

New coronavirus closely related to SARS

The new coronavirus first identified in the Chinese city of Wuhan appears to be similar to the one that caused severe acute respiratory syndrome (SARS), and there is evidence it originated in bats

1 Animal disease reservoir

Bats thought to be original host of SARS – which caused 2002-03 epidemic – and new virus, named **2019-nCoV**

2 Intermediate host

Other animals infected by blood, saliva, urine or faeces of bats

3 Transmission to humans

Virus “jumps” species barrier, possibly via close contact with infected animals, and may then be spread person-to-person



SARS host believed to be civet cats. Existence and identity of 2019-nCoV host yet to be determined

Horseshoe bat

Many coronaviruses are zoonotic diseases, meaning they are transmitted between people and animals

4 Adaptation: Changes in surface proteins can allow virus to attach to new host cell, either by mutation or recombination (mixing of different viruses)

Spike glycoprotein

Cell wall

HOST CELL

Infection

ACE2 receptor



Coronavirus

Ribonucleic acid (RNA) carries genetic code of virus. **Analysis shows 2019-nCoV infections to be 80% identical to SARS and 96% identical to bat version of virus**

5 Infection: Both SARS and 2019-nCoV can bind to cells using same receptor, known as **ACE2**, allowing virus to get deep into human lungs. **This may explain pneumonia-like symptoms of patients**