

# 'Lab on a chip' genetic test device can identify viruses within three minutes with top-level accuracy

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Dr Despina Moschou with LoCKamp replaceable lab on chip printed circuit board. Credit: University of Bath

A virus diagnosis device that gives lab-quality results within just three minutes has been invented by engineers at the University of Bath, who describe it as the "world's fastest COVID test."

The prototype LoCKAmp device uses innovative "lab on a chip" technology and has been proven to provide rapid and low-cost detection of COVID-19 from nasal swabs. The research team, based at the University of Bath, say the technology could easily be adapted to detect other pathogens such as bacteria—or even conditions like cancer.

The device works by rapidly releasing and amplifying [genetic material](#) from a nasal swab sample by carrying out a chemical reaction to produce a result, which can be viewed on a [smartphone app](#).

Unlike lateral flow assay tests, commonplace during the pandemic, the LoCKAmp employs the same 'gold standard' genetic-based testing techniques previously reserved for lab-based PCR ([polymerase chain reaction](#)) tests, thus enabling rapid testing at laboratory-scale standard for the first time.

As well as its accuracy, the speed of the LoCKAmp sets it apart. With results shown within three minutes, the research team say that to their knowledge this makes LoCKAmp the fastest COVID-19 test reported to date.

Made with off-the-shelf components and factory-manufactured printed [circuit boards](#), the [prototype device](#) could be made on a mass scale quickly and at low cost, presenting care providers and public health bodies around the world with an effective new tool in virus detection.

The research team says a commercial partner with the relevant design and manufacturing expertise could quickly redesigned the LoCKAmp into a small, portable device—with great potential for use in remote

health care settings.

The research team is already engaging with academic and commercial partners, and would welcome further approaches, as it seeks to bring LoCKAmp into production.

The device and how it works is detailed in the research paper [LoCKAmp: lab-on-PCB technology for](#)

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