



# DHS SCIENCE AND TECHNOLOGY Supplemental Reference for SARS-CoV-2 Omicron Subvariants Eris and Fornax

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For comments or questions related to the contents of this document, please contact the DHS S&T Hazard Awareness & Characterization Technology Center at [HACTechnologyCenter@hq.dhs.gov](mailto:HACTechnologyCenter@hq.dhs.gov).



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Department of Homeland Security (DHS) Science and Technology Directorate (S&T) – SARS-CoV-2 Eris (EG.5) and Fornax (FL.1.5.1) Omicron Subvariants Update – 9/18/2023

**Overview – What are the Eris and Fornax subvariants and why are scientists concerned?**

- The SARS-CoV-2 Omicron subvariant Eris (EG.5) was first reported on February 17, 2023,<sup>1</sup> and accounts for 24.5% of new COVID-19 cases in the U.S. according to the most recent predictions for the week ending on September 16, 2023.<sup>2</sup> Another Omicron subvariant, Fornax (FL.1.5.1), has also been increasing in prevalence and accounts for 13.7% of new COVID-19 cases in the U.S. during the same time period.<sup>2</sup>
- The increase in Eris and Fornax prevalence coincides with an increase in hospitalizations (+7.7%) and deaths (+4.5%) in the U.S. as reported for September 3 to September 9, 2023.<sup>3</sup>
- The Eris subvariant displays a growth advantage over other circulating variants.<sup>1</sup> Although it does not appear that Eris causes more severe illness it may be more likely to overcome existing protective immunity due to its immune escape characteristics; however, there is not enough data currently available.<sup>1</sup>
- COVID-19 preventative actions for Eris and Fornax subvariants are consistent with advice for prior variants and includes full vaccination, mask use, and hygiene practices.<sup>4</sup>

**Genomics – How do the Eris and Fornax subvariants compare to previous SARS-CoV-2 strains and variants?**

- The Eris and Fornax subvariants are Omicron subvariants that are described as XBB.1.5-like viruses.<sup>5</sup> Although similar to XBB.1.5, both subvariants have unique sets of genetic changes including important mutations in the spike protein. Both Eris and Fornax carry the F456L mutation,<sup>5</sup> which has been linked to partial resistance to neutralizing antibodies.<sup>6</sup>
- The Omicron subvariants (including Eris and Fornax) currently account for 100% of sequenced new cases in the U.S.<sup>2</sup>

**Transmissibility – How do they spread from one host to another? How easily is it spread?**

- Data remains limited, but the U.S. Centers for Disease Control and Prevention (CDC) has stated that there is no evidence indicating that Eris has increased transmissibility compared to prior Omicron subvariants.<sup>7</sup>
- In laboratory studies, the Eris subvariant does not appear to have a significant difference in infectivity compared to earlier Omicron XBB variants.<sup>8</sup>

**Vaccines – Are there effective vaccines? How common are breakthrough infections?**

- The U.S. Food and Drug Administration’s (FDA) Vaccines and Related Biological Products Advisory Committee expressed preference for updated COVID-19 vaccines targeting the Omicron XBB.1.5 variant.<sup>9</sup> Moderna released a statement on August 17, 2023 stating that their updated vaccine generates antibodies against Eris as well as Fornax.<sup>10</sup> The updated vaccines were approved by the FDA on September 11, 2023.<sup>11</sup>
- While Eris and Fornax contain the F456L mutation linked to antibody escape,<sup>6,8</sup> the vaccines available prior to September 11, 2023 appear to prevent severe illness, similar to what has been reported for other Omicron variants.<sup>5</sup>

**Protective Immunity – How long does the immune response provide protection from reinfection?**

- A laboratory study suggests that prior infection with Omicron subvariants BA.4/5 or XBB.1.5 does not confer robust neutralization of the Eris subvariant.<sup>8</sup>

**Medical Treatments – Are there effective treatments?**

- There is currently no indication that standard treatments and medications would be less effective against the Eris and Fornax subvariants.<sup>12</sup>
- The COVID-19 MQL has additional details on recommended treatment guidelines.<sup>13</sup>

**Acute Clinical Presentation –What are initial symptoms?**

- There are currently no reports indicating that the symptoms associated with Eris or Fornax infection differ from those associated with prior circulating Omicron subvariants.<sup>7</sup> Additional research may be needed to better understand differences between subvariant presentations.
- Currently, there is no evidence of an increased likelihood of developing severe disease with Eris infection; however, due to limited data and decreased reporting of cases, certainty remains low.<sup>1,5</sup>

**What else do we know?**

- Other aspects of the Eris and Fornax subvariants are either presumed or confirmed to agree with those of previously identified SARS-CoV-2 strains, particularly Omicron and other Omicron subvariants. Additional information can be found in the [DHS S&T Master Question List \(MQL\) for COVID-19](#).

## References

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