

## Development of reagents for a diagnostic method using rapid polymerase reaction

Diagnostic procedures based on quantitative polymerase chain reaction (qPCR) are complex, slow, require high equipment, use reagents, and require extensive practice. Isothermal chain reaction (LAMP) is a DNA synthesis method in which the DNA strand is copied at a constant temperature (60-65°C). Applying LAMP in diagnostic procedures, no cyclic change of temperature is required as in case of a “normal” PCR reaction test. The LAMP reaction can even be performed in a water bath. The resulting product can be detected by a color reaction: if there is a product, a color change is obtained, or in the case of a more sensitive method, a fluorescent dye can be used, which can be excited by blue light. Using one pathogen-specific oligonucleotide probe at a time, a ‘yes / no’ response can be obtained in as little as 40-60 minutes. Such a measurement method has already been developed for the detection of several pathogens, such as coronavirus. During the execution of the project, we developed reagents that could reliably identify a virus or bacterium less than 20 minutes, even in a district physician’s office, using the specificity of the polymerase reaction.

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### Contractors:

TargetEx Kft.

HQ: Madách Imre utca 31/2, Dunakeszi, Hungary, H-2120

Tel: +3630 252-0971

E-mail: [info@targetex.com](mailto:info@targetex.com)

web: <http://www.targetex.com/>

### Supporter:

National Research, Development and Innovation Office

Hungarian Government

Office: Kéthly Anna tér 1., Budapest, Hungary, H-1077

E-mail: [nkfialap@nkfih.gov.hu](mailto:nkfialap@nkfih.gov.hu)

Tel: +36 1 795-9500

web: <https://nkfih.gov.hu/english-nkfih>