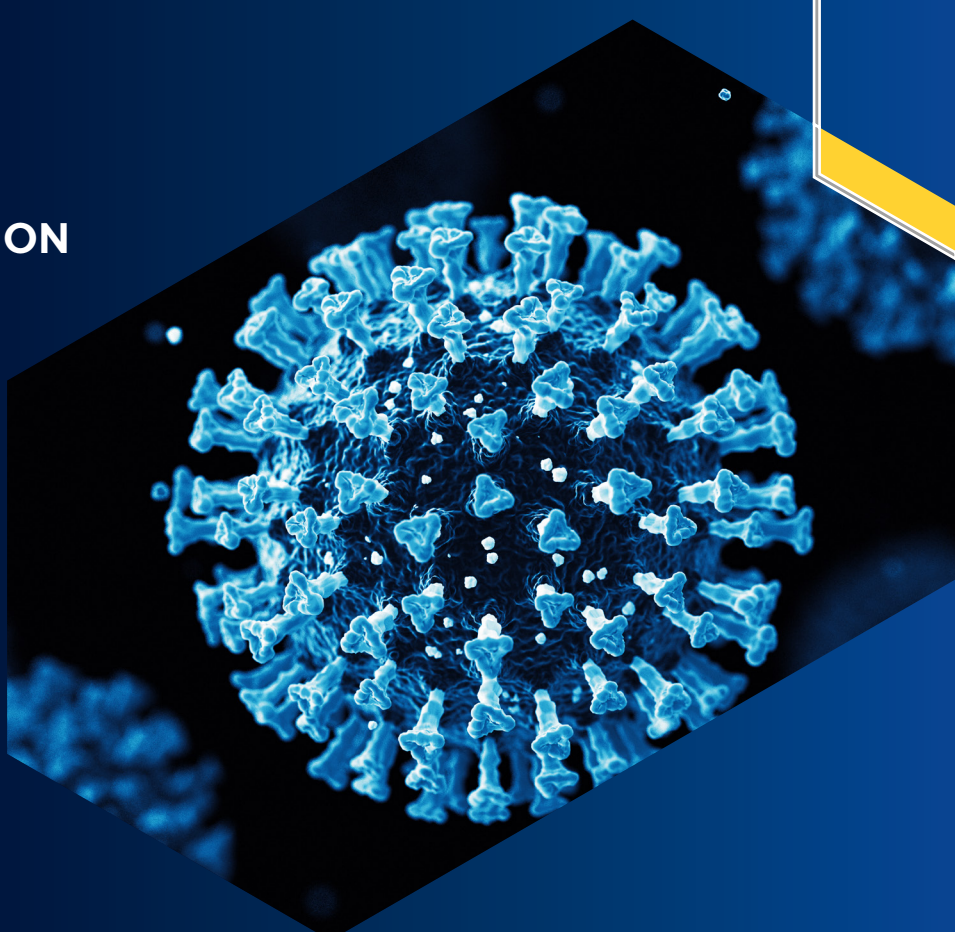


SARS-CoV-2 VARIANTS OF CONCERN

WORLD HEALTH ORGANIZATION (WHO) CODE NAME

ALPHA

- Lineage: B.1.1.7
- Emerged in the U.K. in December 2020
- Key mutations in the spike protein: N501Y, P681H, Y144/145 deletion
- Source of most COVID-19 new cases in the U.S.



WHO CODE NAME

BETA

- Lineage: B.1.351
- Identified in South Africa in December 2020
- Key mutations in the tip of the spike protein: N501Y, K417N, E484K
- Detected in 68 countries and 35 U.S. states

WHO CODE NAME

DELTA

- Lineage: B.1.617.2
- First appeared in October 2020
- Key mutations: E484Q, L452R
- Fastest evolving mutant - B.1.617.1 is known as Kappa

WHO CODE NAME

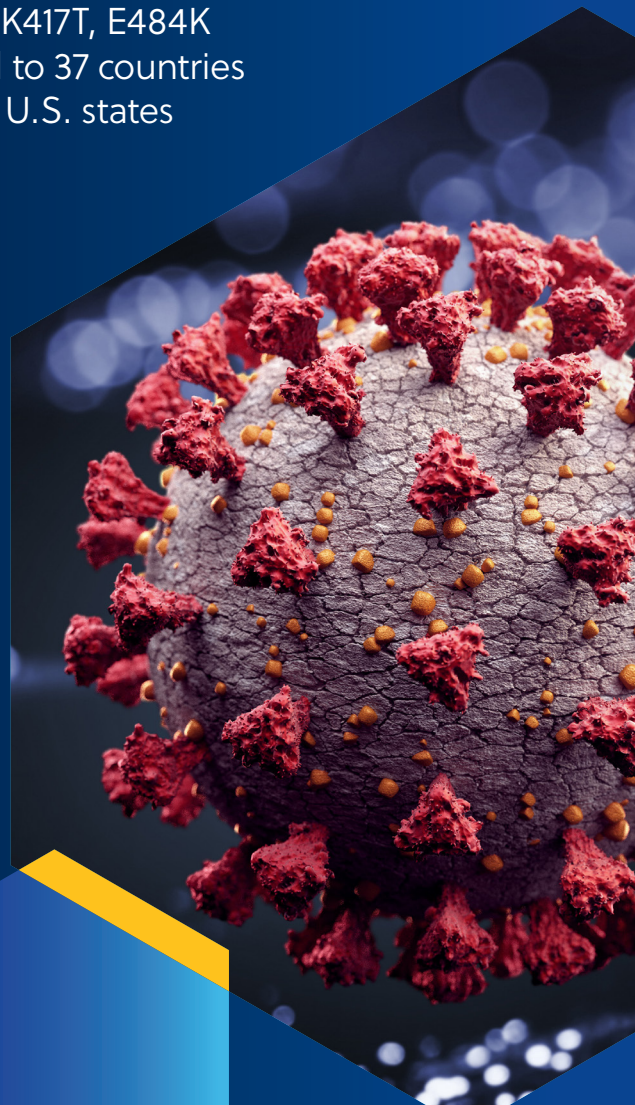
GAMMA

- Lineage: P.1.
- First identified in Brazil in late 2020
- Key mutations in the spike protein: N501Y, K417T, E484K
- Spread to 37 countries and 29 U.S. states

WHO CODE NAME

EPSILON

- Lineage: B.1.427 and B.1.429
- Identified in January 2021 in California
- Key mutation: L452R
- Outcompeted by Alpha variant



VARIANTS OF INTEREST

WHO CODE NAME

ETA & IOTA

- Eta lineage: B.1.525
- First appeared in December 2020
- Key mutations: E484K, Q677H
- Spreading in New York
- Iota lineage: B.1.526
- First appeared in November 2020
- Key mutations in the spike protein: E484K, S477N
- Spreading rapidly in New York City

