotech Ltd. with their 'CoronaVac' vaccine. Their phase 3 trial in Indonesia with 1,620 human subjects is expected to end by December 2020. Sinovac's vaccine candidate is also being tested in other places around the world, including phase 3 trials in Brazil.

Last week it was announced that Shenzhen Kangtai Biological Products (SHE: 300601) will produce AstraZeneca Plc's prospective COVID-19 vaccine in mainland China (100m doses). A big plus for AstraZeneca to potentially gain access to the 1.4 billion person Chinese market.

## **Vaccine tracker timeline**

- Phase 1** Testing in small groups for safety
- Phase 2** Larger tests for effectiveness
- Phase 3** Large-scale efficacy and safety trials
- Approval** Allowed under emergency use authorization or other limited use authorizations.



Source: Bloomberg

## UK/Europe

Two of the big four global vaccine companies are headquartered in the UK or Europe. GlaxoSmithKline (GSK) is in the UK and Sanofi (SNY) is in France. Both will likely be front runners in Europe come late 2020 and they may even develop a joint venture vaccine. AstraZeneca (AZN) is the other main competitor who is headquartered in the UK.

## USA

The final two of the big four global vaccine companies are Pfizer (PFE) and Merck (MRK), both headquartered in the USA. In June it was reported that Trump “has selected its COVID-19 vaccine (five) finalists for Operation Warp Speed“. Naturally, four of the five are headquartered in the USA – Pfizer, Merck, Johnson & Johnson (JNJ) and Moderna (MRNA). The fifth was AstraZeneca. The goal of Operation Warp Speed is to deliver 300 million doses of a safe, effective vaccine for COVID-19 by

January 2021.

In terms of funding, the US government has given massive support to the following companies:

- March 30: HHS (U.S. Department of Health and Human Services) announced \$456 million in funds for Johnson & Johnson's candidate vaccine, with Phase 1 clinical trials set to begin this summer.
- April 16: HHS made up to \$483 million in support available for Moderna's candidate vaccine, which began Phase 1 trials on March 16 and received a fast-track designation from the FDA.
- May 21: HHS announced up to \$1.2 billion in support for AstraZeneca's candidate vaccine, developed in conjunction with the University of Oxford. The agreement is to make available at least 300 million doses of the vaccine for the United States, with the first doses delivered as early as October 2020 and Phase 3 clinical studies beginning this summer with approximately 30,000 volunteers in the United States.
- May 12: DoD and HHS announced a \$138 million contract with ApiJect for more than 100 million prefilled syringes for distribution across the United States by year-end 2020, as well as the development of manufacturing capacity for the ultimate production goal of over 500 million prefilled syringes in 2021.

Source: HHS.gov Fact Sheet

More recently, on August 11, 2020 President Trump announced a deal with Moderna for 100 million doses of coronavirus vaccine, said to be worth US\$1.53b.

**US vaccine spending – Trump's vaccine deals**

# U.S. VACCINE SPENDING

Trump's Vaccine Deals



\$1.5B to Moderna

\$1.2B to AstraZeneca

\$1.6B to Novavax

\$2B to GlaxoSmithKline

\$1.95B to Pfizer

Source: Bloomberg – Vaccine for All ‘Decent Amount’ of Weeks Away

## India

India is already a world-leader in vaccine production, currently producing ~60% of global vaccines. The Serum Institute of India may also do well as they have the world's largest vaccine manufacturing facility and they are now preparing to be capable of producing 1 billion COVID-19 vaccine doses pa. The Serum Institute already has a deal to produce a billion doses of a COVID-19 vaccine being developed by the University of Oxford and AstraZeneca. This places AstraZeneca in a very strong position to be able to reach the largest scale of all vaccine competitors.

**COVID-19 vaccines are already in phase 3 human trials in many parts of the world**



For an in depth list, top 5, and daily stock price performance of the global vaccine companies investors can search the daily InvestorIntel watchlists here.

### **InvestorChannel's Covid-19 Watchlist Update for Wednesday, August 12, 2020**

**i** InvestorChannel's Covid-19 Watchlist Update for Wednesday, August 12, 2020, 16:30 EST

## **InvestorChannel's Watchlist**

- Mesoblast Limited (MESO) USD 11.81 (4.24%)
- AbbVie Inc. (ABBV) USD 95.51 (3.06%)
- Roche Holding Ltd. (RHHBY) USD 43.37 (2.85%)
- AstraZeneca PLC (AZN) USD 56.74 (2.83%)
- Regeneron Pharmaceuticals Inc. (REGN) USD 612.35 (2.25%)
- Athersys Inc. (ATHX) USD 2.31 (2.21%)
- Merck & Co., Inc. (MRK) USD 82.68 (2.19%)
- Sanofi Pasteur (SNY) USD 51.79 (1.91%)
- Cococrystal Pharma Inc. (COCP) USD 2.00 (1.52%)
- Bayer AG (BAYRY) USD 17.04 (1.43%)
- Pfizer Inc. (PFE) USD 38.33 (1.43%)
- Gilead Sciences Inc. (GILD) USD 68.84 (1.09%)

Source: InvestorChannel's Covid-19 Watchlist Update

**Closing remarks**

For now it looks like the Russians may beat the Chinese and be first to market with a COVID-19 vaccine, followed by the USA then Europe. This could happen as early as October or November this year, but will take time to scale up production, and there may be lingering questions about efficacy and safety. My view is that it will not matter so much who is first.

What will matter is where will countries buy their vaccine. I think the answer to this is fairly clear. Countries will buy first from their own national companies if possible, then after that from ally countries. The US will buy its vaccine not from Russia or China, but from US companies or US allies. We have already see this with President Trump announcing several deals and his top 5 companies (four from USA, one from UK) in Operation Warp Speed.

For investors it probably won't matter who wins the vaccine race, but more who can profit from it. The drug companies with good vaccines and more importantly good connections to wealthy countries (US, Europe, UK) and governments will be the likely financial winners.

While much is already priced in, the likely winners should be Moderna (US deal already for 100m doses), Pfizer Inc., Merck, Johnson and Johnson, and AstraZeneca Plc (which has a manufacturing capacity of 1b doses pa arranged with Serum, plus 100m in China). All have have begun late-stage testing for Covid-19 vaccines with initial results from some of the human trials expected in October/November. So we may start see a western vaccine as soon as November or December, with production scaling up in 2021.

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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.