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With a goal of creating a Personalized Treatment Program for ALL Cancer Patients using Automation, AI and Advanced Genetic Analysis, QuantumCyte, Inc. is Focused on Improving Cancer Outcomes One Patient at a Time

John Butler
Chief Executive Officer and Founder

QuantumCyte, Inc.

Contact:
CEOCFO Magazine
570-851-1745

Interview conducted by:
Lynn Fosse, Senior Editor
CEOCFO Magazine

CEOCFO: *Mr. Butler, the first thing on the QuantumCyte, Inc. website is, “Improving cancer outcomes one patient at a time”. How are you doing that?*

Mr. Butler: We have developed a novel platform technology that takes an individual cancer patient’s biopsy and we have the ability to digitally localize specific areas within that biopsy that have the tissue that we want to analyze. This tissue is cancer cells, so we take that tissue and we analyze it using whole genome amplification or DNA sequencing, at a very detailed level that allows us to find what are called markers for available drugs on the market. For example, if the patient has prostate cancer, within that tissue they may have markers for other cancer therapies that have been approved for breast or colon cancer. We can find those markers and then tailor make a drug therapy cocktail specific for that individual.

CEOCFO: *How does this differ from the current approach?*

Mr. Butler: The current approach is to take a patient’s tumor biopsy that can have 1000’s of cells, both cancer and healthy cells. They then put that into a tube, isolate genomic material (e.g. DNA), and then sequence that DNA on an Illumina type sequencer. The data that comes out of that sequencer is the average of all of the cells. If in a given tumor section 10% of the cells are cancer cells you will get a low signal to noise in the data because the majority of the data is reflective of healthy cells. Therefore, it is difficult to find these markers. What we do is actually look at this biopsy and isolate the genetic material only from the cancer cells. This means that your signal for cancer cells will go up much more than the noise, and the data you are looking at is specifically from the cancer genetic material. This allows us to find markers more efficiently.

CEOCFO: *How are you able to do that, and why has no one thought of it before Quantumcyte?*

Mr. Butler: There is a new field called, Spatial Molecular Profiling. That field and the technology that is being developed are now giving the capabilities to not only find the cancer cells, but also go and essentially pluck them right out of the tumor and analyze them. There are some companies that are developing these capabilities. We have a very unique approach to doing this; it is very straight forward and simple, as well as very automatable. In addition, the field of artificial intelligence and machine learning is giving us the capability to do this digitally, which will allow us to increase the accuracy and speed of the current processes for evaluating tissue biopsies. We are developing algorithms using AI and machine learning that will take a digital image of the tissue, and then a computer will tell us where those cancer cells are. It is the having the technology with the systems in place that enable us to do this.

CEOCFO: *Where are you in the development process?*

Mr. Butler: We are an early stage company, with five full time employees, and many consultants working for us. We have developed our prototype system and we are just starting get our first clinical data to show that our system works. We are finishing up a Pre -Seed Round and we are working on a Seed round and starting co-development collaborations.

CEOCFO: *How do you know if it works?*

Mr. Butler: We just finished up our proof of concept experiments using a breast cancer model and the data shows that the system works.

CEOCFO: *What is the feeling in the medical community about this approach?*

Mr. Butler: We are talking to many pathology groups that have approached us to get access to the technology. These groups are attracted to the platform based on our unique approach and our capabilities. Also, we have talked to many, many oncologists about our approach, and we have gotten very good responses. What we are initially trying to do is to help patients with late stage metastatic cancer and their doctors figure out how they should be treated. The current processes take something in the order of 6 to 8, and sometimes 12 weeks. We can get from patient biopsy to actionable results or actionable data in about one week. For late stage metastatic cancer patients 4 weeks is a long time to get results, a one week turnaround time is very appealing to the medical field. They understand the data and the power of the data.

“We are truly accelerating cancer and disease research and diagnostics development to benefit the patient. We think about how we are going to help patients get better; we assist doctors and accelerate the process in understanding how an individual patient will respond to a given therapy cocktail”- John Butler

CEOCFO: *What do you need with regard to hardware or devices to do this?*

Mr. Butler: What we need is computing power, and we need histopathologists to help us develop the AI algorithms. The histopathologists would be looking at the tissue and teaching the computer the difference between a healthy cell and a cancer cell. We have built our prototype. We have two of our boxes and we will be working on our beta development. We also need chemistry, and this is the chemistry that extracts the genetic material, and gets it prepped for sequencing. We have all of those components in place, and we are working with a company in San Francisco on the digital pathology.

CEOCFO: *When did you know you were on the right track?*

Mr. Butler: We knew we were on the right track about a year ago. As I mentioned, I started the company because my wife was diagnosed with late stage metastatic cancer. I wanted to find a drug for her, so I went down one path where we thought a particular application would work for her cancer, and it would have worked but we were way too early in the R&D and acceptance by the oncology community for that particular application. About a year ago we looked at a different application, using the biopsies the way I described and found that to be a much more powerful application of our technology, and it was at that point we understood that what we were entering was a big, new and exciting market. Also from the execution standpoint we were able to get this data to patients. Therefore, being very familiar with the chemistry, as well as being familiar with how to build the technology, at that time we pivoted and about six months later we knew we were on the right track because we were getting a great deal of attention, and not just from the corporate communities, but also the R&D communities, as well as the cancer communities. In addition, people continued to be supportive and push us forward on this endeavor. Finally, our recent proof of concept data shows that the system works.

CEOCFO: *Will you initially be working with the other methods of looking at cancer tissue? Do you see your technology replacing the current standard of care?*

Mr. Butler: Our technology is not a single solution. It will be integrated with other data sets or technologies. However, we think we will be able to replace the current workflows that are being used in some clinical companies because we can offer higher precision.

CEOCFO: *As you move forward, will you sell your technology to a hospital or lab where they will do the testing or will you build a facility where all of the tissue samples will be sent to you for testing?*

Mr. Butler: That is a very good question, and we get that question quite a bit. Early on, we will take samples from hospitals, doctors and patients, and run them within our lab to provide early access to the technology as well as to develop applications for specific groups. Moving forward we will be installing our units at locations and selling the chemistry and the tests to hospitals and locations. This will enable them to run the test at their site. Right now we are taking customer tissue in-house and running it, which gives us experience with our technology, and allows us to generate some early revenue, but we think we are going to evolve into this razor/razor blade model.

CEOCFO: *Where does cost come into play?*

Mr. Butler: Fortunately we have a very simple system. I have been working in biotech and developing these types of technologies for 25 years, and our co-founder and CTO, Dr. Bidhan Chaudhuri has been in high-tech, doing commercialization of some very sophisticated products. In addition, our cost of goods is very low, which means we can currently get very high margins. The cost calculations for this type of device is a complex calculation that has to do with the benefit to the patient, as well as the offset and cost to insurance companies, generally called healthcare economics. Initially, we will be coming out with an R&D product, which will have a cost that is comparable to current technologies on the market. We have an estimate that we are working with, but that will have to be refined as we develop the technology and learn more about it.

CEOCFO: *How are you spreading the word or is it too early to in your development for that?*

Mr. Butler: We are starting with social media. I have a decent LinkedIn following and we are using Twitter. In addition, we have received a couple of awards, one from SPIE, the international society for optics and photonics west for the development of our technology, and also we were one of Red Herring's top 100 new tech companies in the world. We were awarded that about a month ago. We are also using platforms such as CEOCFO Magazine to get the word out, as well as going to conferences. It is really about getting the word out to scientists and oncologists. It is about getting them to understand the product, because the way you launch this type of product is you have to get scientific acceptance before you even have a product.

CEOCFO: *When you are at a conference, how do you stand out?*

Mr. Butler: It is about hustling and finding the thought leaders, going to their talks and then inviting them over. All business is about relationships and we have very close relationships with some of the best scientists in the world. Ronald Wayne "Ron" Davis is on our scientific advisory board and we have very close relationships with oncologists at institutions like Dana-Farber Cancer Institute and Stanford, as well as UCSF. We are leveraging their networks at these conferences to get the best in the world to come over and either look at our poster or just have a chat. As a small company we need to get more compelling data, but we are having the chats and networking to find out what the customer requirements are so that the product is meeting those requirements.

CEOCFO: *What might people miss when they first take a look at Quantum Cyte?*

Mr. Butler: The thing about our company is we are not oncologists. We are technology developers. The perception of some people is that if you are building a technology for cancer you should have an oncologist on your staff and even should be running this company. I was at a "fireside chat" with Vinod Khosla recently and he said he only invests in startups that do not have a key opinion leader running the company, because they may have a bias. We are true entrepreneurs, we hustle and bring in the right expertise for our application. Our SAB is very good.

CEOCFO: *Put it together for our readers in the investment, healthcare and technology communities, as well as people looking for answers to their dilemmas in dealing with cancer. What is Quantumcyte so important?*

Mr. Butler: Not only are we putting together some of the more advanced approaches to doing data analysis with our digital pathology algorithms, we have the unique ability to associate what you are seeing in the pathology with the genetic information. The main thing is there is a technical component, but we are truly accelerating cancer and disease research and diagnostics development to benefit the patient. We think about how we are going to help patients get better; we assist doctors and accelerate the process in understanding how an individual patient will respond to a given therapy cocktail.