gLAMP Review
Annotated Bibliography

gLAMP Consortium Authors

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This is where Jeremy needs to write the note to JBT.

The following is a sample of 'annotated references' for use as a gLAMP manuscript preview. The intent of the authors is to select a subset the combined bibliography's items to receive:

1. Designation as works of interest (•), special interest (••), or outstanding interest (•••), after the conventions of publications such as the Annual Reviews and Current Opinions series;

2. Description of the major findings and significance of the work, again in keeping with practices of review-centric journals.

The sample annotations are trivial filler text.
They are not representative of the intended final output.

References

[1] L. Becherer, N. Borst, M. Bakheit, S. Frischmann, R. Zengerle, and F. von Stetten, "Loop-mediated isothermal amplification (LAMP) – review and classification of methods for sequence-specific detection," *Analytical Methods*, vol. 12, no. 6, pp. 717–746, 2020.

> •• This is a review of LAMP that was submitted in October 2019. It includes a flow chart with methods used for sequence-specific detection of LAMP divided into groups and sub-groups according to the techniques used for signal detection. There is also a table that characterizes different LAMP detection methods based on sensitivity and specificity.

[2] N. Ben-Assa, *et al.*, "Direct on-the-spot detection of SARS-CoV-2 in patients," *Experimental Biology and Medicine*, vol. 245, no. 14, pp. 1187–1193, jul 2020.

• In this study, RT-LAMP was used to detect SARS-CoV-2 directly from clinically-collected nose and throat swabs in UTM and from self-collected saliva samples in sterile cups. Samples in UTM were inactivated with proteinase K for 15 minutes at room temperature, and then proteinase K was inactivated for 5 minutes at 95°C. Testing was done for 180 suspected patients, and results were compared with those from RT-qPCR.

[3] J. P. Broughton, *et al.*, "CRISPR–cas12-based detection of SARS-CoV-2," *Nature Biotechnology*, vol. 38, no. 7, pp. 870–874, apr 2020.

• This study reports the development of a CRISPR-Cas12-based lateral flow assay for detection of SARS-CoV-2 from respiratory swab RNA extracts. The authors claim that from 78 patients, this assay detected 95% of positive and 100% of negative results, as compared to RT-qPCR.

[4] J. S. Gootenberg, *et al.*, "Nucleic acid detection with CRISPR-cas13a/c2c2," *Science*, vol. 356, no. 6336, pp. 438–442, apr 2017.

• This study is the first report of coupling CRISPR Cas13a and isothermal amplification in what is called Specific High-Sensitivity Enzymatic Reporter UnLOCKing (SHERLOCK) to detect specific strains of Zika and Dengue virus, distinguish pathogenic bacteria, genotype human DNA, and identify mutations in cell-free tumor DNA.

[5] M. G. Mason and J. R. Botella, "A simple, robust and equipment-free DNA amplification readout in less than 30 seconds," *RSC Advances*, vol. 9, no. 42, pp. 24 440–24 450, 2019.

• This study describes visual detection of LAMP results using silica and charcoal flocculation. This method utilizes the amplified DNA as a trigger for flocculation of suspended particles without opening the tubes after amplification.

[6] N. A. Tanner, Y. Zhang, and T. C. Evans, "Simultaneous multiple target detection in real-time loop-mediated isothermal amplification," *BioTechniques*, vol. 53, no. 2, pp. 81–89, aug 2012.

• This study includes the first report of multiplex fluorescent LAMP for simultaneous detection of up to four target sequences. It is also the first time Bst 2.0 and WarmStart Bst 2.0 DNA polymerases were reportedly used to speed up the LAMP reaction signal by 50% over wild-type Bst DNA polymerase.

[7] ——, "Visual detection of isothermal nucleic acid amplification using pH-sensitive dyes," *BioTechniques*, vol. 58, no. 2, feb 2015.

• This study is the first report of coupling LAMP with pH-sensitive dyes for detection with the naked eye. A supplemental table of various pH-sensitive dyes is included.

[8] C. Yan, *et al.*, "Rapid and visual detection of 2019 novel coronavirus (SARS-CoV-2) by a reverse transcription loop-mediated isothermal amplification assay," *Clinical Microbiology and Infection*, vol. 26, no. 6, pp. 773–779, jun 2020.

• This study describes LAMP primer sets orf1ab-4 and S-123 for detection of regions of the orf1ab replicase complex genes and S spike gene. The authors claim 100% sensitivity and 100% specificity with detection using real-time turbidity monitoring and visual observation for 130 patient samples, as compared to results with RT-qPCR.

[9] Y. Zhang and N. A. Tanner, "Development of multiplexed RT-LAMP for detection of SARS-CoV-2 and influenza viral RNA," oct 2020.

•• This study demonstrates the use of multiplexed RT-LAMP to detect four targets: SARS-CoV-2, Influenza A, Influenza B, and internal control human RNA, in a single reaction using real-time and endpoint fluorescence detection.