NATIONAL RESEARCH, DEVELOPMENT AND INNOVATION OFFICE HUNGARY
PROJECT FINANCED FROM THE NRDI FUND

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. Our proposal is to develop reagents that can reliably identify a virus or bacterium in 20 minutes, even in a district physician's office, using the specificity of the polymerase reaction.

Project Data:
Project title: Development of reagents for a diagnostic method using rapid polymerase reaction
Project ID: 2020-1.1.2-PIACI-KFI-2021-00274

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