# Gram Stain and Molecular Method for the Diagnosis of Bacterial Pneumonia

**Xu-Guang Guo[1,2,3], Qing-Feng Liu[4]**

[1]Department of Clinical Laboratory Medicine, Third Affiliated Hospital of Guangzhou Medical University, Guangzhou, Guangdong 510150, China
[2]Department of Internal Medicine, Third Affiliated Medical College of Guangzhou Medical University, Guangzhou, Guangdong 510150, China
[3]Center for Severe Maternal Treatment of Guangzhou, Third Affiliated Hospital of Guangzhou Medical University, Guangzhou, Guangdong 510150, China
[4]Department of Laboratory Medicine, KingMed College of Laboratory Medicine of Guangzhou Medical University, Guangzhou, Guangdong 510182, China

Xu-Guang Guo and Qing-Feng Liu contributed equally to this work.

To the Editor: We read an interesting paper entitled, "A Pilot Study of Quantitative Loop-mediated Isothermal Amplification-guided Target Therapies for Hospital-acquired Pneumonia" published in *Chinese Medical Journal* recently.[1]

The authors did a great work to assess the method called quantitative loop-mediated isothermal amplification (qLAMP) as a new implement for steering of the antibiotic decision-making in hospital-acquired pneumonia and prove that qLAMP is a more promising method for detection of pathogens in an early, rapid, sensitive, and specific manner than traditional culture method.

Sputum collection is a complex process. Patients were instructed to expectorate sputum in a sterile sputum cup. The specimen was then transported to the bacteriology laboratory for Gram's stain and possible inoculation to the media. Only sputum samples with <10 squamous epithelial cells per low power field (LPF) and more than 25 leucocytes or polymorphonuclear cells (PMN) per LPF were accepted for Gram stain and culture.[2] Some studies indicated that a specimen containing <25 PMN/LPF is likewise considered adequate or suitable in the presence of neutropenic state. Moreover, only sputum containing >25 leukocyte per LPF were cultured unless the patient is neutropenic. However, the included criteria of sputum specimen for microscopic examination were not described in this study.[1]

LAMP is a relatively new DNA amplification technique,[3,4] which due to its simplicity and low cost could provide major advantages. It has become the most valuable technology for clinical microbiology diagnosis in recent years.[5] It should be noted that what should be paid attention to that interpretable experimental data of LAMP for sputum must combine with Gram's stain in clinical, otherwise, it probably mislead the doctor.

**Access this article online**

Quick Response Code:

Website: www.cmj.org

DOI: 10.4103/0366-6999.186652

## Financial support and sponsorship

This study was supported by the grant from the Medical and Health Science and Technology Projects of Guangzhou (No. 20151A011083).

## Conflicts of interest

There are no conflicts of interest.

## References

1. Wang F, Li R, Shang Y, Wang C, Wang GQ, Zhou DX, *et al.* A pilot study of quantitative loop-mediated isothermal amplification-guided target therapies for hospital-acquired pneumonia. Chin Med J 2016;129:181-6. doi: 10.4103/0366-6999.173484.
2. Wang Q, Zhou Y, Li S, Zhuo C, Xu S, Huang L, *et al.* Real-time fluorescence loop mediated isothermal amplification for the detection of *Acinetobacter baumannii*. PLoS One 2013;8:e66406. doi: 10.1371/journal.pone.0066406.
3. Nagamine K, Hase T, Notomi T. Accelerated reaction by loop-mediated isothermal amplification using loop primers. Mol Cell Probes 2002;16:223-9. doi: 10.1006/mcpr.2002.0415.
4. Nagamine K, Watanabe K, Ohtsuka K, Hase T, Notomi T. Loop-mediated isothermal amplification reaction using a nondenatured template. Clin Chem 2001;47:1742-3.
5. Xia Y, Guo XG, Zhou S. Rapid detection of *Streptococcus pneumoniae* by real-time fluorescence loop-mediated isothermal amplification. J Thorac Dis 2014;6:1193-9. doi: 10.3978/j.issn.2072-1439.2014.07.29.

**Address for correspondence:** Dr. Xu-Guang Guo, Department of Clinical Laboratory Medicine, Third Affiliated Hospital of Guangzhou Medical University, 63 Duobao Road, Liwan District, Guangzhou, Guangdong 510150, China
E-Mail: gysygxg@gmail.com



**Received:** 09-04-2016 **Edited by:** Li-Shao Guo
**How to cite this article:** Guo XG, Liu QF. Gram Stain and Molecular Method for the Diagnosis of Bacterial Pneumonia. Chin Med J 2016;129:1884.