

## ANTI PHENOLIC GLYCOLIPID I (PGLI) OF SALIVARY IgA/IgM FROM *MYCOBACTERIUM LEPROSY* FOR EARLY DETECTION OF SUBCLINICAL LEPROSY

Maria Andisa Mayangsari<sup>1</sup>, Muhammad Yoga Wardhana<sup>1</sup>, Nastiti Faradilla Ramadhani<sup>2\*</sup>, Alexander Patera Nugraha<sup>3</sup> and Rini Devijanti Ridwan<sup>4</sup>

<sup>1</sup>Undergraduate Student, Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia.

<sup>2</sup>Department of Dentomaxillofacial Radiology, Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia.

<sup>3</sup>Department of Orthodontics, Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia.

<sup>4</sup>Department of Oral Biology, Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia.

\*e-mail: nastitifaradillar@gmail.com

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**ABSTRACT :** Leprosy is a chronic infectious disease caused by the bacterium *Mycobacterium leprae*. Indonesia is one of the countries with the highest leprosy, 3rd after India and Brazil. In 2013, Indonesia has 16.856 of new leprosy cases. In diagnosing leprosy, physical clinical examination not always able to detect the early phase of the disease. Therefore, we need a diagnostic tool that can detect infection with *Mycobacterium leprae* early so that treatment can be performed optimally. Saliva contains a lot of protein and nucleic acid molecules that reflect physiological and pathological status. Through saliva, anti Phenolic glycolipid 1 (anti-PGL1) can be examined which is a specific antibody against PGL1 *M. leprae* found in the cell wall. Anti-PGL1 is produced as a form of immune response against *M. leprae*. Individuals with a positive anti-PGL1 shown to have six times greater risk of developing leprosy. Serological examination by ELISA for detection of anti-PGL1 is potential to become a tool for early detection of subclinical leprosy (presence of bacilli), these results are useful to monitor and prevent the possibility of leprosy. Journal and other literature study searched with specific keywords. The result shows salivary anti-PGL1 is representative for *M. leprae* infection. Examination of anti-PGL1 in saliva can unlock the potential diagnosis of safe, sensitive and non-invasive to leprosy especially in endemic areas.

**Key words :** Leprosy, anti-PGL1, neglected disease, *Mycobacterium leprae*, salivary IgA/IgM.

### INTRODUCTION

Leprosy is a chronic infectious disease caused by the bacterium *Mycobacterium leprae*. Indonesia until now is one of the countries with the most leprosy, ranked third after India and Brazil. In 2013, Indonesia had a total of 16,856 new leprosy cases. Prevalence is generally more in areas with poor sanitation and the difficulty of availability of clean water. In Indonesia, most cases were found in East Java, which is 25.4% of the total cases of the whole country. The biggest problem due to leprosy is not only the number of cases but also the disability caused (Ministry of Health of Republik Indonesia, 2015).

Vaccination has not yet been found for leprosy, but leprosy can be cured with drugs. Treatment with multidrug therapy (MDT) methods is determined by WHO based on leprosy classification. Indonesia also applies MDT in the management of leprosy cases. The effectiveness of MDT is quite high in curing leprosy, the

rate of relapse is reported to be very low, which is less than 0.1% (WHO, 2016).

The emphasis on strategies to eradicate leprosy in addition to treatment is also pursued by the early discovery of new cases. However, physical examination cannot detect the initial phase of the course of the disease because its clinical manifestations are rarely found. Biomarkers are very useful as early diagnostic tools, can improve the prognosis and success of therapy. Besides, early diagnosis is also useful for the prevention of transmission to individuals around patients (Cabral *et al*, 2013).

Saliva is an important fluid produced by the salivary glands and helps maintain oral and systemic health and affects the quality of life (Ongole *et al*, 2012). Proteins and nucleic acid molecules that reflect the physiological status contained in many saliva. This makes saliva a potential biomarker. The process of taking saliva also has many advantages compared to other body fluids such as