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"Were Epitope Changes the Driving Force that Affected the Covid-19 Virus?"

Abstract

The Covid-19 pandemic is the reason for this investigation regarding how epitope changes affected the COVID virus. The number of Epitopes lost was tracked weekly and was then compared to the weekly data that was collected from the Louisiana Department of Health that relates to number of Covid-19 cases per week. This data was then analyzed and showed there is a period in the virus's mutation where certain epitopes were lost and/or gained that show a distinct difference between the Delta and Omicron variant. This information was used to investigated how public health efforts could have been changed to control the COVID virus. The information can also show the relationship for how the Omicron variant becoming so prominent.

The results from the analysis show that there are distinct epitope changes that occurred that distinguished the Delta and Omicron variant. Epitopes that were not seen at all in Delta and only some of the initial populations of Omicron were soon seen in all the Omicron variant. It was also determined that the sequencing of the virus during the time of the Omicron rising was diminished. This meant that the epitope changes that were occurring were not able to be properly forecasted.

There are a few conclusions that can be drawn from this analysis. One of the conclusions that can be drawn is that monitoring should have been at least kept at the same level if not increased to properly account for and prepare for this new variant's emergence. Another conclusion would be that there is evidence to show that the changes at the epitope level are indicative of the changes that were happening to the COVID virus. The last conclusion would be that if certain public health policies were held in place the emergence of Omicron may not have been so severe.