How Roche molecular testing detects SARS-CoV-2, the virus causing COVID-19

1. The patient’s swab is taken and sent to the lab for analysis.

2. Trained lab professionals prepare the swab sample in the tube for processing. To ensure correct identification and traceability each tube has a unique barcode.

3. The tube is loaded into the high throughput system with other patients’ sample.

4. The system begins the process of extraction, amplification and detection of the virus genetic material.

4a. The viral RNA is extracted to isolate it from other cellular components.

4b. Multiple copies of a short fragment of that RNA are made.

4c. The presence of those copies is detected with fluorescent dye.

4d. The signal from the fluorescent dye is analysed by a complex mathematical algorithm to decide whether viral RNA was present in the sample.

5. Specialised lab professionals analyse, control and approve the test results before they go into the lab reporting information system.

6. These results are made available to the healthcare provider to improve patient management and to enable more informed decisions.

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9 reagents are used to process a full PCR reaction. Reagents are complex mixtures of biochemicals or chemicals. The manufacturing of quality reagents at industrial scale is technically demanding.