Overview
SARS CoV-2, the virus responsible for COVID-19 disease in human populations, is the causal agent of the current global pandemic. Understanding host immune response will help in combatting the pandemic and improving patient outcomes.

Objectives
My work is focused on creating a database of host immune kinetics, compiled from the raw datasets at the heart of the wealth of studies published on COVID-19 infected humans. From there, I plan to build a series of predictive modeling tools to analyze the variations of in-host immune responses to infection with SARS Cov-2.

Methods
Collection of datasets from pre-print articles occurred primarily from the bioRxiv and medRXiv pre-print databases. Relevant articles were identified and stored in an Excel spreadsheet, and easily accessible datasets downloaded for later use. Articles of interest without accessible datasets were marked for later attempts to retrieve data.

Results
At present, my work has resulted in a lengthy Excel spreadsheet containing index information about articles of interest, links to the publication or pre-publication, and if applicable, links to the relevant dataset. I have also compiled a list of articles for which I must take further action to retrieve the associated raw data. Additionally, I have downloaded a collection of raw datasets in a separate file folder to be used in later phases of the project.

Reflections
Studying a pandemic while living through it is a lot more difficult than I expected. While it helps my work feel relevant and impactful, it’s difficult to set aside my personal, emotional response to the current situation.

However, working on the project has helped me develop my passion for solving the puzzles presented by epidemiological questions, and I have made the decision to apply for graduate programs in epidemiology. I’m excited to continue the work I have found inspiring and meaningful.

Next Steps
As I continue the project, my short-term goal is tracking down the final datasets from articles of interest. Long-term goals include the creation and analysis of predictive models.

Questions
When I reach the modeling phase of this long-term project, I hope to answer several questions about the drivers of individual hosts’ immune response to SARS CoV-2 infection. I hope to identify immunological factors which contribute to differing patient outcomes between age groups of COVID-19 patients. I also plan to investigate the timing and strength of immune responses and the effects of these variables on disease severity.

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