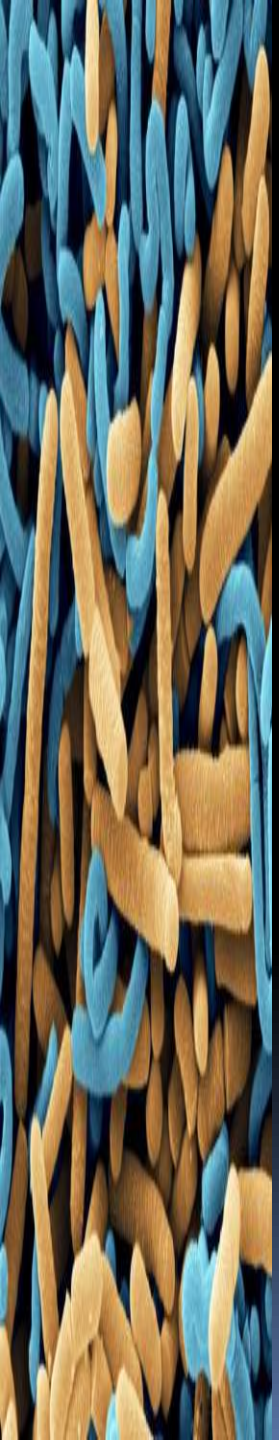


THE EFFECT OF SUPPLEMENTATION PROBIOTIC *Lactobacillus casei* SHIROTA STRAIN AGAINST COLONIZATION OF STREPTOCOCCUS NASAL SWAB ISOLATES FROM PATIENTS WITH ALLERGIC RHINITIS

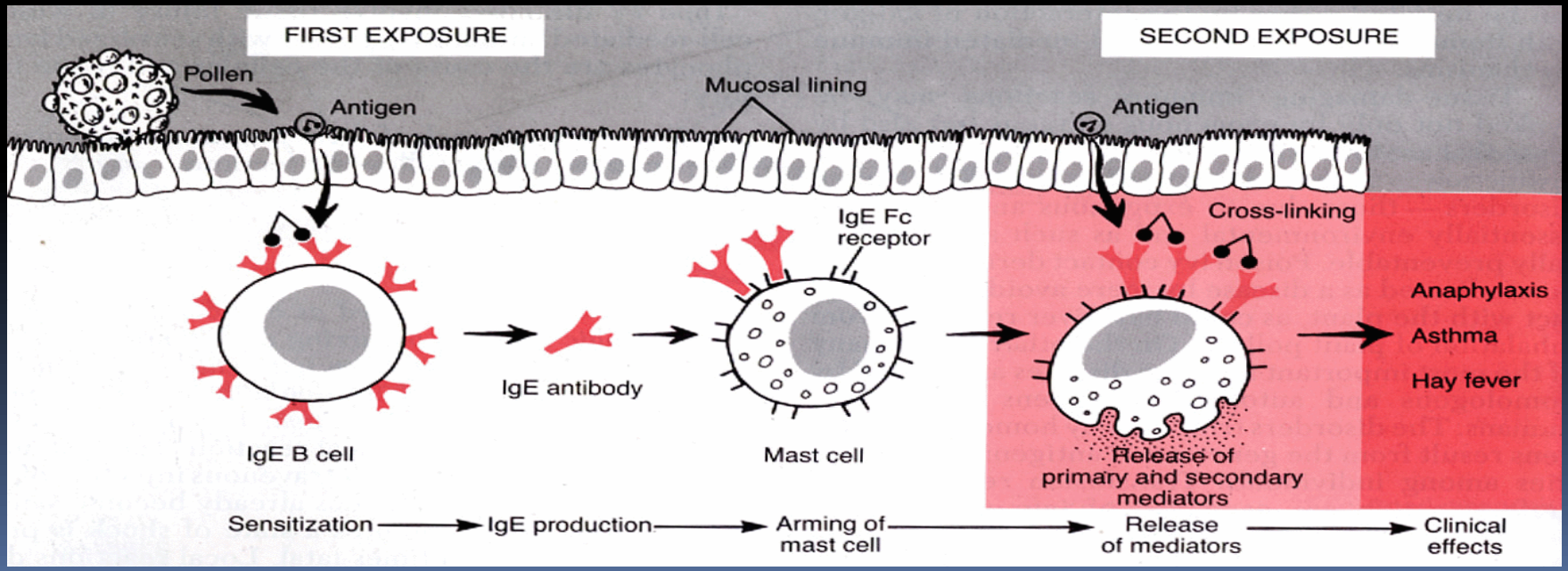
Lilis Suryani*. Hengki Exsar Aritama

**Department of Microbiology, School of Medicine, Universitas Muhammadiyah Yogyakarta, 55183 Yogyakarta, Indonesia*

1.Introduction

- Allergic Rhinitis : Functional disturbances in nasal mucosa after exposure of allergens through inflamation mediated by specific IgE (ARIA*, 2001).

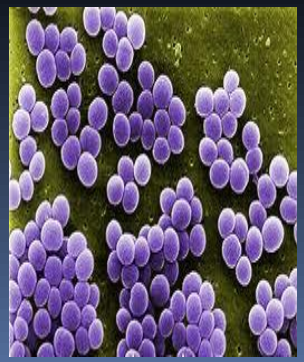
- Allergens: mold, pollen, domestic animals (dog, cat), Food(egg, milk, fish, peanuts, cereal, additives, chocolate).

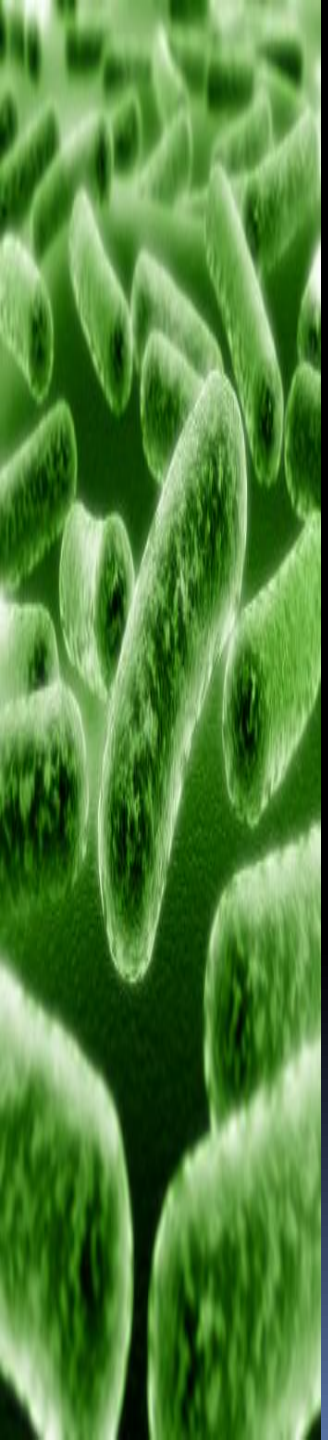


- Allergic Rhinitis symptom: itchy, runny nose, itchy
- **Diagnostic:** *skin prick test*, IgE total, Nasal swab

- Normal flora in nasal cavity: Staphylococcus aureus, Streptococcus, Haemophilus, Neisseria, Corynebacterium
- Non pathogenic
- Physiological changes ⟶ opportunistic pathogen
- Especially: Staphylococcus, Streptococcus







Probiotics: increase non-immunological defense barrier in the gut, through the formation of Ig response and reduce the intestinal inflammatory response resulting in stabilization

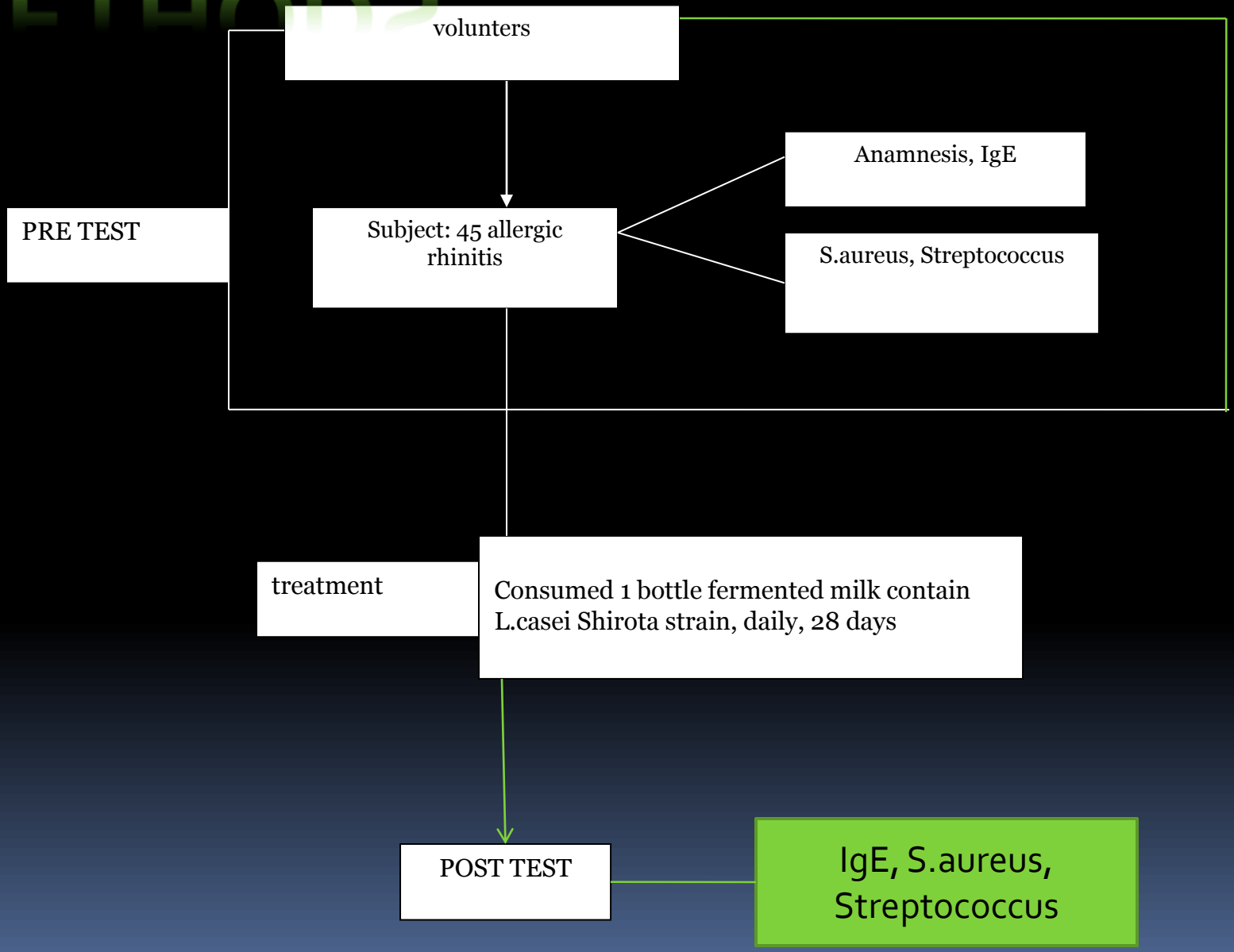
Probiotics → settings → immune surveillance balance between proinflammatory and anti-inflammatory cytokines, normalize intestinal mucosa dysfunction and reduce hypersensitivity reactions

Changes in the composition and amount of the balance of microflora can modulate the activity of Th-2 cytokines stimulate the production of Th-1 and the regulation of IgE production by inhibiting IL-4 and IL-5.

2. MATERIAL AND METHODS

- Materials: incubator, petridish, microscope, *autoclave*, *rotary vacum evaporatoar*, ose steril, tube, bunsen burner, cotton swab.
- Specimen nasal swab, *L.casei* Strain shirota (PT Yakult Persada Indonesia), nutrien agar, aquades, NaCl, Tryticase Soy Agar, blood agar media, H_2O_2, manitol salt agar, Gram stain, IgE Elisa kit

METHODS


volunters
PRE TEST
Subject: 45 allergic rhinitis
Anamnesis, IgE
S.aureus, Streptococcus
treatment
Consumed 1 bottle fermented milk contain L.casei Shirota strain, daily, 28 days
POST TEST
IgE, S.aureus, Streptococcus

3.Result

Table 1. The numbers of bacteria *S.aureus* and *Streptococcus* nasal swab isolate before and after supllementation

Numbers of Bacteria	Before (CFU)	After (CFU)
S.aureus	92	27
Streptococcus	215	127

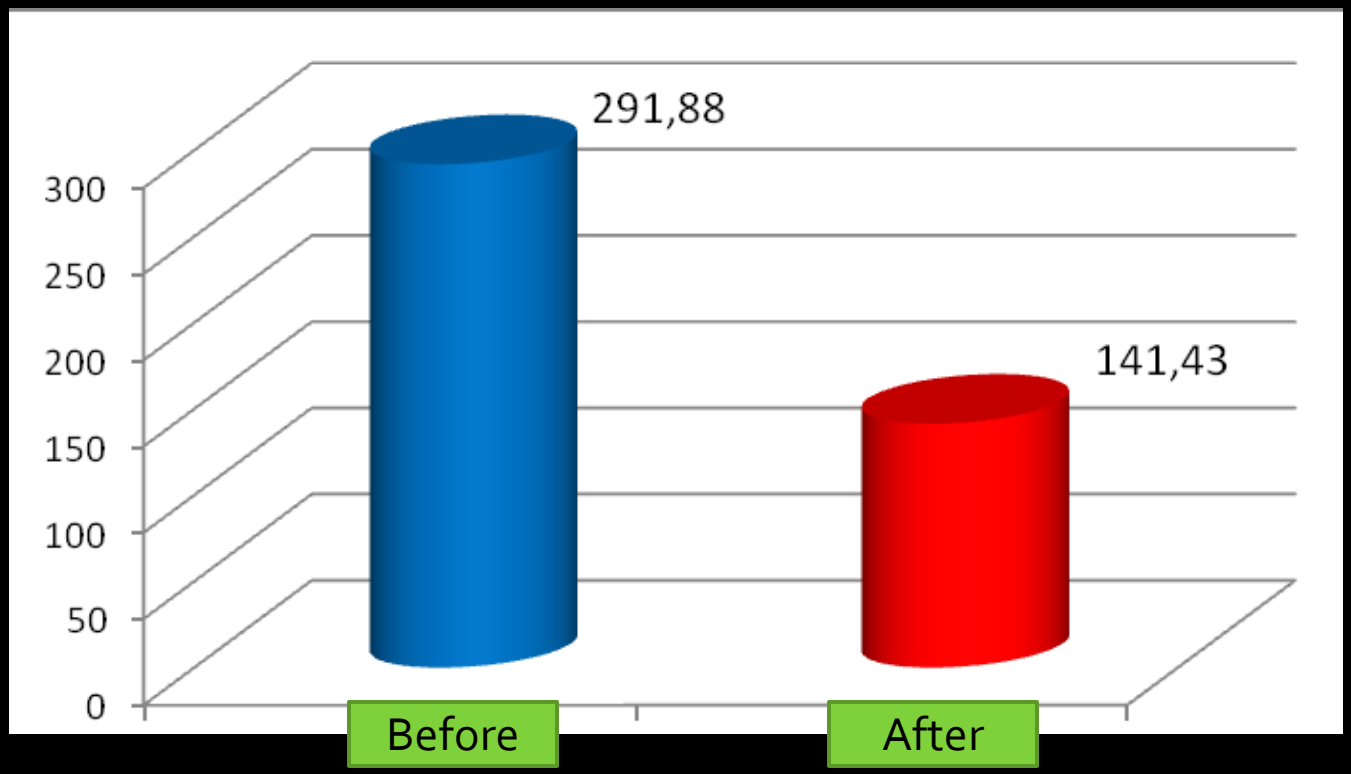
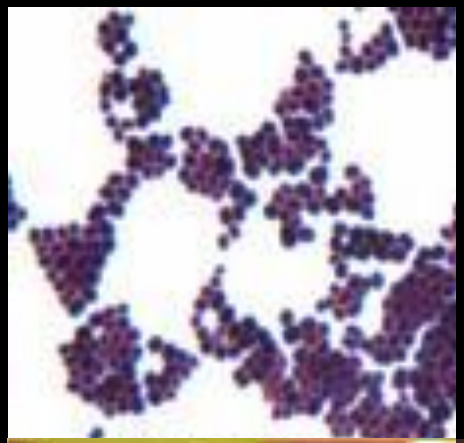


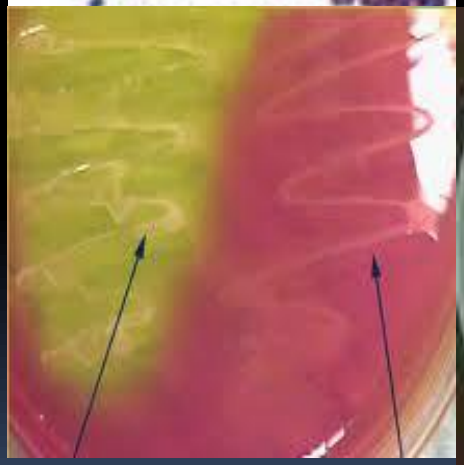
Fig.1 IgE levels before and after supllementation *L.casei* Shirota strain

4.DISCUSSION

- *S.aureus*:

Morphology: cocci, gram positive, grape-like iregular, colonies round, smooth, raised, yellow colonies
Biochemestry test:
Katalase +,
MSA test +





- Streptococcus:

Morphology: cocci, gram positive, chain, transparent

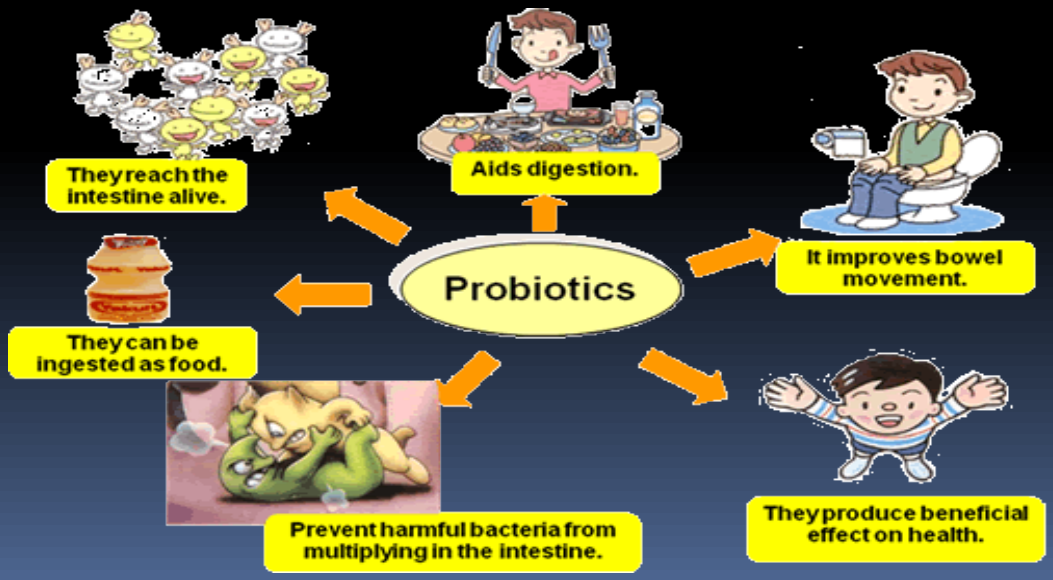
Biochemestry test:

Katalase -

MSA test -

- Probiotics are normal flora of the gastrointestinal tract that can control the balance of intestinal microflora and the physiological effects that benefit the health of the host. Probiotics also have the ability as a strong activator of the innate immune system because it has a specific molecule on the cell wall, known as pathogen-associated molecular patterns (PAMPs)
- PAMPs are recognized PRRS (pattern recognition receptors) in the case of TLR2 and TLR4. TLR2 and TLR4 to induce transcription of several proinflammatory cytokines in response to stimulation by probiotics, which help bridge the innate immune system to the adaptive system by inducing a variety of effector molecules and co-stimulators (Saito,2004).

- Lactobacillus has the ability enhance the intestinal mucosal immunity , particularly increasing the number of IgA-producing cells and other immunoglobulin-producing cells, stimulates the local release of interferon which facilitates antigen transport and increase the uptake of antigen by Peyer's patches (Gorbach, 2000)



6. CONCLUSION

a. Supplementation *Lactobacillus casei* Shirota strain reduced colonization Streptococcus nasal swab isolates from patients with allergic rhinitis

b. Supplementation *Lactobacillus casei* Shirota strain reduced IgE serum levels in patients with allergic rhinitis

Acknowledgment

LP3M Universitas Muhammadiyah Yogyakarta and PT. Yakult Indonesia Persada that have funded this research through the entire partnership program.