

Scientists discover a gene for trust—here's how it could be linked to good health

June 10 2024, by Giuseppe 'Nick' Giordano



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If a distressed stranger knocked on your door asking to use your phone, would you oblige? How about lending them a fiver for the bus, if they assured you they'd return and pay you back? In today's fractured world,

trust seems elusive and divisions run deep. A lot of people find it hard to trust strangers, perhaps in particular those who are different to us.

But why? A recent breakthrough by our international team of researchers, [published in *Scientific Reports*](#), has shed light on the genetic basis of [trust](#). We discovered that our ability to trust strangers may be more than just a social or psychological trait—it could be rooted in our DNA.

This is important, as it turns out that trusting people might actually [live longer, healthier lives](#) compared to their more skeptical counterparts.

Research has shown that those who trust strangers have a significantly lower risk of cardiovascular disease, even after accounting for factors such as smoking, age and biological sex. Yet understanding why this is the case remains elusive.

For decades, the study of trust has been the domain of social and political sciences, viewed primarily as a societal construct. Two main theories have emerged to explain why some people are more trusting than others. One suggests that trust is a stable trait [shaped by early life experiences](#).

The other posits that it's influenced by a person's [ongoing evaluation of the social environment](#). I can easily imagine that the answer to the standard social trust question: "Would you say that most people can be trusted, or you can't be too careful when dealing with people?" would depend on whether you had been robbed the day before, or if you'd had your dropped wallet returned.

This is where my research comes in. I currently lead the Genetic and Molecular Epidemiology unit at Lund University, Sweden. For the past 15 years, I have been on a quest to uncover the biological underpinnings

of trust and its links with better health. My most recent study, involving 33,882 Danish blood donors, marks a significant milestone in this endeavor.

With [genetic data](#) and information on our participants' propensity to trust strangers, we conducted the largest [genome-wide association study](#) (studies linking traits with genes) of social trust to date. We obtained individual trust levels from participants' answers to bespoke and validated social trust questions. Our analyses identified a [single gene](#), PLPP4, which was strongly associated with the trait of trusting others.

We further discovered that the PLPP4 gene explained a substantial 6% of the variation in social trust within the study population. That means that if you take two people who have similar upbringing, education and life experiences, this gene alone could account for 6% of the difference in how much they trust others.

This may sound like a small number, but it is a significant finding in the realm of genetics, especially when considering the complexity of human behavior. To put this into context, a [gene called "FTO"](#) is often cited for explaining differences in [body mass index](#) among Europeans, yet it only accounts for 0.34% of these differences.

Fight or flight

But what does this mean in practical terms? I believe that the discovery of the "trust gene" could serve as a bridge between biology and social science, challenging the traditional divide between the two fields.

Moreover, the fact that this gene is predominantly expressed in the brain raises intriguing questions about its role in shaping neural pathways and signaling mechanisms.

While it's tempting to speculate that manipulating this gene could

enhance trust, I must caution against such simplistic interpretations. Rather than directly impacting trust levels, this gene likely plays a role in shaping circuits in the brain that are associated with our innate "fight or flight" survival mechanism.

This system, hardwired into each of us, governs our response to stress, via the release of certain hormones. Though useful in the short-term, longer-term exposure to stress hormones can be detrimental to health—in fact it's been linked to [cardiovascular problems, anxiety and depression](#).

We suspect the PLPP4 gene may somehow soften the fight or flight mechanism. And if our fight or flight system is less intense when we encounter new people, it makes sense that having an innate propensity to trust others could have substantial health benefit. Indeed, if trusting others acts as a buffer against stress, thereby reducing cortisol levels, it may lower the risk of cardiovascular disease and depression.

The implications could be profound. However, further research is needed to unravel the complex interplay between genetics, trust and health. That said, the discovery of a genetic basis for trust opens up new avenues for [interdisciplinary research](#), offering fresh insights into the intricate connections between biology, behavior and society.

As we continue to unravel the mysteries of trust, one thing is clear: understanding its genetic roots may hold the key to fostering healthier, more cohesive communities in an increasingly fragmented world.

More information: Celia Burgos Sequeros et al, A genome-wide association study of social trust in 33,882 Danish blood donors, *Scientific Reports* (2024). [DOI: 10.1038/s41598-024-51636-0](https://doi.org/10.1038/s41598-024-51636-0)

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