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## Taking longer to get well after infection? It could be your genes

### One's genetic profile can affect his ability to mount defence against Covid-19, say experts

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Why do some healthy, vaccinated people take so long to recover from Covid-19 infections, while others – perhaps older or even less healthy – just shrug the virus off? The answer is often found in people's genes, say experts in Singapore.

Each individual has his own unique genetic profile, and reactions to the virus can therefore range from asymptomatic infection to severe disease.

Professor Laurent Renia, from the Nanyang Technological University's Lee Kong Chian School of Medicine, puts it succinctly: "We are not born equal."

One example is how the human body produces proteins known as interferons, which help mount a defence against viruses.

But in some people, there are errors in the molecular circuitry involved in generating such proteins, which can make them more susceptible to infection, Prof Renia said. An overseas study found that 3.5 per cent of patients with severe Covid-19 had such mutations.

Scientists subsequently discovered that at least 15 per cent of such patients had another problem – "misguided" antibodies that attacked interferons and prevented them from doing their job.

These are among the many genetic factors that may be at play, Prof Renia said, adding that others are still being progressively discovered.

Even within the same family, immune systems can differ greatly, said Associate Professor Ashley St John from Duke-NUS Medical School's Emerging Infectious Diseases Programme. This is because of the unique combination of genes that work together to fight infection, as well as each individual's previous exposure to vaccines or other infections.

The amount of virus that a person is exposed to can also impact how ill they become, she added.

While there is some conflicting data, it is generally thought that people who are exposed to larger amounts of the virus for a longer period can become sicker.

And subtle behaviour differences could also explain why some people fall sick and show symptoms, but others do not, even if it seems they both had the same exposure to an infected person, Prof St John said. These include where an individual was sitting relative to the infected person, or if a mask was worn correctly at the time.

She added that vaccination is one of the most important factors impacting how ill a person becomes.

“There are very few aspects involved in the process of developing symptomatic disease or severe disease that we can control, but the best strategy, which we have control over, is to be fully vaccinated.”