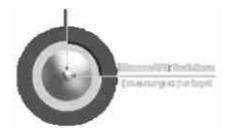


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## All The Studies Thus Far In The Laboratory Phase Have Shown The NanoViricides Technology Is Far Superior To Any That Currently Exists



Services Research Services (NNVC-OTC: BB)

NanoVircides, Inc.

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**Eugene Seymour, MD, MPH Chief Executive Officer** 

## BIO:

Dr. Seymour began practicing medicine in Los Angeles/ Beverly Hills in the late 1960's. In late 1981, he began treating patients with a strange new disease affecting primarily the gay population. Because of this experience, in 1986, he was requested by the US government to establish a testing laboratory and run a largescale surveillance program for HIV

prevalence that ended up testing over 50,000 people. He founded a company, now called Stat-Sure, Inc, in 1989. He raised the capital and oversaw the development of a rapid HIV antibody blood test (Hema-Strip). In 1993, as Chief Executive Officer, he took the company public as a NASDAQ company. Under his direction, the company conducted research studies in Africa, Asia, South and North America. The Hema-Strip was approved in a number of countries including Canada, Great Britain and Vietnam. Dr. Seymour left the company in 1996 to run a non-profit foundation, which funded both testing and training programs for health workers in Asia and Africa. He became a consultant to the UN Global Program on AIDS and was sent to a number of different countries, (Lithuania, Latvia, Estonia and Russia) to interact with local physicians and assist them in setting up testing programs. Two years later, he became Director of Strategic Alliances at a medical education startup called medschool.com that was later acquired by a group of investors. He later co-founded and became CEO of his current company, NanoViricides, Inc.

## **Company Profile:**

NanoViricides, Inc. is a development stage company that is creating special purpose nanomaterials for viral therapy. The Company's novel nanoviricide<sup>TM</sup> class of drug candidates have been designed to specifically attack enveloped virus particles and to dismantle them. The Company is developing drugs against a number of viral diseases including H5N1 bird flu, seasonal influenza, HIV, hepatitis C, rabies, dengue fever, among others.

Interview conducted by: Lynn Fosse, Senior Editor CEOCFOinterviews.com

**CEOCFO:** Dr. Seymour, what was the vision at the beginning and where are you today?

Dr. Seymour: "Our chief scientific officer has been working on this technology for about fifteen years. He has a PhD from Rice University in the field of biomedical engineering. He had a vision that if he could create a nano-structure, which he called the nanomicelle, you could then attach one or more virus targeting molecules to it. You would then have a drug, that when it attaches to the target, would completely envelop the virus, thus destroying it. When I first met him, I thought this was absolute science fiction and would never work as he indicated. It became obvious about two years ago that I was completely wrong and it was at that time that we decided it was ready for commercialization. We did a reverse merge into a public shell and became a public company. We have made rather amazing progress in the last two years. We have multiple contracts either signed or in negotiation with various agencies in the federal government. In fact, with every agency that deals with viruses. In addition, we are in the process now of an agreement with three different universities: two of which are medical schools. No one has a problem with the science because in parallel what we are doing, the National Cancer Institute is doing something similar with regard to cancer. However, we strictly work with viruses. We already have done different sets of animal trials as well as in vitro (laboratory) testing drugs for bird flu, human flu and rabies. All the studies thus far in the laboratory and animals have shown this technology to be far superior to any that currently exists."

**CEOCFO:** How is this administered?

Dr. Seymour: "There are multiple ways to administer these drugs; one is by nasal inhaler or by bronchial inhaler, which we will use for bird flu as well as for respiratory illness. The next version is a skin patch, which we have actually designed for use for HIV and hepatitis C. These are diseases where you need to assure a constant delivery of a drug for a longer period-of-time. There will also be an intravaginal microcide to treat women who could be exposed to HIV. Next is a cream and that would be used as another means to get the drug into the body. The key is to avoid the digestive system and move the drug into the circulatory system."

**CEOCFO:** Do you have the drugs already or are you still developing those from your technology?

**Dr. Seymour:** "The drug discovery process is complete. We are now making various iterations of the core compound. Our drugs are made out of building blocks. Everything is built around the nanomicelle that should be able to treat the majority of all viruses. The nanomicelle is approximately 20 nanometers in size. It is a chemical structure to which we attach a targeting molecule.

Each targeting molecule looks at something different on the surface of the device. Let me explain what the virus looks like. Viruses are about five times larger than our particular little nanomicelles. A virus consists of three parts, the surface protein, which is what gives the virus the ability to inject the genome (RNA or DNA payload) into a cell so it can hijack the replication machinery within the cell and make thousands of copies of itself. A virus is like a computer code, it does not have existence on its own, it is just a chemical structure. Then, all the little copies called virions blast out of the cell and go into the circulation seeking another cell that they can infect. It is like a bad science fiction movie. The second part is the viral envelope. This is the fatty material that encases the genome. The third part is the genome that is deep inside the viral envelope. Our goal is to attach securely to virus. Two, once we attach, we believe that we fuse with the virus particle and cover it up completely, slime it so to speak. By doing this, the integrity of the viral envelope is destroyed and the capsid containing the viral genome is released. On our website, we are using a virus as an example that has multiple capsids, which are all released into the circulation once the viral envelope is ruptured. Serendipitously, we have discovered a common binding mechanism that we believe will enable us to attach to the majority of all viruses. Our material has what is known as a surfactant quality, essentially a very expensive soap and this soap dissolves the fatty substance that makes up the viral envelope. It is very much akin to the way penicillin works. Penicillin was the first antibiotic that destroyed the wall of the bacteria."

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- Eugene Seymour, MD, MPH

**CEOCFO:** What is the timetable going forward?

Dr. Seymour: "Essentially our plan is to file with the FDA in order to start the process of bring a drug to market. We're hoping to file for our first drug in 24 months. There are some studies that we have to do in preparation for this filing. We have to start producing materials before we can file our IND (New Drug Application). Once we file the first IND, our intent is to file applications for new drugs every six months. Essentially our pipeline is extremely deep because we have the core material and we have the main targeting molecules and the only thing we may have to do is add a second targeting molecule that is specific to that particular family. We found in animals, having given them at least fifty times the human dose, that there is no evidence of toxicity. The already announced drugs we are

working on with the Walter Reed Army Institute of Research include a dengue fever drug. Patients infected with this virus feel as if their bones are breaking. It is not generally lethal, but if you are infected a second time by the same virus, your chances of dying go up dramatically"

**CEOCFO:** You have \$5 million coming for this.

**Dr. Seymour:** "We have a \$5 million allocation specified in the defense appropriations bill. Actually getting the money means that the President must sign the bill and the Defense Department must allocate the money"

**CEOCFO:** How are you funded; development is usually expensive?

**Dr. Seymour:** "No for us it is extremely inexpensive. We are a public company traded over the counter. We have spent a

total about \$4 million and right now, we already have 15 different drugs in our pipeline that we are working on. Remember, this is a lego system and we have created all the main lego pieces. Now you just have to put them together and test each one. All of our drug development essentially is done; you just have to plug in different targeting modules onto the core nanomicelle."

**CEOCFO:** Are there any competing technologies?

Dr. Seymour: "We have not seen anybody in the same arena working with viruses. There are a number of people and universities working in a parallel arena in cancer. We have not seen anyone working in the same arena as we are. Our first drug that we are rushing to get into the FDA will be for the bird flu. The government is very interested in stockpiling this drug, it has already stockpiled \$2.1 billion worth of a drug called TamiFlu, but the results on TamiFlu have been very mixed. The problem is you need to get it to the patients within a short period of time. My own clinical experience with this has not been very good in the human flu. Although it is supposed to reduce the time of illness by one day, I never found that because most of the time people

would come in after they were quite ill and it was past the point where you could get this as an effective drug. I personally bought some myself two years ago when there was the first scare about bird flu, but it is expired."

**CEOCFO:** Contrast your product.

**Dr. Seymour:** "We are still working in the preclinical arena but I have no doubt that we will proceed through the process and have a drug for avian flu by the time the pandemic is here. My background is medicine, biochemistry, and epidemiology, and I am thinking we are about 30 months away from a major problem. I am hoping that this never occurs. I would rather have it just go away. I lost a good friend at sixteen; he went off to camp and got sick and died in 24 hours. My father

who was born in 1903 told me all kinds of stories about how things were on the East Coast in 1918, people were dying, they would come home, suddenly not feel good and then bam, they would die. Five Asian countries have banned poultry imports from Nebraska and Virginia because of the finding of the lethal form of H5N1bird flu. Fifty thousand turkeys were culled in Virginia. Therefore, we may be in for it sooner than later, but I hope not."

**CEOCFO:** You moved to the Bulletin Board and have started to make yourself known; why should investors be looking now?

**Dr. Seymour:** "This is biotech, biotech is risky, but on the other hand we try our best to mitigate that risk as best as possi-

ble. In contradistinction to drugs that work inside the cells, we only work in the general circulation and once a drug gets inside the cell the law of unintended consequences takes over and you can never tell what is going to happen. You can make some good guesses, but with ours we do not go inside the cell, we are strictly in the blood stream. Our job is to just be the best at going through the bloodstream floating along there looking for viruses and attach to them and destroy them. For those who are risk averse, they should not consider investing. For those who are willing to take a flyer and can understand the potential for this kind of technology in this kind of field, well the potential is great. This is remarkable. We also salvaged 30% of the animals that we treated for rabies."



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