DNA dating: Can genes help you pick a mate?

19 December 2008 by **Linda Geddes**
Magazine issue 2687. **Subscribe** and get 4 free issues.
For similar stories, visit the **Christmas Science** , **Genetics** and **Love** Topic Guides

See the full picture story here

SOME people will accuse me of playing with fire. Next summer, I am due to marry Nic, my boyfriend of two and a half years. We have plenty in common, get on famously, and I have a strong desire to kiss him whenever I see him. But recent events have left a niggling doubt in my mind.

Will Linda and Nic's love survive a bout of genetic compatibility testing? Find out in our photo-story (Image: New Scientist Comics 2008)

Enlarge image

8 more images

It started with a recent paper I read. It suggested that taking hormonal contraceptives (as I have for many years) affects your sense of smell, which is a key factor in finding Mr Right (*Proceedings of the Royal Society B*, vol 275, p 2715).

Then I received a press release from a company called ScientificMatch, based in Florida, which offers to match couples according to scent-related aspects of their DNA profiles. By hooking you up with your biological match, rather than someone you just get along well with, the company promises a better sex life, more orgasms, a lower risk of cheating on each other, higher fertility and healthier children. Intrigued, I did some research and came across a similar company, GenePartner, based in Zurich, Switzerland, which also tests couples to determine their genetic compatibility and runs a dating service based on it.

These companies' claims may seem bold, and at $199 (for singles) and $299 (for couples) for the GenePartner test, and $995 for lifetime membership of ScientificMatch, finding the genetic "one" isn't cheap. Nevertheless, the idea is based on good evidence that human attraction is influenced by smell. In 1995, Claus Wedekind at the University of Bern in Switzerland devised his infamous "sweaty T-shirt" experiment, in which he asked women to sniff the T-shirts of similarly aged men and rate their body odours. He found that women preferred the scent of men who had immune systems dissimilar to their own, as measured by genes for the major histocompatibility complex (MHC), which is involved in displaying antigens to immune cells (*Proceedings of the Royal Society B*, vol 260, p 245). Other studies have found that men also prefer women with dissimilar MHC genes, more specifically known as human leukocyte antigen (HLA) genes in humans.

I've always liked Nic's smell, but what if I've got it wrong? There was only one thing for it: we had to take the test. And in case Nic and I were at risk of spawning a tribe of phlegmy, afflicted runts, I recruited six of my male colleagues to get tested too. If my boyfriend turned out not to be my perfect match, maybe one of them would be.

In the interests of science, I decided to come off the contraceptive pill during the experiment, since that recent paper agrees with what earlier studies have suggested - that it alters your preference for odours.

I asked both ScientificMatch and GenePartner to compare DNA from myself and Nic. GenePartner also compared my sample with those from my six colleagues. Both companies extract DNA from swabs of cheek cells, then analyse three key MHC or HLA genes. Since we inherit a copy of each gene from each of our parents, six gene variants, or alleles, are analysed, of which there are hundreds of common types. Both companies believe that more dissimilarities predict greater compatibility; GenePartner also factors in the results of its own unpublished study of 420 couples, which found that certain combinations of alleles crop up more frequently than others in successful partnerships.

Two weeks later the results are in. I'm relieved that both companies find Nic and I to be highly compatible, with between 83 and 89 per cent difference in our MHC genes.

It seems I may be more genetically compatible with my colleague than my future

husband

"Chances are good that you really enjoy Nic's natural body fragrance, you enjoy a satisfying sex life with him, that the two of you would enjoy a high degree of fertility with each other and that you'd have healthy children together," says Eric Holzle of ScientificMatch, although he says he wouldn't match us through his dating site unless we were 100 per cent dissimilar. "There's also about a 17 per cent chance that you would cheat on Nic at some point during your exclusive relationship together," he adds.

Unperturbed, I turn to GenePartner's analysis: "This genetic combination is typical of very satisfying relationships," the report says. "The chances are high that [your] intimacy won't diminish over time."

Good news then, until we read my other test results. It seems that my colleague Rowan may be a better match for me than Nic, having 100 per cent dissimilar genes. "It is very likely they were interested in each other very early after meeting for the first time," says GenePartner's report. "The two have very high chances of enjoying a satisfying sex life and having healthy children together, including a higher probability of conceiving a child sooner as well as a lower rate of miscarriages." "Do I need to challenge him to a duel?" asks Nic.

Even more disconcerting for Nic, two other colleagues, including my boss, are as well suited to me as he is (see "Search for a soulmate"). On closer inspection, though, GenePartner's results provide some comfort for me and my intended.

Based on its unpublished study of successful combinations, although Nic and I are not 100 per cent compatible, one component of our genetic fingerprint "comes up in the majority" of successful couples tested, says Tamara Brown of GenePartner.

On the other hand, the same analysis suggested that for Mike, who shares many genes with me and should therefore feel "like a family member", I may have mixed feelings, because his genetic profile shows a "fairly high general attraction level".

To a fair degree my gut feelings towards the volunteers are reflected in the DNA results. The exceptions are Alex, a good match DNA-wise, but who I probably wouldn't have considered as a date, and Rohan, who I think is attractive, while the results suggest I should think of him more like a brother.

I'm curious to know if my feelings would have been different had I got close enough to my colleagues to give them a good sniff. So I conducted my own version of the sweaty T-shirt experiment, in which I asked each of the volunteers to wear a clean white T-shirt for one day and one night without using any deodorant or aftershave beforehand.

I sniffed the T-shirts without knowing who owned each one, and rated them as pleasant, neutral or unpleasant. I rather liked the smell of the T-shirts worn by Nic, Rowan and Ryan, which tallies with the MHC results, but I also liked the smell of Mike, who I'm neither compatible with nor attracted to. I rated Roger and Alex - who I am supposedly compatible with - as neutral. But I did rate the smell of Rohan, who I am genetically incompatible with, as unpleasant.

Confused by the conflicting results, I asked independent experts how seriously they thought I should take my findings. In general, they felt that the MHC tests were harmless enough, but that there isn't enough evidence about MHC compatibility to use it as a proxy for love and attraction.

"MHC may be important in influencing our partner choice, [but] we have no idea exactly how important that is in relation to other factors," says Craig Roberts of the University of Liverpool, UK, who is planning a larger version of my experiment. For example, some studies have suggested that facial symmetry is important, and one even indicated that women prefer the faces of men who are MHC-similar - contradicting our genetic matchmakers' assumptions (*Biology Letters*, vol 1, p 100).

Roberts suggests that facial cues may be part of an initial screening process, in which we look for people who are relatively similar to us so we don't dilute the effect of genes that helped our ancestors to survive. "Then at a more intimate stage, odour helps eliminate those who are too similar," he says.

Other studies also suggest that moderate dissimilarity may be preferable to extreme dissimilarity, so by only focusing on partners whose genes are 100 per cent dissimilar the tests "could wrongly sway your thoughts towards someone you think is a better match", says Roberts, "even though you and your partner might actually be optimally matched".

The results could sway you towards someone else when you and your partner are perfectly matched

Moreover, social factors also play a role in attraction, with people being drawn to those of similar intelligence, education and socio-economic background. "From the position we're in, I don't think we should be making any kind of recommendation to anybody," says Roberts.

Shared passions

Wedekind agrees. "They claim that the health of babies will be improved if partners have dissimilar MHC," he says. "That's a bold claim." For while MHC-linked sexual attraction might have evolved to improve the health of children, Wedekind says it may be no more than a measure to stop us mating with our half-siblings when we lived in smaller social groups and the identity of the father was not always clear. "MHC-linked body odours may just be there to prevent inbreeding," Wedekind says.

I was also curious to know what the companies would have advised had Nic and I been biologically incompatible. "We would never advise you to leave your boyfriend based on our findings," says Holzle. "If you've got a great relationship with a man who makes you happy, our advice is to cherish that bond and enjoy it to the fullest."

Brown agrees. "We've seen couples who have [very low compatibility] but have been together for a very long time and they have something, like travelling or hiking, that really binds them. Sometimes I think that the passion they share can compensate for the lack of biological compatibility."

Still, while both admit that genetic tests can't tell you everything, Holzle maintains that they are more useful than standard personality questionnaires alone. "We're offering as much as the scientific community has shown us is available," he says.

Wedekind agrees that the tests are not without merit. "A main role of dating services is that they help to reduce the possibilities," he says. "If it helps people to find a partner I would be very proud."

As for me, I'm taking the results with a pinch of salt - although I might have felt unnerved had the tests suggested marrying Nic wasn't such a great idea. I suspect, though, that using DNA to choose a date could be a great leveller, opening up the possibility of meeting people you wouldn't otherwise have considered. At the very least it would give you something to talk about on a first date.

Bibliography

1. Linda Geddes isn't buying Nic aftershave this year

From issue 2687 of New Scientist magazine, page 60-62. **Subscribe** and get 4 free issues.

Browse past issues of New Scientist magazine

Back to article

PRINT SEND SHARE