

"Long before it's in the papers"

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Gene found linked to easily visible differences in kindness

Nov. 11, 2011
Courtesy of Oregon State University
and World Science staff

A gene variant that affects empathy, parental sensitivity and sociability is so powerful that strangers watching 20 seconds of silent video can tell apart people who have it, a study has found.

Scientists videotaped 23 romantic couples while one of the partners described a time of suffering in their lives. The other partner's reaction through body language alone was the focus of the study. Groups of strangers viewed the videos and were asked to rate the person on traits such as how kind, trustworthy, and caring they thought the person was.

"Our findings suggest even slight genetic variation may have tangible impact on people's behavior, and that these behavioral differences are quickly noticed by others," said Aleksandr Kogan of the University of Toronto, the study's lead author.

The work built on previous research by Sarina Rodrigues Saturn of Oregon State University and colleagues, who linked a genetic variation to empathy and stress reactivity. Saturn is senior author of the new study, published in the latest issue of the journal *Proceedings of the National Academy of Sciences*. The researchers studied genetic variations that affect transmission within the brain and body of a hormone known as oxytocin, which is linked to trust and relationships.

"It was amazing to see how the data aligned so strongly" with the variants, Saturn said. "It makes sense that a gene crucial for social processing would yield these findings; other studies have shown that people are good at judging people at a distance and first impressions really make an impact."

Before recording the videos, the scientists identified the couples' gene types as GG, AG, or AA through tests. The first type marks people with two copies of a gene variant called G; the second, those with one copy of the G and one copy of the A variant; and so forth. According to previous research, GG people tend to act in a more caring way, whereas the other two types tend to have a higher risk of autism and self-reported lower levels of positive emotions, empathy and parental sensitivity. Oxytocin has already been linked with social affiliation and reduction in stress. It is associated with social recognition, pair bonding, dampening negative emotional responses, trust and love.

Out of the 10 people who were marked by the neutral observer as most empathic, six were GG carriers; while of the 10 people who were marked as "least trusted," nine were carriers of the A version of the gene, the researchers reported. These people were viewed as less kind, trustworthy and caring toward their partners.

What's unknown is precisely how the gene affects the behavior. The variant does lead to differences in receptors, or molecular structures, involved in oxytocin transmission.

However the mechanics of it may turn out to work, Saturn believes people can and do overcome their genes. "These are people who just may need to be coaxed out of their shells a little," she said of the "A" carriers. "It may not be that we need to fix people who exhibit less social traits, but

that we recognize they are overcoming a genetically influenced trait and that they may need more understanding and encouragement.”

Kogan said that many factors ultimately influence kindness and cooperation. “The oxytocin receptor gene is one of those factors – but there many other forces in play, both genetic and non-genetic,” he said. “How all these pieces fit together to create the coherent whole of an individual who is or is not kind is a great mystery that we are only beginning to scratch.”