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Q&A with Dr. Jared Tangney, Co-Founder and CEO of Biolinq developing a Patch measuring Interstitial Fluid and App for Needle Free Continuous Glucose Monitoring for Diabetics without Pain or Drawing Blood

Dr. Jared Tangney
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CEOCFO: ***Mr. Tangney, what is the concept behind Biolinq?***
Mr. Tangney: We are developing a patch that measures glucose in a continuous fashion without the need to draw blood. That means there is no pain associated with our continuous glucose monitor. The application is initially for people with diabetes. It enables them to get continuous glucose readings on their phone or smart watch without the need to ever prick their finger.

CEOCFO: ***What is the science?***
Mr. Tangney: We are measuring interstitial fluid, which is the fluid that bathes the cells within your skin. Glucose as well as many other molecules are found in interstitial fluid and our patch is able to access it using our micro sensors. We use a proprietary chemistry technology that measures within the skin itself and doesn't go deep enough to access any blood vessels for nerves, so it is totally painless.

CEOCFO: ***Would you explain how what you are doing measures what is in the blood without testing the blood?***
Mr. Tangney: Your skin has a capillary bed that is right underneath it. Glucose needs to travel from those blood vessels into the skin cells. Once it leaves the blood vessel, it enters the interstitial fluid on its way to those cells within the skin. We pick up those molecules and measure the concentration in that interstitial fluid.

CEOCFO: ***Does the medical community understand this concept?***
Mr. Tangney: What is commonly done today for continuous glucose monitoring is the use of a wire based sensor that is inserted with a needle about a half an inch into the abdomen or onto the back of the arm. Instead of measuring just in the first two layers of the skin like we do at Biolinq, it is actually measuring in the adipose tissue found subcutaneously, deep underneath the skin. We use a similar concept of measuring interstitial fluid, but instead of going deep into the body, we measure within the first few layers of the skin. What is really novel is being able to still access that very viable, well understood fluid, but getting rid of the needles and the pain.

CEOCFO: ***Where are you in the development process? What has been the reaction so far?***
Mr. Tangney: 2018 is when we will be releasing a lot more information about the technology, about how it works and the results from some of the clinical studies that we will be doing next year. The scientific and the medical community have not really had a chance to comment on what we are doing yet because we have not shared any of that information. Our

big clinical studies are coming up in 2018 and we will be publishing some of that data in peer-reviewed journals, showing that our approach is valid and does correlate very closely to blood level glucose values. It will be next year that we will be sharing enough for the community to really be able to comment and give feedback on the approach. From the scientific and academic literature, there is plenty of information that backs up this approach.

CEOCFO: ***Are you able to do a clear cut measurement, so if a blood sugar would be for example 120, will whatever measurement you come up with have variances based on something like weight?***
Mr. Tangney: Our goal at Biolinq is to have what is referred to in the industry as a factory calibrated sensor, which means that the user does not have to prick their finger to calibrate the device. All you have to do is put it on your body and then it will start reading values that are equivalent to blood glucose values. If your blood glucose was 120, the goal is for our sensor to read as close to that as possible. There is always some level of error in all these devices but our goal and what we think is that we can get as accurate, if not more accurate, than the devices that are on the market today and not require any finger sticks for calibration.

CEOCFO: ***How do you come about the technology or the idea to look for this?***
Mr. Tangney: The technology came out of the University of California in San Diego which was where I did my PhD. I met my co-founder and our CTO, Joshua Windmiller, who was working on his PhD as well at the time. Josh is the inventor of this technology and it was the subject of his PhD and post-doc work. He introduced the platform to me. It is a platform technology, we can measure glucose, but we can also measure a wide variety of other biomarkers. The one that jumps out at you as the most obvious application is glucose monitoring for diabetes. At first, there was hesitation there because it is a fairly crowded space, there are many good companies working in the area, but after taking a closer look at the current continuous glucose monitor market, we found that there has been great strides that have been made by the companies that are in that space over the past five to ten years, but we still feel there is a lot of room for improvement and that our technology solves a lot of those issues. That was the reason we decided to focus here first. In the future, because it is a platform, we do see other clinical and more consumer and wellness applications for the technology as well.

"Biolinq has created a way to provide access to information in your body that was previously only accessible through very invasive means, such as drawing blood or sticking a needle into the body. We have created a patch that is able to stream that information in real-time. Glucose monitoring is a great first application but the possibilities are really quite endless for us moving forward and we are excited about unpacking information that was previously never accessible."- Dr. Jared Tangney

CEOCFO: ***Diabetes is growing, is it not?***
Mr. Tangney: Yes. Here in the US, it is growing quite rapidly and even more so internationally, especially in some of the emerging markets. It is at the epidemic scale for sure. That is a problem and we really do feel that having an extremely easy way to measure blood sugar that is low cost and can provide access to this information for people around the globe can help slow and hopefully at some point reverse that trend.

CEOCFO: ***Have similar approaches been looked at or has the technology just not been there to put it together?***
Mr. Tangney: There have been many attempts at doing non and minimally-invasive glucose monitoring. Most of those have used an optical approach of some kind. There have been some companies that have gotten close but nothing at the clinical level. That is an area that has been thoroughly investigated. Nothing we have seen has come close to the level of clinical grade accuracy that we are aiming to achieve. We think what is unique about our approach is it is not technically non-invasive, but we are able to access interstitial fluid. That is the key part of this, still having access to the viable fluid that is medically relevant and does correlate to blood values.

CEOCFO: ***Would you tell us about your recent funding and how far that will take you?***
Mr. Tangney: We recently just closed a Series A just north of $10 million. That was led by Merck Ventures, which is referred to as M Ventures here in the US. We also had heavy participation from Hikma Ventures which is the venture arm of Hikma Pharmaceuticals. We are excited to have both of them on board as well as all of our other investors. Grey Sky Ventures, Three Leaf Ventures, and LifeSci Venture Partners also participated in the round. That's a list of really top-notch investors that we are excited to work with.

CEOCFO: ***You are still at the beginning stages with glucose but you have mentioned being able to measure other bio markers. What are you thinking about for some time down the road?***
Mr. Tangney: We have a short list that we are working on. We are not disclosing what those markers are yet, but some of them do have applications to the diabetes field which are going to have a higher priority simply because that is the space

that we are working in first. From there, there are quite a few others that are of interest. Some of the biomarkers are focused on the medical field and others on the fitness and wellness domains.

CEOCFO: ***What surprised you so far through the process?***
Mr. Tangney: One of the things that surprised us early on was underestimating the amount of work that goes into taking a technology from the university level, where you can publish papers on it, to get it to something that you can mass manufacture and get reproducible results. Fundraising was slightly more of a challenge than we had anticipated. Medical devices in particular is a tough space to raise money in. The bar just kept getting moved higher as far as what was required in order to get funded, and luckily we had some investors behind us in the early days of our seed round that continued to help us hit those milestones that we needed to raise the Series A. Medical devices in general is just a tough area to raise money. We are very grateful and fortunate that we were able to get such a solid group of investors behind us for this round of funding.

COECFO: ***What should people remember about Biolinq?***
Mr. Tangney: Biolinq has created a way to provide access to information in your body that was previously only accessible through very invasive means, such as drawing blood or sticking a needle into the body. We have created a patch that is able to stream that information in real-time. Glucose monitoring is a great first application but the possibilities are really quite endless for us moving forward and we are excited about unpacking information that was previously never accessible. We are excited about the information that we are going to uncover along the way as we start to develop out the platform more.