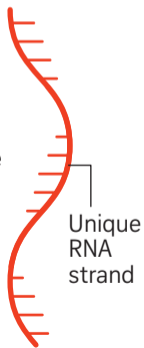


Flagging the presence of the virus

Diagnostic kits that can detect the presence of the novel coronavirus (2019-nCoV) could help prevent the spread of the disease. A key process of such tests is that of polymerase chain reaction.

STEP 1

- Scientists identify regions of the 2019-nCoV genetic material that are distinct from that of other coronaviruses, such as the ones that cause the severe acute respiratory syndrome (Sars).
- The key differences in the genetic material, known as RNA, are identified so that they can function as "red flags" for doctors.



STEP 2

- Doctors collect samples from a patient's lungs or cough mucus (such samples are known as sputum).



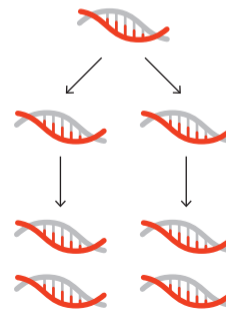
STEP 3

- Viral RNA from the samples are extracted, and converted into DNA via a process known as reverse transcription.
- This conversion is required so that the genetic material is compatible with the process that can identify the virus.
- This process is known as polymerase chain reaction (PCR).



STEP 4

- The PCR process copies the genetic material in the sample via a series of temperature changes.
- This amplification is required to increase the presence of the genetic region targeted (the "red flags"), which are usually present in small amounts, so they can be detected.



STEP 5

- If the "red flags" are detected, they are highlighted via a dye that fluoresces in the presence of DNA.
- The more viral bits there are, the brighter it glows, creating a pattern of light that tells the technicians whether they have found 2019-nCoV.

