

MAKING

DNA PAY

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More and more companies are entering the 'consumer genomics' market.

Confused by the world of wine and not sure which to choose? What if your choice could be made for you scientifically based on your DNA? What if, in exchange for a swab of saliva (and £120), you could receive three bottles of boutique vino personally matched to your tastes? That's the promise of Vinome (rhymes with 'genome'), a new wine delivery service based in North California.

Or perhaps beer's your thing. In that case, London's Meantime Brewery can create an ale just for you based on what your genetic code suggests you'll like. It may sound a little pricey at £25,000, but bear in mind that you'll receive more than 2,000 pints, allowing you to raise more than a few glasses to Meantime's brewmaster, Ciaran Giblin, who says he's "really pushing the boundaries of innovative, personalised brewing".

There's currently a whole heap of innovation and personalisation happening in the world of what's become known as 'consumer genomics', as more and more companies devise ways to cash in on our DNA. A recent note by UBS estimated that this nascent global market could be worth anywhere between \$2bn and \$7bn a year.

That's a huge spread and represents the uncertainty that surrounds what is still a relatively new sector. But there's potential there, for sure. As Jonathan Groberg, the report's author, puts it, "Less than three per cent of the population knows anything about their genomic data. This opportunity is where the internet was in the 1970s."

Mountain View-based 23 and Me was the first major player to take a plunge into the consumer gene pool ten years ago, offering customers the opportunity to discover their propensity for a range of health disorders as well as to delve into their ancestry. Consumer interest in these two topics has been the main driver for the subsequent growth in consumer genomics, although increasing amounts of saliva have begun to be sacrificed in other areas, too. Online dating is one, with some companies now offering matchmaking based on 'genetic compatibility'. As one puts it, "Love is no coincidence", although, as with many new entrants into this world, the science is considered by some to be a little dubious.

DNA tests are now pretty much standard for online ancestry sites, and prices have been falling rapidly, from around £200

So will they be laughing all the way to the gene bank? By **Tim Hulse**

a few years ago to less than £100 now. MyHeritage, which previously offered a DNA testing service in partnership with 23 and Me, recently launched its own test at an opening price of just £79. According to Dan Mano, SVP business development and marketing, as well as adding an extra resource for building family trees, they're attracting new customers. "The demographics are becoming more mixed," he says. "The beautiful thing about this product is that everybody is interested. With our traditional product, maybe young people were too busy to think about it. With DNA, young people are interested as well as old people. It opens up new segments in the market for us."

DNA testing also offers a genealogical springboard for groups who until now have struggled to trace their ancestors using traditional methods. For example, until quite recently a scarcity of records made it almost impossible for African Americans descended from slaves to discover where in Africa their family originated. DNA testing can now help unlock those secrets.

The accuracy offered by these kinds of results is also increasing. MyHeritage is

currently engaged in what it calls its Founder Population Project. Having sent out 5,000 free DNA testing kits to specially chosen existing members, it hopes that the results will enable it to expand its current range of around 30 'ethnicities' (basically, geographical areas of various sizes) to more than 100. According to CEO Gilad Japhet, this could ultimately allow users to know not just that their heritage is, say, part Greek and part Italian, but which Greek island their ancestors once lived on.

These more detailed genealogical results are likely to add further fuel to another recent trend – DNA tourism, in which people travel to the land of their newly discovered ancestors. It's possibly the ultimate in the kind of customised, personalised travel that consumers are increasingly demanding. One prime mover in this area has been travel site Momondo. Last summer, it released a promotional video in which a group of people of different nationalities took DNA tests and found their prejudices challenged by the unexpected results. Asked at the end if they wanted to travel to the places that had been revealed in their genealogies, the resounding answer

was a unanimous “hell yeah”. The video went viral and was later followed by a competition, with more than 165,000 entrants attempting to win one of 500 DNA kits. Those who got them then filmed themselves reacting to their results, with the ultimate winner travelling to the home of their ancestors.

“People want to explore where they come from, once they know where that is,” says Hugo Burge, Momondo Group CEO. “Travelling to our places of DNA origin is a very natural and inspiring impulse in our life’s journey, and offers the Holy Grail in travel – inviting people to find out a little more about themselves and others, while also opening up the world and broadening their horizons in the process. We certainly expect that we’ll be seeing more of it in the years ahead.”

The same can also be said of the consumer genomics market in general. DNA testing has been catching on in the wellness sector, too, with many spas now offering tests before or during a stay and matching personalised treatment to results. If you prefer to stay at home, there are plenty of options for finding fitness and nutrition plans matched to your genes. Wellbeing hub iamYiam can offer you your own activity and nutritional health plan thanks to an algorithm that cross-checks your DNA results against more than 160,000 scientific papers.

Perhaps the biggest new development in the consumer genomics market came about as the result of a happy accident. Justin Kao, a vice president at US private equity firm Warburg Pincus, was driving in his car one day in 2015 when he heard a radio item about the discovery of a sweet tooth gene that makes people more likely to like sweets. Kao thought to himself that he’d probably pay \$5 to find out if he had it. And then he thought that a lot of other people might pay \$5 for the same information, not to mention all sorts of similar information.

The result was a company called Helix, launched with \$100m of funding by Warburg, Sutter Hill Ventures and Illumina, the \$25bn American biotech giant that manufactures the technology that’s said to have been responsible for sequencing 90 per cent of all the DNA data ever processed. The Helix shtick is as simple as it’s ambitious: to sequence customers’ genomic data just once and then act as a marketplace for a wide range of partner companies to offer them different services. Significantly, the

Companies could soon be able to offer you products and services adapted to your unique genetic profile



kind of analysis offered by Helix is ‘exome sequencing’, which can offer far more detail than the genotyping that is used by most consumer genomics companies at present.

The possibilities are mind-boggling. In theory, after a single test, for the rest of your life companies will be able to offer you all kinds of products and services adapted to your unique genetic profile, whether that’s family planning resources, fitness plans, food, drink, you name it. And this could be where a bit of fun enters the DNA equation. Some have speculated that future apps may include the chance to see which celebrities you’re most closely related to or maybe how old you’ll look in ten years’ time. Which is where Vinome comes in. It’s one of the first companies to have partnered with Helix.

“Helix members will be able to unlock their Vinome results via an app and buy wines that match their profile from our eshop,” says Vinome co-founder and principal Shannon Kieran, a genetic counsellor by trade, who came up with the idea for the company with a group of fellow scientists and businesspeople – over a few bottles of wine, naturally. “We’re very excited about the partnership, and we think that the general public is certainly ready for a marketplace like Helix,” she adds. “We feel that this is a first step in making genetics more fun and more acceptable to everybody. I think that in the next few years we’ll see a broad uptake of this kind of use of DNA information.”

In other words, this is just the beginning. “Over the next few years, we believe that there will be hundreds of apps developed that harness the power of DNA in ways that are hard to imagine today, developed by entrepreneurs who could be creating the next Uber or Airbnb,” says Kao.

Who said there were no new markets? As Helix puts it, “The next great discovery is you.” ■

Code du Rhône?
California’s Vinome matches wines to your DNA