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**Palembang, 14-15 November 2017**

# **ISISM**

**(International Seminar of  
Indonesian Society for  
Microbiology)**

**WORK BOOK**

*"Optimising Microbe  
Utilization for Human  
Welfare"*

**HOTEL HORISON ULTIMA, PALEMBANG  
SOUTH SUMATERA PROVINCE, INDONESIA**



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## TNF- $\alpha$ and Interleukin-10 Levels of Healthy Human Subject Safter *Lactobacillus* sp. F213 Consumption

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### Abstract

Beneficial effects of probiotics have been widely studied recently. One of the good effects of probiotics is its role in modulating either mucosal or systemic immune systems. The effects exert by probiotic is strain-specific; therefore each strain will show different effect, including in immunomodulation. *Lactobacillus* sp.F213 (LbF213), found by our group, showed excellent effect on cholesterol level in animal models and human subjects. However, the immunomodulation effect of this bacterium in human subjects has not yet been investigated. Therefore, aims of this study were to determine TNF- $\alpha$  (pro-inflammatory) and Interleukin-10 (anti-inflammatory) cytokines level from healthy subjects that consumed milk-supplemented with *Lactobacillus* sp. F213 (LbF213). Blood was drawn from 8 adult healthy subjects at day 0 (before LbF213 consumption), day 15, day 29 of LbF213 consumption and 2 weeks after consumption (washed out period). Sera were used for TNF- $\alpha$  and IL-10 assays using ELISA kit (Abcam). TNF- $\alpha$  level from 8 adult healthy subjects sera showed that almost no changing in their level at day 0, 15, 29 of consumption and 2 weeks after washed out period. However, IL-10 assay showed different findings. Three of 8 subjects showed interesting results. IL-10 levels of these three subjects tend to increase day 0, 15, 29 of consumption and 2 weeks after washed out period. Although there was not significant effect on pro-inflammatory cytokine, however, this result suggested that LbF213 might play a role in modulating systemic immunity via IL-10 cytokine.

Keywords: Probiotic, *Lactobacillus* sp. F213, TNF- $\alpha$ , interleukin 10 (IL-10)

# TNF- $\alpha$ and Interleukin-10 Levels of Healthy Human Subjects after *Lactobacillus* sp. F213 Consumption



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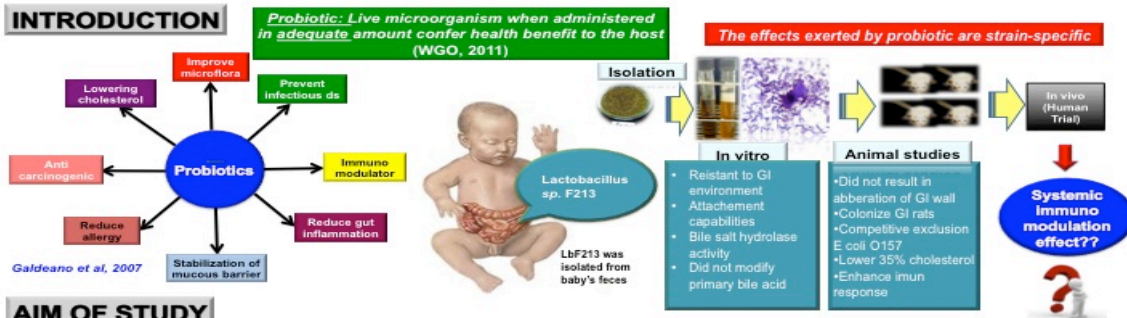
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## ABSTRACT

Beneficial effects of probiotics have been widely studied recently. One of the good effects of probiotics is its role in modulating either mucosal or systemic immune systems. The effects exerted by probiotic are strain-specific; therefore each strain will show different effect, including in immunomodulation. *Lactobacillus* sp. F213 (LbF213), found by our group, showed excellent effect on cholesterol level in animal models and human subjects. However, the immunomodulation effect of this bacterium in human subjects has not yet been investigated. Therefore, aims of this study were to determine TNF- $\alpha$  (pro-inflammatory) and Interleukin-10 (anti-inflammatory) cytokines level from healthy subjects that consumed milk-supplemented with *Lactobacillus* sp. F213 (LbF213). Blood was drawn from 8 adult healthy subjects at day 0 (before LbF213 consumption), day 15, day 29 of LbF213 consumption and 14 days washed out period (after the last day LbF213 consumption). Sera were used for TNF- $\alpha$  and IL-10 assays using ELISA kit (Abcam). TNF- $\alpha$  level from 8 adult healthy subjects sera showed that almost no changing in their level at day 0, 15, 29 of consumption and 14 days washed out period. However, IL-10 assay showed different findings. Three of 8 subjects showed interesting results. IL-10 levels of these three subjects tend to increase day 0, 15, 29 of consumption and 14 days washed out period. There was almost no effect on pro-inflammatory cytokine, however this result suggested that LbF213 might play a role in modulating systemic immunity via IL-10 cytokine.

**Keywords:** Probiotic, *Lactobacillus* sp. F213, healthy subjects, TNF- $\alpha$ , interleukin 10 (IL-10)

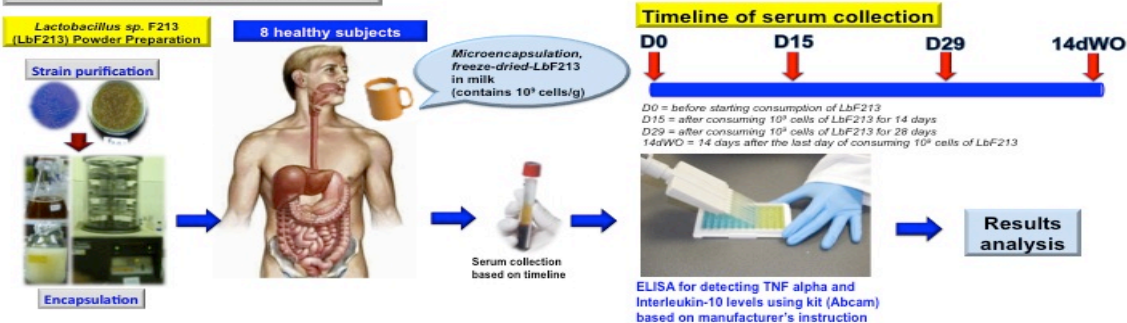
## INTRODUCTION



## AIM OF STUDY

To determine TNF- $\alpha$  (pro-inflammatory) and Interleukin-10 (anti-inflammatory) cytokines levels from healthy subjects that consumed milk-supplemented with *Lactobacillus* sp. F213 (LbF213).

## MATERIALS AND METHODS



## RESULTS AND DISCUSSION

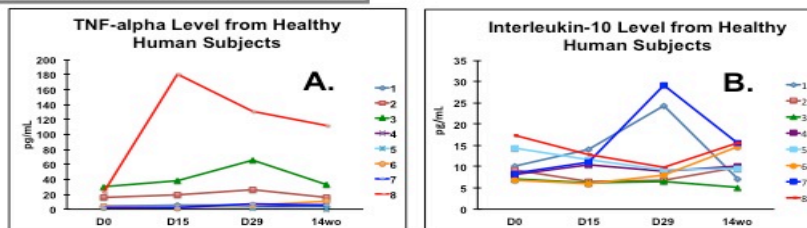


Fig. 1 TNF- $\alpha$  level from 8 adult healthy subjects sera showed that almost no changing in their level at day 0, 15, 29 of consumption and 14 days washed out period (A). However, the results of IL-10 assay showed 3 of 8 subjects showed interesting results. IL-10 levels of these three subjects (subject no. 1, 2, and 6) tend to increase day 0, 15, 29 of consumption and 14 days washed out period (B)

"Study conducted by Olivares et al, 2006 among healthy subjects showed that in the group consuming *L. gasseri* and *L. coryniformis*, IL-10 increased significantly after 2 weeks of treatment. Almost no effect of TNF alpha level (Olivares et al, 2006)"

## CONCLUSIONS

There was almost no effect on pro-inflammatory cytokine, however this result suggested that LbF213 might play a role in modulating systemic immunity via IL-10 cytokine. Further study to determine the underlying mechanism of immunomodulation that modulated by LbF213 by using animal models is needed to be performed.

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