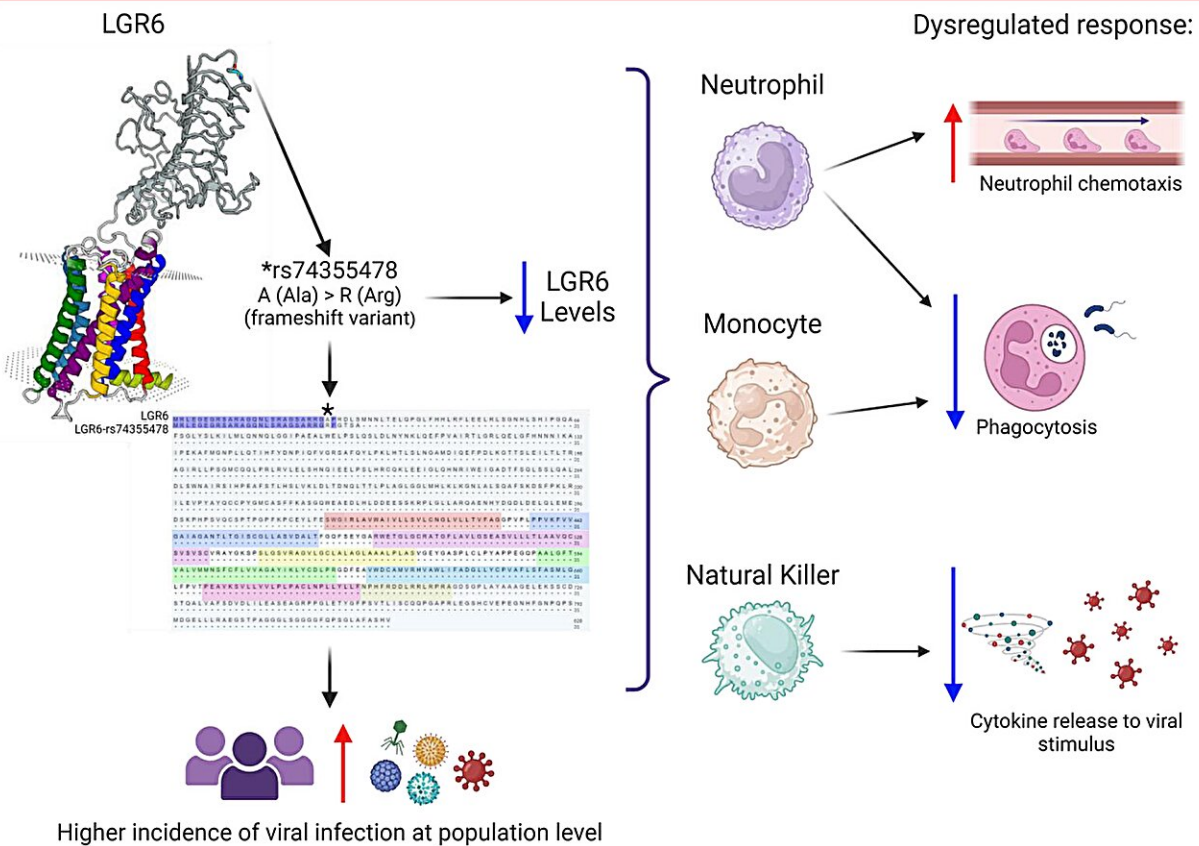


Research finds genetic variation that could lead to increased risk of viral infections

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Impact of the genetic variant rs74355478 on LGR6 expression and the regulation of immune cell biology



Credit: *Blood Journal* (2024). DOI: 10.1182/blood.2023021826

A new study, led by Jesmond Dalli, professor of molecular pharmacology at Queen Mary University of London, has found that people with a genetic mutation that leads to a reduction in a protein called LGR6, found on the surface of immune cells, have a decreased ability to clear viral infections.

The research, [published](#) May 8 in *Blood*, suggests that new drugs that target these immune system mechanisms could improve the treatment of viral infections.

Leucine-rich repeat-containing G-protein-coupled receptor 6 (LGR6) manages specific molecules produced by [immune cells](#). One of these molecules is Maresin 1, which has been shown in mouse studies to regulate white blood cells' ability to manage inflammation, repair tissues, and combat bacterial and viral infections.

Professor Dalli's study used data from the Genes & Health project to identify individuals with a specific natural mutation which reduced the expression of LGR6. When cells from volunteers with this mutation were examined, it was found that they had significantly lower levels of the LGR6 receptor on white blood cells—including monocytes, neutrophils, and Natural Killer cells.

These cells lost their ability to respond to the protective effects of Maresin 1, which meant they were less effective in clearing bacteria and responding to viruses.

To discover whether people with this genetic mutation experienced differences in their immune responses during their lifetimes, the study then compared health information stored in the U.K. Biobank, a large-scale biomedical database and research resource containing anonymized genetic, lifestyle and [health information](#) from half a million U.K. participants. These records showed a higher incidence of viral infections

among individuals with this mutation, compared to the general population.

Professor Dalli said, "These results shed light on the role of Maresin 1 and its receptor, LGR6, in controlling immune responses in humans. They suggest that Maresin 1 and molecules that mimic its effects to activate LGR6 could be valuable in treating both inflammation and infections."

More information: Esteban Alberto Gomez Cifuentes et al, LGR6 frameshift variant abrogates receptor expression on select leukocyte subsets and associates with viral infections, *Blood Journal* (2024). [DOI: 10.1182/blood.2023021826](https://doi.org/10.1182/blood.2023021826)

Provided by Queen Mary, University of London

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