

A protein inherited from Neanderthals may offer limited protection against COVID-19

Recent advances in proteomic technology – that is, the capacity to isolate and measure hundreds of circulating proteins at once – combined with genetic analyses through Mendelian randomization (MR) makes possible the delicate work of untangling which proteins affected COVID-19 adverse outcomes, rather than vice versa.

From genetic determinants of 931 circulating proteins, Dr. Sirui Zhou, a post-doctoral fellow at the LDI and first author on the paper, found that increase in OAS1 levels was associated with reduced COVID-19 death or ventilation, hospitalization, and susceptibility in up to 14,134 COVID-19 cases and 1.2 million controls.

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“The protective effect was particularly large,” points out Dr. Zhou, “such that we observed a 50% decrease in the odds of very severe COVID-19 per standard deviation increase in OAS1 circulating levels. Interestingly, for non-African peoples, this protective effect is likely inherited from a Neanderthal derived form of OAS1 called p46.”

This form of OAS1 likely emerged in people of European ancestry through interbreeding with Neanderthals tens of thousands of years ago. Evolutionary pressure slowly increased the prevalence of this form of OAS1, such that it is now detectable in more than thirty-percent of people of European descent. It is likely that the form of the protein has served as protection against earlier pandemics.

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