



Using Cloning to Digitize Human Taste and Sense enabling Food and Fragrance Manufacturers to Maintain the Integrity of their Products



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CEOCFO: Mr. Hanson, what is the concept of Aromyx?

Mr. Hanson: Aromyx is digitizing taste and sense.

CEOCFO: How is that possible?

Mr. Hanson: The only way we can figure out how to do that is to use the actual biochemical stack from the human nose and tongue that allows humans to taste and smell things and clone that into disposable, inexpensive biosensors. The human nose has about 365 olfactory receptors and the tongue only has five taste receptors, but there about 370 of these receptors in the human nose and tongue that allows us humans to smell and taste probably billions if not hundreds of billions of things. We take the 370 receptors and clone them into a biosensor that customers in food and beverage or consumer packed goods or agriculture, perfume or wine industries can use locally. They are easy to use, disposable and you are essentially able to use this and capture what a sense or a taste is.

CEOCFO: What is involved in cloning a receptor?

Mr. Hanson: Genomics, gene sequencing and the biotechnology environment, has raced ahead in the last few years and finally allowed us to do this. It is something that I have wanted to do since roughly 2004, but it was not possible technically until three years ago when things had evolved to the point where we could try this. The Aromyx team all basically quit our day jobs and started doing this full time three years ago. Essentially, we take the DNA for human olfactory or taste receptors, start with that and clone it into what are little plastic plates that are commercial off the shelf pieces of lab equipment. They are called the SBS format Well Plate, but biology labs and increasingly our customers and all kinds of industries use them. It is a little three by five, by quarter inch plastic plate with a bunch of little holes. We buy the kind that has 384 little holes, so we can clone the entire nose and tongue into that. There are 370 receptors, so they all fit. Then you ship those off to a company like Kikkoman, for example. They take the plastic plates, pull back the adhesive cover and then you can put a cup of Kikkoman soy sauce next to it or you can actually put soy sauce on to it. The receptors react just as they would in your nose and tongue, then you take the plate and pop it into what is called the plate reader. We do not make those, but they are ubiquitous pieces of lab equipment that everyone has. The plate reader reads the activity and essentially tells you how the human nose and tongue react to Kikkoman soy sauce.

CEOCFO: Does every human’s nose and tongue have the same reaction?

Mr. Hanson: All of us see the world slightly differently and we sense it through our sense of touch and hear it a little differently, but generally, there is a bell curve for how humans see things. My dad was red/green color blind and saw the world very differently from the way I do. He saw it in grayscale essentially. There are other people that are born deaf and

do not hear anything at all, but generally, there is a bell curve, we all cluster around the curve and tend to sense things the same at that low level. Our perceptions are based on what is going on in our brain. We may have very different reactions to the smell of vanilla or a freshly mown lawn or a skunk, but generally we smell things the same.

CEOCFO: *Would this replace humans who may be smelling a product? What are the applications that you foresee?*

Mr. Hanson: Yes, that is one application. Say you are making a giant vat of Old Spice. You used a bunch of old guys who knew what Old Spice smelled like and they would come in at the beginning and smell it to make sure it smelled like Old Spice and they might have come in 24 times during the product process to smell it. Maybe the human will come in at the very beginning and the very end to make sure, but the intervening 24 test points could be done with this cheap biosensor. Another area is just reformulating products to make them healthy. If you take a product like Dr. Pepper, many people like that taste, but increasingly realize it is bad for them. The company would like to reformulate Dr. Pepper to make it healthier but still taste the same. You can do that with this technology. You take Dr. Pepper the way it is now, the bad for you, but good tasting Dr. Pepper and test it, get the flavor profile, and then you test all of your ingredients. This time you test things that are good for you also like kale, pine nuts and chamomile, and then you can use our software and technology to come up with several recipes for Dr. Pepper that give you exactly the same flavor but are using different ingredients. Ideally, you will come up with 50 new recipes and ten will be healthier, ten will be cheaper, maybe four or five will be both healthier and cheaper and that is a big win for a company. Up until now, you had to do that by hand, by trial and error, the way it has always been done.

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

Mr. Hanson: We think of this as the Aromyx platform for working with and digitizing taste and scent. A necessary part of it is the front end taste and sensors, and we have early versions of those available now and are working with a few early customers. We also are developing software to allow people to easily work with the results of the tests and we are rapidly growing a database of taste and scent information. We are an early offering but we are past beta and we are getting the early products out there. We think we will be in general release in Q3 of 2017.

CEOCFO: *How are you garnering attention?*

Mr. Hanson: We are talking specifically to individual companies.

CEOCFO: *Are they receptive? How are you getting in to present your process?*

Mr. Hanson: This is an older management team. My Chief Scientist, my VP of Engineering and my VP of Sales have all been doing business in the corporate world for 30 years. Our team knows a lot of people. Additionally, we have a very impressive scientific advisors group, who are kind of the biggest names in microbiology, sensory related sciences. They have their contacts. It was never a question of giving an initial meeting and variable; we would say we wanted to talk to Coke, but it turns out that some executive at Coke was a post doc in one of my advisor's labs back in the day. I would say over the last three years, we have validated this idea with the industry. This has been a holy grail for these industries for decades. We have had a capture device for our sense of vision; we had a camera. We had a capture device for auditory and we have the iPhone now. Even for our sense of touch, we had stress and strain gauges going back to the 1920's, but there was never a capture device or way to measure a taste or a scent, yet you have these giant industries producing millions of products, such as food, beverages, shampoos, perfumes where the central quality is the taste or smell, but there was never any way to measure it, capture it and digitize it. It is something that the industry has looked for over a long time, and I think over the last three years, we have validated that we are a deep science company. We are serious scientists and we have now started to show companies the early stage product.

CEOCFO: *Are you seeking investment or partnerships?*

Mr. Hanson: We recently finished our seed round of \$3.6 million dollars and we will be organizing a series A in 2017. We are interested in talking to potential financial investors who might participate and also to corporate, strategic investors. I think there will be some room for corporate investors that can add value.

CEOCFO: *Why pay attention to Aromyx?*

Mr. Hanson: I think we have more or less invented a new category, which I might not wish on any other entrepreneur. Here in Silicon Valley, it seems like there are only a few flavors of the day. You are either investing in artificial intelligence or you are investing in a self-driving car or one or two other things. To try to start and grow a company in a fairly new area, is a difficult proposition. Silicon Valley VCs typically do not come from our target industries. You do not find many VCs in Palo Alto that were formerly an executive at Procter and Gamble, Unilever, Coke or Pepsi.