

India's First CRISPR COVID-19 Test (FELUDA) Approved

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The Tata CRISPR (Clustered Regularly Interspaced Short Palindromic Repeats) test, **powered by CSIR-IGIB (Institute of Genomics and Integrative Biology)** FELUDA, received regulatory approvals today from the Drug Controller General of India (DCGI) for commercial launch, as per ICMR guidelines, meeting high quality benchmarks with **96% sensitivity and 98% specificity** for detecting the novel coronavirus.

More About Feluda Test

- Feluda, the acronym for **FNCAS9 Editor Linked Uniform Detection Assay**, uses indigenously developed **CRISPR gene-editing technology** to identify and target the genetic material of SARS-CoV2, the virus that causes Covid-19.
- According to CSIR, the **test matches accuracy levels of RT-PCR tests**, considered the gold standard in the diagnosis of Covid-19, has a **quicker turnaround time and requires less expensive equipment**.
- It is also the world's first diagnostic test to **deploy a specially adapted Cas9 protein** to successfully detect the virus. Other CRISPR tests use CAS12 and CAS13 proteins to detect SARS-CoV2.
- The CSIR research team came about creating the new test kit while working under the sickle cell mission for genome diagnostics and therapeutics.
- CRISPR, short form for Clustered Regularly Interspaced Short Palindromic Repeats, is a **gene editing technology** and finds its use in correcting genetic defects and treating and preventing the spread of diseases.
- The CRISPR technology can **detect specific sequences of DNA within a gene and uses an enzyme functioning as**

molecular scissors to snip it. It also allows researchers to easily alter DNA sequences and modify gene function.

A new test in horizon

A COVID-19 test named FELUDA, developed by the Delhi-based CSIR-Institute of Genomics and Integrative Biology, is quicker and cheaper. A lowdown on the test:



(RT-PCR) test takes 1.5 hours; Rapid antigen test takes 30-40 minutes and TruNat test gives results in 60 minutes

Test in time: The paper strip test has been approved for a commercial launch. • AMI

Cost: It is expected to cost between ₹500 and ₹600

Accuracy: Based on tests in over 2,000 patients, it showed **96% sensitivity** (100% sensitivity = all positive samples return positive results) and **98% specificity** (100% specificity = all negative samples return negative results)

Type of sample: Either saliva or blood, but saliva is preferred for testing

Turnaround time: The kit takes 45 minutes to give a result. In comparison, the real-time polymerase chain reaction

Is it similar to the pregnancy color-code test?

The paper strip generates two lines for a positive result and one line in the case of a negative result, much like a pregnancy test kit. However, this is a nucleic acid test and not a protein based one