Complete Genomics Well Positioned to Move from Research to Clinical in Genome Sequencing

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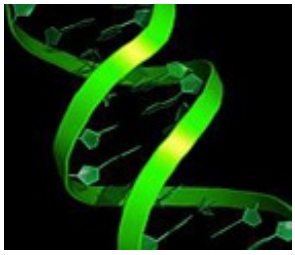

Complete Genomics [GNOM] is a whole human genome sequencing company that has developed and commercialized an innovative DNA sequencing service. The Complete Genomics Analysis Platform (CGA™ Platform) combines Complete Genomics' proprietary human genome sequencing technology with advanced informatics and data management software. OneMedRadio recently conducted an interview with Dr. Clifford A. Reid, the company's President, Chief Executive Officer and Chairman since July 2005.

Click belowto hear full audio interviewand see transcript to follow.

Brett Johnson: Welcome. This is Brett Johnson in New York with OneMed Radio. Today, we are with Dr. Cliff Reid who is the co-founder and CEO of Complete Genomics. It's traded on the NASDAQ under the symbol GNOM. The company is based in Mountain View, California and is in the human genome sequencing business. Thanks for joining us today, Cliff.

Dr. Cliff Reid: Good morning, Brett. Good to be here.

BJ: So in simple terms, what is human genome sequencing and what is the business of Complete Genomics?

CR: Human genome sequencing is the process of measuring the three billion bases that make up our human genomes in order to understand how the genome affects human disease and how it affects response to growth. So what we do is we measure the human genome. We then provide these human genomes to our customers who are researchers and clinicians and they use that information both to understand the genetic basis of human disease and to use that information to provide better patient care.

BJ: We've heard a lot about this topic. What does this mean from a practical point of view for average citizens?

CR: Well today, we are primarily working on the research into the human genome to understand what the genes do, what they mean and particularly what they do when they break. So it's primarily a research project. What we're beginning to see, the first applications of the knowledge that we've gained by investigating the human genome and patient care, specifically there are now known mutations in the genome that can lead directly to therapies, to new diagnostics and one of the most vibrant areas of human genome sequencing research is in cancer. Cancer is a disease of the genome. It is caused by a mutation in the genome and so recently, we've had no method of making accurate measurements of these mutations to enable physicians to select the right therapy. That's all changing because for the first time, we now have the technology to make accurate measurements of the human genome to select the right therapies for the right disease.

BJ: So how far along is this technology in terms of its use? I mean how many physicians and clinicians are now starting to use this tool?

CR: In the clinic, it's just beginning. We're primarily at the stage now where the major research

institutions around the world are using human genome sequencing for basic research, and we have over 125 customers now who are doing that worldwide hot on the trail on the genetic basis of human disease. But what we're seeing is a handful of customers now who are beginning to deploy this into clinical practice.

A great example is the Mayo Clinic earlier this year announced their new Center for Individualized Medicine and we at Complete Genomics are the whole human genome sequencing technology behind that center. It's early stage. It's ramping up, but it's a very exciting new application in personal medicine.

BJ: So are you the exclusive provider to the Mayo Clinic's effort there?

CR: We're today the only provider of whole human genome to the Mayo Clinic and we expect this to be a large and growing relationship.

BJ: So you have 125 customers now that are on the research side using this. How many potential customers are there out there for this technology?

CR: Well, I think the potential customers are in the long run it's every physician is going to be involved in understanding the genetic components of whatever ailments they face with their patients. But initially, what we're seeing is human genome sequencing is rolling out in the major reference labs and major tertiary care centers so it's the big cancer centers, the big pediatric centers, the places where they're doing a combination of clinical practice and research.

Let me give you a good example. We recently developed a large project with Inova Health. Now Inova is the Northern Virginia healthcare system. It's a hospital network with five major hospitals, about 100,000 inpatients, and a million outpatients a year. What we're doing with Inova is sequencing 500 babies and their parents so a total of 1500 whole human genome. 250 of those babies are of normal birth and 250 of them are premature births. The reason we're doing that is because premature births are one of the major costs of a hospital network. It is hugely expensive to put a premature infant into the natal ICU. So what Inova is doing is they landmark research studies on the genetic basis of premature birth and that is if they can identify genetic markers that indicates a higher risk for premature birth, they can do a better job of managing those patients which leads to lower hospital cost and better healthcare outcomes for those infants.

BJ: Wow.

CR: So here's the situation where research meets the clinic. We're doing research but we expect it to have immediate healthcare cost and healthcare improvement of results.

BJ: What's your sense of when that study is going to be complete?

CR: We'll complete the study this year and expect to be publishing results and offering advanced patient care services as early as next year.

BJ: Wow. That's exciting. So in terms of the number of customers, you did $19M last year with a base of 125 customers. What's your sense about how much that core audience could grow?

CR: Well we're growing rapidly obviously and the growth is in two areas. One is in our core research business, we continue to expand our footprint there. More and more research labs are now taking advantage of the extremely high accuracy, low cost, quick turnaround that we and other members of the DNA sequencing industry are offering. But our main growth as we look over the horizon is in the clinic starting with large translational medicine projects in the major tertiary care centers and research hospitals and then ultimately moving into the standard practice of personal medicine as genomics gets folded into the kind of baseline healthcare community.

BJ: Personalized medicine is a big growing area. Can you offer your perspective as to where you see it going and where it is in its evolution and where you see it in a year, in five years in terms of

the adaption rates?

CR: The main change that's going on right now in personalized medicine is maybe the broader of molecular medicine. It's making molecular measurements. Meaning take samples from patients and making measurements that enable physicians to tailor their healthcare regimen to exactly that individual rather than taking sort of broader measurements like age and weight and sex and those things and using population-based statistics to select treatment regimen. So the first practical area of molecular medicine is genomics. The human genome has proven to be the area that we can make accurate measurements of and that we can draw conclusions from to improve healthcare provision.

It's only the beginning of personal medicine because the next wave of personal medicine that involves new molecular measurements is around protein. So there's a whole new area that's going to emerge around making these complex protein measurements of individual patient and combining genome measurements and protein measurements is going to open a whole new era of providing the right treatment to the right patient at the right time.

BJ: So what is your sense of impact on the healthcare system broadly? You mentioned the idea of cost reduction, is this going to lead to new treatments or more treatments or less? I mean can you give us a global view of the overall impact?

CR: Yeah. I think what it's going to lead to is more diagnostics and more spending on diagnostics and then less spending on healthcare therapeutics and pharmaceuticals and the reason is this. Today, 70% of all treating physicians are informed by diagnostic. That diagnostics are about 1% of the whole industry. Historically, diagnostics have not been high fidelity, high accuracy, high impact and that's changing with this new wave of molecular medicine. So we expect the diagnostics industry to sort of become a much more important precursor component to the therapeutics industry.

You may have heard the statistic that approximately 2/3 of all drugs ingested by humans are wasted. They're not metabolized properly. They're not on point to the disease. People just don't get any therapeutic value from them at all. This wave of molecular medicine or this wave of diagnostic is going to reduce that 2/3. I mean more and more therapies are going to be specifically tailored to the right individual at the right time in the right dosage and that will cut healthcare expense. So we're going to see on a percentage basis I think a huge growth in the diagnostics but it's such a tiny part of healthcare expense that it will be far more offset by the savings in getting the right treatment to the right patient at the right time.

BJ: Can you talk a little about like the consumer, there's been some consumer oriented diagnostics like 23andMe is a company that I've come across. How does that different from the kinds of things you're doing?

CR: Yes, 23ndMe is more in the area of recreational genomics, genealogy and those kinds of things and that's a fine thing. It's a little early. It hasn't really taken off. There have been aficionados and hobbyists I think who have pursued it, but it hasn't had a big impact on the healthcare system. What we're pursuing is the medical version of 23andMe and rather than making very sparse measurements of the human genome, we actually measure the whole thing. We look through the entire human genome so that if there is a mutation that affects healthcare, we will find it unlike 23andMe that's just doing kind of a cursory scan of the genome in hopes of finding something useful and interesting. So it's the difference between kind of a consumer recreational application of the technology versus a really medical healthcare oriented application. Our application obviously is much more complicated, much more expensive, but ultimately much more valuable.

BJ: Can you talk a little bit about the expense? I mean is there an average cost for these tests and where you see the cost of this going?

CR: Yes. In the past few years, the price has come down quite dramatically. Five years ago, to sequence your whole human genome was about a million dollars so it was not part of our healthcare

system. Two years ago, it broke through the $10,000 barrier. Now in quantity, whole human genomes cost about $4000 each to sequence and the commercial laboratories that do this on a reference basis are typically in the $5000 to $10,000 range. So they're still pretty expensive, although that is kind of the price of complex diagnostics. So we're already at a medical level.

What we expect to see and what we are seeing is the technology rolling out in a special population of patients. It is not yet at the level where everybody could and should have their genome sequenced as part of their normal healthcare process. So it is not yet a routine process like it was when you go to see your doctor every year or two for your general physical. Whole human genome sequencing is not to that point yet. It's much more targeted at the specialty populations of patients.

BJ: I see. Can we shift gears a little bit and kind of go to the corporate side? I know you guys did an IPO not recently or recently rather. Can you talk a little bit about sort of investor interest in this field and why this might be a good area for investors to enter?

CR: Sure. I'll give you a reason why it's a good area and a reason why it's a challenging area. It's a good area because it's clearly the future of medicine. There's no question that this is the juggernaut that is going to change the practice of medicine partly driven by this is one area that is clearly going to reduce healthcare cost, again by targeting the right therapies to the right patients at the right times. It's a very powerful technology of doing that and as a result I think that's a very bright future.

The challenge for investors right now is that we're at the rapid pace of technological innovation stage of the industry. So we're seeing new companies enter the industry. We're seeing dramatic technological advancements from the existing competitors. The pricing structures are changing quickly in that the business models are undergoing major change. So we're at that stage of the industry, it's a little bit of the wild west. You know, that represents challenges for investors who are looking for stability and opportunities for investors who understand that disruptive change creates investment opportunities in the market and we are definitely in the disruptive change phase of the DNA sequencing industry.

BJ: But it appears if you've got a good base of research customers, they're going to continue to be buying these services I assume. Your model doesn't strike me as being that. It looks relatively stable. Do you envision that you'll continue to grow your basic customers in kind of the research side?

CR: Well we do and let me tell you what we've done in our model that is so different to what other folks have done. So the whole DNA sequencing industry prior to our arrival in it when we launched the company in 2006 and then it took us probably about a year and a half ago was an instrument business. Meaning every single company in the DNA sequencing industry was building instruments, DNA sequencers and selling those instruments and reagents, chemicals to laboratories, both research and clinical laboratories. So it was a classic razor-and-blade business.

We looked over the horizon at the diagnostics industry and said yes there is razor-and-blade diagnostics industry but the complex diagnostics are not in fact delivered to hospitals in the form of instruments and reagents. Complex diagnostics are delivered to hospitals in the forms of outsourced services. So from the very beginning we launched the company as an outsourced service. So customers send us their samples, just blood or DNA or spit in a tube, and we do the sequencing and then we send them back the results. We look a lot like a reference diagnostic lab. That was a complete revolution to the DNA sequencing industry that had been a very successful reagent industry for the last few decades. So one of the major changes is that the whole industry has reorientated itself now around notion that we've matured from an instrument-based industry to an essentially diagnostic testing industry and that has profound implications for business models and channels and partnerships and relationships and value proposition. So we're in that transition right now which I think is generating tremendous opportunity for investors.

BJ: Can you talk a little bit about sort of the milestones coming down, the big milestones coming or

catalysts that's coming in the next 12 months for the company?

CR: Yes. For us, we are a pre-profitability company so one of our milestones is raising money and we are in the process of doing that. We filed a $100M shelf registration. Over this year and next, we will clearly enter the market and raise additional capital to continue to fuel our R&D, to continue to fuel our channel growth, and continue to fuel our transition from being primarily a research company, which is what we have been doing these last six years, to being a clinical company, which is clearly our future and where we are going. So our big milestones are continuing to raise money and making progress towards profitability which is still a ways off.

BJ: Terrific. Well we'll be very keen to follow your progress and thanks so much for joining us today.

CR: Thanks for having me.

BJ: So that was Dr. Cliff Reid who is the co-founder and CEO of Complete Genomics, which is traded GNOM on the NASDAQ. They're based in Mountain View and they are in the human genome sequencing business. This is Brett Johnson in New York for OneMed Radio. Thanks for joining us.