

# What we know about the Covid-19 variants

Scientists are urgently studying more transmissible variants of the coronavirus, such as those identified in the United Kingdom, South Africa and Brazil, to understand what threat they pose

## MAIN CONCERNS

### Transmission

All three variants have undergone changes to part of virus which binds to human cells

### Spike protein

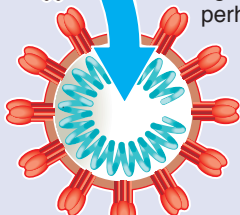
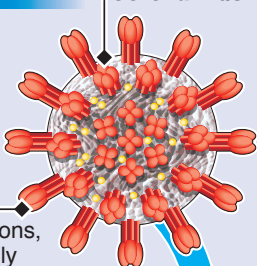
Changes, or mutations, can affect how easily virus infects host cell

**N501Y** mutation seems to help virus bind more tightly to cell receptor. UK variant could be **30-50% more infectious** than original virus

### ACE2\* receptor

Entry point into host cell for virus to replicate

### Coronavirus



Human host cell

### Severity of illness

Some research suggests UK variant may be associated with **30% higher risk of death**, but this is yet to be confirmed by peer-reviewed scientific studies

### Vaccine effectiveness

Scientists believe current vaccines should still work against new variants, although perhaps not quite as well

Studies suggest **E484K** and **K417N** mutations may help virus evade human immune system, by making neutralising antibodies less effective at fighting infection

\*Angiotensin-converting enzyme 2

## VARIANTS

### Known as

**B117**

### South Africa

**B1351**

### Brazil

**P1**

Date and place of first detection

Sep 2020, south-east England

Oct 2020, South Africa's Eastern Cape province

Jan 2, 2021, among travellers arriving in Japan from Brazil

Reported to WHO

Dec 14

Dec 18

Jan 10

Key mutations

**N501Y**

**N501Y, E484K, K417N**

**N501Y, E484K, K417T**