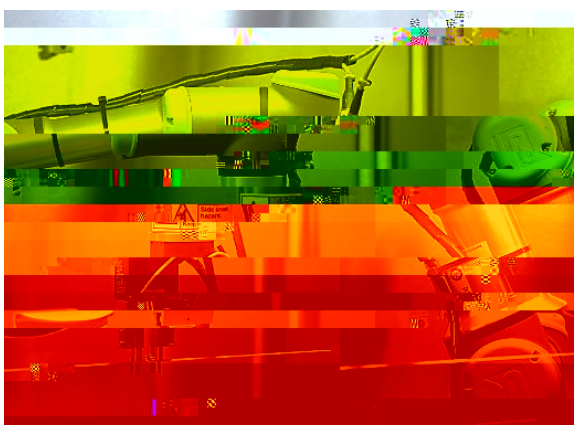
Operation Stronghold

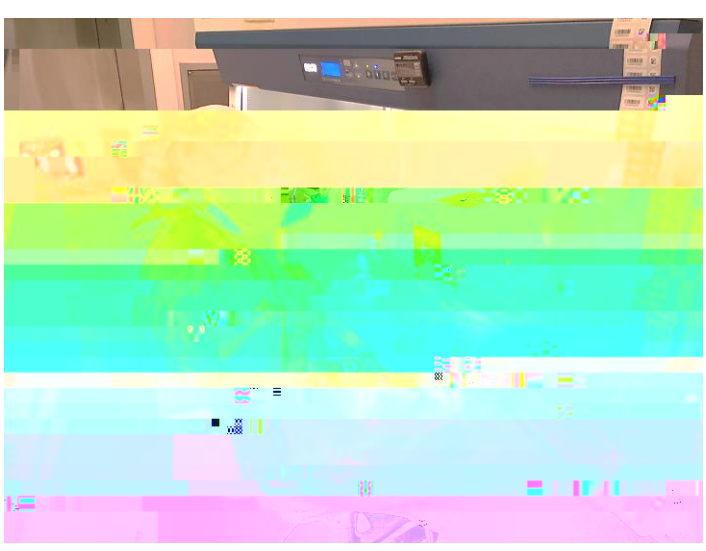
GIS' response to the COVID-19 Pandemic

In April 2020, the Ministry of Health approached A*STAR and partners for assistance in setting up a large-scale COVID-19 testing facility, as an integral component of an overall national strategy to boost the nation's testing capacity for COVID. Increasing the nation's testing capacity was deemed, at the very highest levels of the Singapore government, as an essential step in returning the country to economic and social normalcy, as this would enable hospital diagnostic facilities to return to regular clinical testing (for other conditions), facilitate repeated rostered testing, allow screening of high-risk populations, and open up international travel.



In response to this urgent request, A*STAR tasked the Genome Institute of Singapore to lead Operation Stronghold, an all-of-A*STAR effort to build the Stronghold Diagnostics Laboratories (SDLs). Leveraging on its prior expertise in clinical grade diagnostic assays through efforts such as POLARIS, high-throughput genomics, and data informatics, over 150 staff from GIS worked with counterparts across A*STAR research institutes and national platforms (ARTC/SIMTech, DxD Hub) and strategic partners National University Health System (NUHS) and Temasek Foundation, to set up the SDLs.

Accomplishing in three months what would have normally taken half a year or more, the GIS team rapidly established a pilot scale clinical-grade laboratory (SDL@GIS) to develop clinical workflows for the main facility, testing and optimising new equipment, and developing training curriculum for SDL staffers to work under a rigorous personal protective equipment (PPE) environment and standard operating protocols to ensure testing operations in a safe and accurate manner.



The GIS team also spearheaded the construction and outfitting of the main SDL facility (SDL@Nanos, assisted by teams from the BTI), developed the backend informatics to track samples through the sample workflow and reporting of results directly to national electronic medical records, and worked with colleagues from the science and engineering research institutes (ARTC/SIMTech) to develop novel robotic and automation solution to process thousands of samples faster, accurately and reliably in a safer environment. Through this effort, both SDL facilities were able to 'go-live'