
Title: Loop-mediated isothermal amplification assay for detection of four immunosuppressive viruses in chicken

Authors: HyeSoon Song, YouChan Bae, SeokChan Park, HyukMan Kwon, HeeSoo Lee, SeongJoon Joh

PII: S0166-0934(17)30555-4
DOI: https://doi.org/10.1016/j.jviromet.2018.02.013
Reference: VIRMET 13428

To appear in: *Journal of Virological Methods*

Received date: 3-9-2017
Revised date: 31-1-2018
Accepted date: 19-2-2018

Please cite this article as: Song H, Bae Y, Park S, Kwon H, Lee H, Joh S, Loop-mediated isothermal amplification assay for detection of four immunosuppressive viruses in chicken, *Journal of Virological Methods* (2010), https://doi.org/10.1016/j.jviromet.2018.02.013

**Types of Paper: Research article**

# Loop-mediated isothermal amplification assay for detection of four immunosuppressive viruses in chicken

**Running title: LAMP for detection of avian immunosuppressive viruses**

**HyeSoon SONG[1], YouChan BAE[1], SeokChan PARK[1], HyukMan KWON[1], HeeSoo LEE[1] and SeongJoon JOH[1*]**

Avian disease division, Animal and Plant Quarantine Agency, HyukSin 8-ro, GimCheon, Republic of Korea

***Corresponding author**

**Address: 177, HyukSin 8-ro, GimCheon, Gyeongsangbuk-do, 39660, Republic of Korea.**

**Avian Diseases Division, Animal and Plant Quarantine Agency**

**Name: SeongJoon JOH**

**E-mail: johsj0901@korea.kr**

**Tel: +82-54-912-0815**

**Major: Diagnosis of Avian Diseases**

## Highlights

- Four immunosuppressive viruses in chicken can be detected with LAMP
- The results of detection can be observed visually by a change in color
- The detection methods show high specificity and sensitivity

## Abstract

Loop-mediated isothermal amplification (LAMP) methods to detect chicken infectious anemia virus (CIAV), reticuloendotheliosis virus (REV), and Marek's disease virus (MDV), and a reverse transcription (RT)-LAMP assay to detect infectious bursal disease virus (IBDV), were developed. The CIAV-LAMP, REV-LAMP, MDV-LAMP, and IBDV-RT-LAMP methods were performed using four sets of six primers targeting the VP1 gene of CIAV, the gp90 gene of REV, the Meq gene of MDV, and the VP2 gene of IBDV. The results (a change in color) were observed visually. The methods showed high specificity and sensitivity. The detection limits were 50 genomic copies of CIAV, 16 genomic copies of REV, 20 genomic copies of MDV, and 250 genomic copies of IBDV. When used to test clinical samples, the results of the LAMP assays were in 100% agreement with a previously described PCR. Therefore, the LAMP assays are simple, rapid, highly sensitive, and specific methods for detecting four immune-suppressive viruses.