

**With Experienced Management in Both Managing Money and Technology Development, SuperNova Diagnostics®, Inc. is Well Positioned to Bring to Market their Technology that will Allow You to *Move The Laboratory into The Palm of Your Hand®* and Bring it to The Site of Interest for Proteins, Pathogens and Molecular/DNA**

**Healthcare  
Diagnostics  
(Privately Held)**

**SuperNova Diagnostics®, Inc.**

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**Neil Campbell  
Co-Founder, President and CEO**

**BIO:**

Neil J. Campbell is President and CEO, Co-Founder of SuperNova Diagnostics®, Inc, a privately held global diagnostics company with a proprietary platform for conducting diagnostics at the site of interest with point-of-care in human health and point-of-use for non-human health applications. Mr. Campbell also serves as Executive Chairman for

Mosaigen® Corporation, a global technology development corporation and Chairman for Child Health Research Institute, a global children's charity.

Mr. Campbell has more than 20 years of public and private company experience in the life science and healthcare industries. Mr. Campbell was formerly General Partner for Endeavour Capital, an Asia/Pacific private equity; President & COO/CEO for EntreMed Pharmaceuticals, a clinical-stage pharmaceutical company; Senior Director of Commercial Development for Celera Genomics); Executive Management at Life Technologies; IGEN International (acquired by Roche); and Abbott Laboratories, the global diversified healthcare company. Mr. Campbell is also associated with the faculties of Johns Hopkins University, University of Liverpool and Hong Kong University of Science & Technology.

During his career, Mr. Campbell has successfully commercialized more than 275 products and services in the areas of high-performance computing, medical software, e-commerce, pharmaceuticals, medical devices, clinical & industrial diagnostics, consumer healthcare products, research products, bioinformatics and nanotechnology. Mr. Campbell serves on several industry, government, non-profit and company boards.

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**Company Profile:**

SuperNova Diagnostics® is a privately-held, development-stage medical and industrial diagnostics company with offices in U.S.A., London and Hong Kong. SuperNova is developing an advanced, proprietary diagnostic analytical platform called AmpCrystal™ for the delivery of laboratory testing to the point-of-care (POC) for human health and point-of-use (POU) for non-human health applications.

SuperNova Diagnostics® is currently developing a versatile, low-cost detection platform which is 100 to 1000 times more sensitive than current lateral flow devices and quantitative hand-held approaches. Based on a proprietary chemical-nanotechnology, it is a broad and flexible platform capable of detecting a wide range of targets including proteins, bacteria and nucleic acids (without PCR-type amplification: DNA, etc.) that currently cannot be detected with POC technologies or easily conduct testing in the field. We are also developing several versions of the core platform for additional industry applications that will deliver another 1000-fold improvement in sensitivity, allowing for the first time simple and low cost detection of low levels of DNA in a doctor's office/physician's office laboratories (POL) and other field-based applications, opening up a new level of diagnostic possibilities which will benefit patients and users worldwide.

Based on five years of research by Dr. Reinhard Renneberg of the Hong

Kong University of Science and Technology (HKUST), SuperNova has learned how to manufacture nanometer-sized hyper-dense, catalytic crystals made of a proprietary nanobiochemical structure and the corresponding process of manufacture for a wide range of disposable POC and POU products. A single crystal can be controlled to trigger a reaction and give a million fold or more increase in direct target to signal detection leading to optical detection of proteins and nucleic acids visible to the naked eye.

SuperNova Diagnostics® is currently working with or discussing strategic partnership opportunities and seeks partners, distributors and strategic investors interested in the development of POC and POU products for the applications of human health, animal health & wellbeing, industrial, Food, Water & Beverage and the biodefense & biosecurity industries.

**Interview conducted by:**  
**Lynn Fosse, Senior Editor**  
**CEOFCO Magazine**

**CEOFCO:** Mr. Campbell, what is the premise of SuperNova Diagnostics®?

**Mr. Campbell:** The premise of SuperNova Diagnostics® is to bring the laboratory closer to the site of interest for diagnostics. We want to take the technology that works very well in central labs, in hospitals, reference labs and other types of research centers and move it out into the field as close to possible to the site of interest. We are looking at human health, animal health, industrial diagnostics, such as food safety, manufacturing, food processing, and biosecurity and biodefense.

**CEOFCO:** What is the method; how does SuperNova change the diagnostic setting? Has your concept been tried in the past?

**Mr. Campbell:** For the past twenty years, many companies have been trying to do two things. One is to improve the performance of diagnostics in general and broaden what they call the assay menu offering, the number of tests that you can do for say, can-

cer or cardiovascular or food safety. The second thing they have been trying to do is move more of the testing closer to the site of interest. The former they have had pretty good luck broadening out. We have molecular diagnostics to look at DNA and we have a wide variety of assays that you can test for. The latter though has not been very easy to do, and it is usually referred to point-of-care (POC) in human health, and point-of-use (POU) in non-human health applications. The reason that there have been limitations in moving a lot of these testing scenarios to the site of interest has been tied to technology. Most of the products that have made it to market are nothing but miniaturizations of the central lab testing technology. Although they work well they are very limited in their breadth and scope of product offering and capa-

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bilities. They are also heavy portables in many cases, not really POC. This creates problems because a lot of the tests that you might need, say you can only do 2 of 10 tests you want in a point-of-care, most people just decide not to do any. Therefore, you have limitations in terms of health care intervention, economics and quality of care. What we focused on is; why is that an issue and why is technology a limitation? The team at the top group of the company has extensive experience in diagnostics in what we call the diagnostic detection label. This is what you attach to an antibody, antigen or piece of DNA. This becomes the light or the signal, when you are trying to tease out DNA for MRSA, other hospital-acquired Infections, Tuberculosis or human papilloma virus (HPV). Our diagnostic label is brighter than the industry standards. It is very versatile and it allows us to do things that other diagnostics labeling technologies cannot do, and

have not been able to do over the last twenty years. That is why we are excited about the company and why we have been developing it quietly for the last couple of years. We are not coming above the radar into the market.

**CEOFCO:** Are you patent protected?

**Mr. Campbell:** Yes. The core aspect of the technology is a nanobiochemistry crystal technology that is patented for all the composition of matter, the way it works, and the way it works within a diagnostic test. In addition, the disposables that we use, which are the plastic disposable cartridges that you add the sample to, are also patented. Other areas of patent protection are method of manufacturing and various assay formats for detection. Therefore, we have it covered all the ways that you would expect someone to protect their scientific technology.

**CEOFCO:** Would you elaborate on the four sectors you are targeting?

**Mr. Campbell:** The first of the four are human health. This would be testing in areas where we would take samples from humans and then process them either in

a chronic disease configuration, which could be looking at diseases like rheumatoid arthritis or chronic infections diabetics might get, or we would test out a series of tests in say oncology cancer, or cardiovascular. It could be wellness, acute or chronic infections. We have tests that we are developing now to distinguish between a bacterial and viral infection. That is going to be very interesting because there is huge overuse of antibiotics in the world, which creates antibiotic resistant strains to certain diseases that are life threatening. The second one is animal health. Here we are looking at two distinct approaches to animal health. One is the wellness of animals. This could be companion animals like dogs and cats through veterinarian use, as well as large animals.

The second part is looking at animal health in terms of a food product. What we call the farm to fork value

chain, and this would be looking at disease, antibiotic use, breeding attributes and various things that would affect the quality and safety of proteins ingested by humans. The third area is an eclectic mix of different types of testing under industrial diagnostics. This ranges from food safety to security. Food safety would be checking the food that you buy at the grocery store, what you buy at a restaurant or checking at food processing sites for ecoli, salmonella and listeria, which are pathogens that could either make you very sick or kill you. We have had several outbreaks of ecoli and lysteria killing people in the United States and in Europe this past summer. The other parts of industrial diagnostics are manufacturing plants for cosmetics or testing for composition for a lot of ingredients that might be tied to allergens. They also look for materials that are being used that might be proprietary and they can test for it to make sure that there are not counterfeit products. Another area of industrial diagnostics is looking at food security. This is where food is shipped from parts of the world to another to make sure that its freshness and contents are proper. The best example I can give you is the melamine problem that they had in China with the baby formula, where they had put toxic melamine to increase the amount of protein for when it is checked and being sold internationally, so we would be able to test for that and other adulterations to make sure everything is proper.

The last area is biodefense and biosecurity. This is focusing on civilian and military applications. We are looking at biodefense, which involves using weaponized versions of pathogens for such things as small pox, anthrax, and botulism. Biosecurity can be both a military and civilian application. This would be looking or protecting the borders of the country, food and shipping containers coming into the country; anything that is being shipped. We would look at all the ports on the border and this would be through the customers and border patrol (CBP) and TSA. Also first responders, which in an emergency either a natural or man-made one such as an earthquake or tsunami or an

industrial accident were you would be able to provide diagnostic testing. Then the last area of biodefense is threat reduction by utilizing a remote monitoring early warning system to make sure that a dirty bomb or other terrorist event has not been released and you would be able to provide diagnostics testing units to fire, police, rescue, active military and National Guard.

**CEOCFO:** What is happening today; where is SuperNova in the development and commercialization process?

**Mr. Campbell:** We are in the process of commercialization; the mistake most companies make, especially small ones, is they try to do too much. Because our technology represents a platform technology with a lot of product opportunities, as I've highlighted already, we are able to look at various opportunities, and then identify who the top potential partners are. If those potential partners have interest in the markets and could benefit from our technology, then we want to work with them. Most companies will look at this as a strategic partnership; we call them strategic customers. They represent the customer as well as the sales and marketing function for us in our early commercialization. Therefore, we do not have to build out a large commercial organization, initially, and we do not have to spend a lot of money building out our own capabilities and deciding which test to do or market to pursue first, which is always the dilemma. We would pick a company, they would partner as a strategic customer with us, and we develop a test that they will contractually obligate themselves to buy. They will help pay either most or all of the cost of initial development. When the product is ready, they will then sell and distribute the product. These deal structures are in the form of shared revenues. That is a model that we have been employing for the past year and we will continue for probably for another year or two with that approach. It allows us to do three things. It allows us to de-risk the situation in selection and commercialization of a particular assay product, so I do not have to decide to do say, cardiovascular or food safety test. I let the market decide and I let the bigger partner

decide along with me. Secondly, it allows us to focus our efforts on areas where the greatest need is, allowing the greatest market pull and shorter times to commercialization. It allows us to mitigate our costs of development and allows us to break even much quicker. Thirdly, it allows us to play in multiple markets and product formats at the same time, so we might have a strategic customer in human health, we might have one in industrial, and we might have one in animal health. Therefore, it allows me to diversify my execution risks in terms of operating a small company in the early stages of commercialization. We have three strategic customers currently. One is KSB Diagnostics, which is the largest diagnostic company in China and we are working with them in infectious disease and wellness markets initially. Second is a company called, Concile GmbH, which is a technical German-based distributor that sells throughout the EU and we are working with them on a panel of wellness tests. The third area is GC Dental Corporation, which is headquartered in Tokyo, Japan. They are the world's largest dental corporation and we are exploring expanding diagnostics for oral health applications for initially Japan, but eventually Asia and the rest of the world. In addition, we have several other discussions going on in all four of the market sector areas.

**CEOCFO:** Is working with foreign-based companies strategic or opportunistic?

**Mr. Campbell:** It is strategic. We are as evenly placed in Asia as we are in Europe, or as we are in the United States, which makes us a very unique smaller company. We are not a start-up. We are almost three and a half years old now, and we have been below the radar for two and a half of that. We originally started in Hong Kong and then we shifted to the United States. We have subsidiaries in Hong Kong and UK, but we are a US registered, Delaware corporation. Our headquarters is here in the US, but we are multinational. We have been referred to by a lot of organizations outside of the US as micro-national type company. What you would think of as a larger multi-

national company like Abbott, we are a smaller version of that. We are well footed in each of these areas, our capabilities to reach investors and markets, something that a lot of smaller companies do not have, so I would say that we are truly global. We can diversify our risk, and we can take advantage of the various market opportunities around the world in a directed, focused and seamless fashion than an opportunistic hedge-podge type of approach.

**CEO CFO:** Often it is hard to make an inroad into an entrenched industry; how has SuperNova overcome the challenges of traditional testing; how will you get people to switch and resist the pressure of the status quo?

**Mr. Campbell:** Great question. A lot of companies have promised to do different things and then they fall very short, partly because they do not understand what the customer truly wants. The other reason they fall short is they do not really understand what the product needs to do in order for the customer to benefit by using the product, hence, the change that you are hinting at. We have come at this problem three different ways with the end result being the same adoption of the testing. The first way addresses the fact that people have wanted to perform tests at the site of interest with the same performance as the central lab, but current POC products are either large, portable versions of central lab equipment or small versions like glucose meters with limited technological potential to expand their assay menus for testing. This has made this POC approach very expensive and hard to implement. The second way is to be economically oriented; provide cost-effective products that do what the customer wants within the timeframes and budgets they can afford. Most of the POC technologies on the market are not capital efficient and don't reduce the costs of healthcare delivery. Our goals are to concentrate on making sure that our tests are equal to the central lab in terms of performance, ease of use and above all – cost effective for the markets they serve. What has actually happened is that technologies improve the results in the central lab, so we are seeing an

improvement in both the central lab as well as the point of care. That by default has created an interest in wanting to use the technology in these different applications, more of a customer need for “pull-it-out-of-our-hands” versus the typical missionary sale where you are pushing the product to the customer.

The third way has been to focus on areas of high need where there are technology limitations, and testing has not been developed by the companies for the needs of the customer. We are pinpointing areas that need testing and would adopt it very quickly if it were available around the world. Then we have looked at the top five companies in each of these areas. We are approaching the companies and showing the data, the products in development or those that could be and then propose to them a way that this would be able to work both in the existing market as well as the changing or expansionary market opportunity. We have had very good early success in getting people to think outside the box and be willing to potentially adopt this as an additional strategy in their product selling and market categories, as well as product line development strategies.

**CEO CFO:** What is it about the background of management that allows you to address this all so soundly?

**Mr. Campbell:** Everyone in the senior management team and the board of directors has been professional investors as well as serial entrepreneurs in the life sciences with multiple successes. Therefore, we know how to take money and get the most out of it. We know that the best dollars you raise are the ones you don't spend foolishly, call it capital efficiency. The other thing that makes our commercial execution sound is the management team is serial entrepreneurs. We have done this many times and we have a deep experience in broad applications of healthcare including diagnostics, which is the category for SuperNova. We have done this on an international basis from startup to large multinationals. We also worked together on other projects. Therefore, we have a management team with deep experience, domestic and inter-

national contacts, experience and investment networks as well as the seminal technical backgrounds to accomplish our goals.

**CEO CFO:** What is the financial picture like today for SuperNova?

**Mr. Campbell:** The Company is funded to be able to continue its operations well into 2013. Our investors to date are mostly high net worth investors and family offices, and one private group. We are currently raising another round of financing, which is moving along nicely. We are expanding our table of investors with interest coming from the North American, the European and Asian markets.

**CEO CFO:** What surprised you most as you have been working on rolling out advancements?

**Mr. Campbell:** There are a couple of things worth mentioning. First, with what people have labeled the great recession, there has been an interesting affect on the industry, specifically on diagnostics, therapeutics and healthcare, but also the history of the industry itself. What it has done is make people outside the United States realize that they need to take a greater role in what they do and they cannot rely upon certain countries or certain regions to prop them up. I have seen an increased in more self-reliance, more resourcefulness around the world. I have seen the opposite here in the US, where it is kind of a bunker mentality, where people kind of hunker down and say, “Well you know, it is only going to be another year”. Then the year goes by and then it is going to be another year. I have heard this now for over three years from a lot of groups. The unfortunate thing with that is a lot of companies have run out of money and everyday there are little ones going out of business. So, the old Yankee ingenuity in the US has been somewhat dented and I have not seen the robustness of entrepreneurship that I expected to see here and surprised to have seen it much more pronounced outside the US. Because we are multinational in our perspective and our reach, this situation has not created much of a problem for us yet. I think because we are well footed in

other areas of the world as well as the US. Had we only been US centric, we potentially could have been in the same boat as a lot of these other smaller to mid-sized enterprises.

The second thing that has been an interesting turn of events in a positive way is that we thought a lot of the tests that would be done point-of-care would be done a certain way. What has happened is if you can provide the test the way people want it, they will change their testing habits. A couple of examples, if I want to look for something like a food pathogen, like ecoli, it used to be I would be happy just to know whether or not the food is contaminated. So, it is a yes or no, qualitative determination. Now, they want to know how much of it is there and if it is a particular disease or infection that is drug resistant. What has happened is the testing information that people want has evolved beyond the technology that they can currently get access to in terms of products that can decentralize diagnostics. So we are seeing people coming to us and saying, "We do not want an antibody based test for tuberculosis, we want a DNA-based test, because we want to know if it is there, how much of it and we want to know if it is drug resistant". Therefore, I am seeing a changing of the marketplace that does not really exist prior to maybe a couple of years ago and because our technology can potentially do certain things right now that no other technology can do in the market place. Because of this feedback we are changing the way we are looking at the market because customers are telling us that they want the market to be that way. It does not exist today, which is exciting because what it represents a business standpoint is a slight cannibalization of existing test-

ing, but it also is an expansionary situation where we can generate new revenues that really do not exist; it is a pent up demand.

**CEO CFO:** What about the costs of the test or the equipment; how will that compare to what people are paying today?

**Mr. Campbell:** The current testing modalities are fairly expensive and turn-around time can be either quick or long depending on which tests you are talking about. Our tests are going to be very cost effective. They are going to be equal to in a few cases, but in most cases they are going to be below the cost that exists today from a total testing standpoint. In the areas where there are tests that cannot be done on a point-of-care, point-of-use setting, where we are providing tests for the first time. Those tests are definitely going to be lower than what is being done in a central lab or in a regional satellite facility. We are planning on hand-held readers of various shapes and sizes depending upon the needs of the marketplace and the predominance of those applications. We are going to give away the reader (in some situations) in exchange for a commitment of reagent buying, so it is kind of like the cell phone and air time. I will give you the cell phone if you commit to buying a contract of air time and applications. It used to be referred to in the 20<sup>th</sup> century as the razor and razor blade. I will give you the razor if you buy the razor blades. So, it is a recurring sales business, not a one-time sale.

**CEO CFO:** Why should investors look at SuperNova Diagnostics® today?

**Mr. Campbell:** The value proposition is simple: very experienced management in terms of both managing money and technology development hav-

ing done it successfully multiple times. Our technology allows you to *move the laboratory into the palm of your hand*® and bring it to the site of interest for proteins, pathogens and molecular/DNA for a broad range of types of tests that do not exist today. The company has been well capitalized to date, and is operating in a very capital efficient way going forward. We expect to break even in approximately a year. The last point is we are global, so we are able to take advantage of the market opportunities around the world and be evenly positioned to advance the needs of customers in those markets.

**CEO CFO:** Final thoughts, what should people remember most about SuperNova Diagnostics®?

**Mr. Campbell:** Going back to the recession or the resetting of the market place, I think too many times companies, both large and small, have become too complacent. They have not really thought about what is the best way to run their business, what is the best way to fund it and what is the best way to bring value to both investors and customers in the marketplace. When times are good, we have a tendency to be a little fat and complacent and we do not utilize the use of resources as well as we could. In times like this, I look at it as Darwin's theory in action: the strongest shall survive. This is a time of great opportunity; the glass is half full. Our corporate goal is to make a difference in a more meaningful way for healthcare quality and delivery through leading-edge diagnostics to those around the world.



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