

Archived Editions (COVID-19 Genomics and Precision Public Health Weekly Update)

Published on 01/21/2021

COVID-19 Genomics and Precision Public Health Weekly Update Content

- Pathogen and Human Genomics Studies
- Non-Genomics Precision Health Studies
- News, Reviews and Commentaries

Pathogen and Human Genomics Studies

- High throughput wastewater SARS-CoV-2 detection enables forecasting of community infection dynamics in San Diego county (/PHGKB/phgHome.action?action=forward&dbsource=covUpdate&id=607)
S Karthikeyan et al, MEDRXIV, January 14, 2021
- Emergence and Evolution of a Prevalent New SARS-CoV-2 Variant in the United States (/PHGKB/phgHome.action?action=forward&dbsource=covUpdate&id=610)
AA Pater et al, BIORXIV, January 13, 2021

Genomic virus surveillance can lead to early identification of new variants and inform proper response during a pandemic. Using this approach, we have identified a new variant of the SARS-CoV-2 virus that emerged in the United States (U.S.) early in the coronavirus disease (COVID-19) pandemic and has become one of the most prevalent U.S variants. This new variant within the B.1.2 lineage referred to here as 20C-US, has not yet spread widely to other countries.

- Emergence of SARS-CoV-2 B.1.1.7 Lineage — United States, December 29, 2020–January 12, 2021 (/PHGKB/phgHome.action?action=forward&dbsource=covUpdate&id=613)
SE Galloway et al, MMWR, January 15, 2021

Modeling data indicate that B.1.1.7 has the potential to increase the U.S. pandemic trajectory in the coming months. CDC's system for genomic surveillance and the effort to expand sequencing will increase the availability of timely U.S. genomic surveillance data.

- How to best test suspected cases of COVID-19: an analysis of the diagnostic performance of RT-PCR and alternative molecular methods for the detection of SARS-CoV-2 (/PHGKB/phgHome.action?action=forward&dbsource=covUpdate&id=614)
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We compare and discuss the diagnostic performance of a range of different molecular assays designed to detect the presence of SARS-CoV-2 infection in people with suspected COVID-19. Using a systematic review of 103 studies, we categorised COVID-19 molecular assays into 12 different test classes, covering point-of-care tests, various alternative RT-PCR protocols, and alternative methods. We carried out meta-analyses to estimate the diagnostic accuracy and clinical utility of each class.

- mRNA vaccine-elicited antibodies to SARS-CoV-2 and circulating variants (/PHGKB/phgHome.action?action=forward&dbsource=covUpdate&id=626)
Z Wang et al, BIORXIV, January 19, 2021

We report on the antibody and memory B cell responses in a cohort of 20 volunteers who received mRNA vaccines. Consistent with prior reports, 8 weeks after the second vaccine injection volunteers showed high levels of IgM, and IgG anti-SARS-CoV-2 spike protein (S), receptor binding domain (RBD) binding titers. However, activity against SARS-CoV-2 variants encoding E484K or N501Y or the K417N:E484K:N501Y combination was reduced by a small but significant margin.

Non-Genomics Precision Health Studies

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Page last reviewed: Oct 1, 2020

Page last updated: Jan 21, 2021

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