COVID's Achilles' heel: Will the DNA of disease-resistant patients offer clues to blocking the virus?

Mayana Zatz, director of the Human Genome Research Centre at the University of São Paulo has identified 100 couples, where one person got Covid-19 but their partner was not infected. Her team is now studying them in the hope of identifying genetic markers of resilience. "The idea is to try and find why some people who are heavily exposed to the virus do not develop Covid-19 and remain serum negative with no antibodies," she says. "We found out that this is apparently relatively common. We received about 1,000 emails of people saying that they were in this situation."

Zatz is also analysing the genomes of 12 centenarians who have only been mildly affected by the coronavirus, including one 114-year-old woman in Recife who she believes to be the oldest person in the world to have recovered from Covid-19.

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Her team is using stem cells to convert blood samples from these centenarians into lung tissue, which they will then infect in the lab with multiple other viruses to see whether their genetic mutations also offer protection against these infections. If so, this could potentially yield completely new antiviral drugs.

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"Our aim is to identify genetic variants that confer resilience, not only to Covid-19 but also to other viruses or adverse conditions," says Zatz.

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