Comment

DNA isn't a marketing tool

Genetic testing companies should separate science and marketing to avoid bringing the industry into disrepute, says **Patrick Short**

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GENETIC testing companies have a long history of creative attempts to reach the mainstream. An early example was the sequencing of rock star Ozzy Osbourne's genes in 2010, with accompanying speculation about how they might have influenced his drug habits.

Lately, such projects have taken on a new, highly commercialised bent. In 2017, we got the "Marmite gene project", run by London-based genetic testing start-up DNAfit and funded by Unilever, the manufacturers of the yeast-based spread. It purported to show that love or hate for Marmite was in our genes. The project turned into a full-blown marketing campaign, and even sold Marmite-branded DNA testing kits.

DNAfit is now working with Mercedes-Benz to find out whether specific genetic traits are associated with business acumen. AncestryDNA, the world's largest consumer genetic testing company, last year teamed up with Spotify to promote "music tailored to your DNA". Just a few weeks ago, 23andMe, the second largest, announced a partnership with Airbnb to provide genetically tailored travel experiences also inspired by ancestral DNA.

I have skin in this game. I run a genetic-testing start-up that connects people who want their genome sequenced with researchers who want data to improve their understanding of genetic disease. I believe that broadening access to DNA testing can be a powerful force for good, providing safer, more effective medicines and giving people more power over their healthcare. But these campaigns risk discrediting the sector, by giving a misleading impression of what genetics can and can't say and its role in determining behaviours and personal preferences.

Take the Marmite study. It encompassed 261 people – tiny, by the standards of the field. It was published not in a journal, but online on bioRxiv, a server where scientists typically put results before peer-review. Shortly after, researchers looked at the genetic data of more than 500 times as many people in the UK Biobank and found no such correlation. A large peer-reviewed study in 2013 found no significant link between genes and business nous.

Meanwhile, ancestry tests produce highly divergent results as the companies constantly tweak their algorithms. To suggest they can help people connect with their ancestry through a music playlist or heritage vacation is misconceived. Many scientists and commentators have spoken out about the oversimplification of ancestry testing, as well as related issues with genetic kits being marketed for at-home assessment of breast-cancer risk.

We need to be upfront with the public about what this is all about: that is, the gathering of large amounts of genetic data. Certainly in the cases of AncestryDNA and 23andMe, this information is sold on to third parties. We need better regulation to ensure that consumers are clear that this may happen with this sensitive personal information. A checkbox on a 20-page web document full of legalese should not be enough.

Scientists too, need to start asking hard questions about whether the information they are using has been sourced ethically. DNA testing has a great future, but we can't build this future with data acquired by any means.

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