

CORONASYS INNOVATION SHEET 20

FELUDA PAPER STRIP TEST

Background

India is one of the countries most affected by Covid-19¹ and has suffered more than 115,000 deaths since the pandemic hit². India's large population with many people living in crowded spaces or below the poverty line³ requires a test that is quick, easy to administer, and inexpensive. Indian researchers claim to have found at least one part of the solution to India's testing challenges with the FELUDA-test.

Features

The FELUDA-test is based on the CRISPR (Clustered Regularly Interspaced Short Palindromic Repeats) gene-editing technology to identify the genetic components of SARS-CoV-2. The SARS-CoV-2 sequence in the sample (nasal swab) reacts with the barcoded Cas9- protein in the test. The SARS-CoV-2-Cas9-complex is then placed on a paper strip. Similar to a pregnancy test, two lines are used (one test, one control) to determine whether the sample is infected with SARS-CoV-2⁴. According to the CSIR-Institute of Genomics and Integrative Biology (IGIB) the test has a sensitivity of 96% and a specificity of 98%⁵. The manufacturers say that their test is as reliable as a PCR test⁶.

Potentials

The test has been approved by the Indian drug authority. It costs only about 500 Rupees (about 6,70 US\$) and delivers results within 15 minutes⁷. Since it is quick and easy to produce, apply, and interpret, it can potentially scale up testing capacities even in challenging environments. Some researchers believe that the Feluda-test could replace antigen tests since it is cheaper and more accurate⁸.

Points to consider

Right now the test still has to be done in laboratories (although no extensive equipment is needed⁹) but the company is working on manufacturing it for self-testing¹⁰ as well.

Conclusion

The paper strip test could be helpful in the fight against Covid-19 by making testing more available and accessible at a reasonable price.

State of information: 10/22/2020

Launch: September 2020

Country: India

Focus area: Testing

Developers:

- Council of Scientific and Industrial Research at the Institute of Genomics and Integrative Biology (CSIR-IGIB)
- Tata Group

Beneficiaries: General public

¹ Alluri, Aparna, and Shadab Nazmi. "Coronavirus: What's Driving India's 100,000 Covid-19 Deaths?" BBC News, October 3, 2020, sec. India. <https://www.bbc.com/news/world-asia-india-54352222>.

² WHO. "India: WHO Coronavirus Disease (COVID-19) Dashboard," October 22, 2020. <https://covid19.who.int>.

³ UN India. "Poverty and Urbanisation." UN India (blog). Accessed October 22, 2020. <https://in.one.un.org/poverty-and-urbanisation/>.

⁴ De, Abhishek. "Explained: The Feluda Test for Covid-19, Approved by India." The Indian Express (blog), September 27, 2020. <https://indianexpress.com/article/explained/feluda-coronavirus-covid-19-test-tata-sons-crispr-technology-6603573/>.

⁵ CSIR, (Council of Scientific and Industrial Research). "CSIR India in Fight against COVID-19." covid19csir.urdip.res.in. Accessed October 22, 2020. <https://covid19csir.urdip.res.in/>.

⁶ Esha Mitra. "India's Drug Authority Approved Paper-Strip Covid-19 Test That Could Return Results within Hour." CNN, October 5, 2020. <https://www.cnn.com/2020/10/05/india/india-covid-19-hour-tests-approved-intl/index.html>.

⁷ BBC News. "India's New Paper Covid-19 Test Could Be a 'Game Changer.'" BBC News, October 4, 2020, sec. India. <https://www.bbc.com/news/world-asia-india-54338864>.

⁸ BBC News. "India's New Paper Covid-19 Test Could Be a 'Game Changer.'" BBC News, October 4, 2020, sec. India. <https://www.bbc.com/news/world-asia-india-54338864>.

⁹ Outlook India. "Scientists Say Cheap And Quick 'Feluda' Test Could Help India Battle COVID-19." <https://www.outlookindia.com/>, October 5, 2020. <https://www.outlookindia.com/website/story/india-news-scientists-say-cheap-and-quick-feluda-test-could-help-india-battle-covid-19/361545>.

¹⁰ Mitra, Esha. "India's Drug Authority Approved Paper-Strip Covid-19 Test That Could Return Results within Hour." CNN, October 5, 2020. <https://www.cnn.com/2020/10/05/india/india-covid-19-hour-tests-approved-intl/index.html>.

Background on Innovation Sheet Series

As part of a real-time evaluation of the SARS CoV 2 pandemic (with focus on epidemiological, medical, economical, societal, technical, and cultural developments in Germany and Armenia) the CoronaSys research team, under the leadership of Prof. Dr. Martin Voss, is conducting a continuous monitoring of developments and medical, technical, and social innovations concerning Covid-19.

Multiple national and international media outlets, research platforms, and scientific and organizational guidelines, briefs, and updates are screened to feed into this outlet. The rationale behind this is to support the projects' network partners in Armenia and Germany with short summaries of key developments and promising innovations that are shaping the global, German, and Armenian outbreak response and recovery.

The aim of these short briefs is to give condensed and structured information on selected innovations emerging out of the conducted horizon scanning. This could be mainstream big-ticket items or fringe subjects that are easily overlooked in the global flood of information. Some innovations will be followed through their evolution in time while others may only appear once. While subjectively selected, the briefs are descriptive in nature and leave analysis and critical interpretation to the reader. Network partners in both countries are invited to provide feedback on their interest areas and suggest particularly relevant topics for the CoronaSys Workshop series.

The CoronaSys Innovation Sheet Series is published by the [Academy of the Disaster Research Unit](#), which is, as a non-profit limited liability company, a spin-off of the [Disaster Research Unit](#) at the Free University of Berlin. The series is part of the research project "[CoronaSys](#): Addressing the corona pandemic in Armenia through systemic risk management", sponsored by the German Federal Ministry of Education and Research.

If you have any questions, suggestions, or if you wish to be taken on (or off) the project mailing list for CoronaSys updates, innovation sheets, and workshop invitations, please send a message to Janina Schäfer (schaefer@a-kfs.de). For general project inquiries, you may contact the team lead Sara Merkes (merkes@a-kfs.de) or the project lead Martin Voss (voss@a-kfs.de).

Previous CoronaSys Innovation Sheets

- 1 "New" Antiviral Face Masks
- 2 " Dyphox" Surface Coating
- 3 MOVES SLC Portable ICU
- 4 Portable TRI- KLEEN 500UV
- 5 Convalescent Plasma Therapy
- 6 ASIC- App
- 7 BinaxNOW Antigen Test
- 8 Corona Traffic Light
- 9 Aproof at Home Antibody Test
- 10 IVAT Hygiene Tower
- 11 LY-CoV555 Antibody Treatment
- 12 4C Mortality Score
- 13 Regional Corona Prediction Model
- 14 Computer-designed Mini- Proteins
- 15 Covid-19 Simulator
- 16 Trimodulin
- 17 BNT162b2-vaccine
- 18 SARS-COV-2 Rapidplex
- 19 European Corona- Map

All previous CoronaSys Innovation Sheets are available online:

<http://coronasys.a-kfs.de/category/innovation-stream/>

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