

AB-Kefir Probiotics

Easy Access to Heritage Strains



What is Kefir?

kefir is a symbiotic probiotic community with alleged health capabilities

- Dr. Fernando Lopitz-Otsoa, 2006

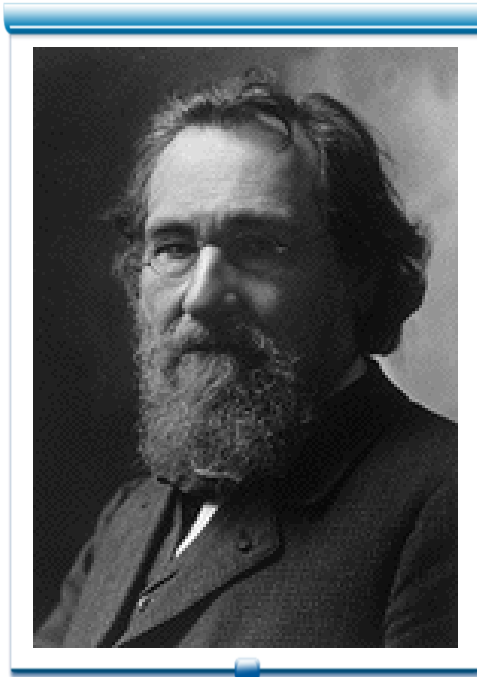


Believed as Gift from God



“Keif” = Feel good

History of Kefir



Élie Metchnikoff found the associated with kefir and longevity (1908)

(Photos from wiki)



Goatskin bag for carrying milk and culturing kefir in the Caucasus

**Pure water
Dairy product**



Caucasus Mountains

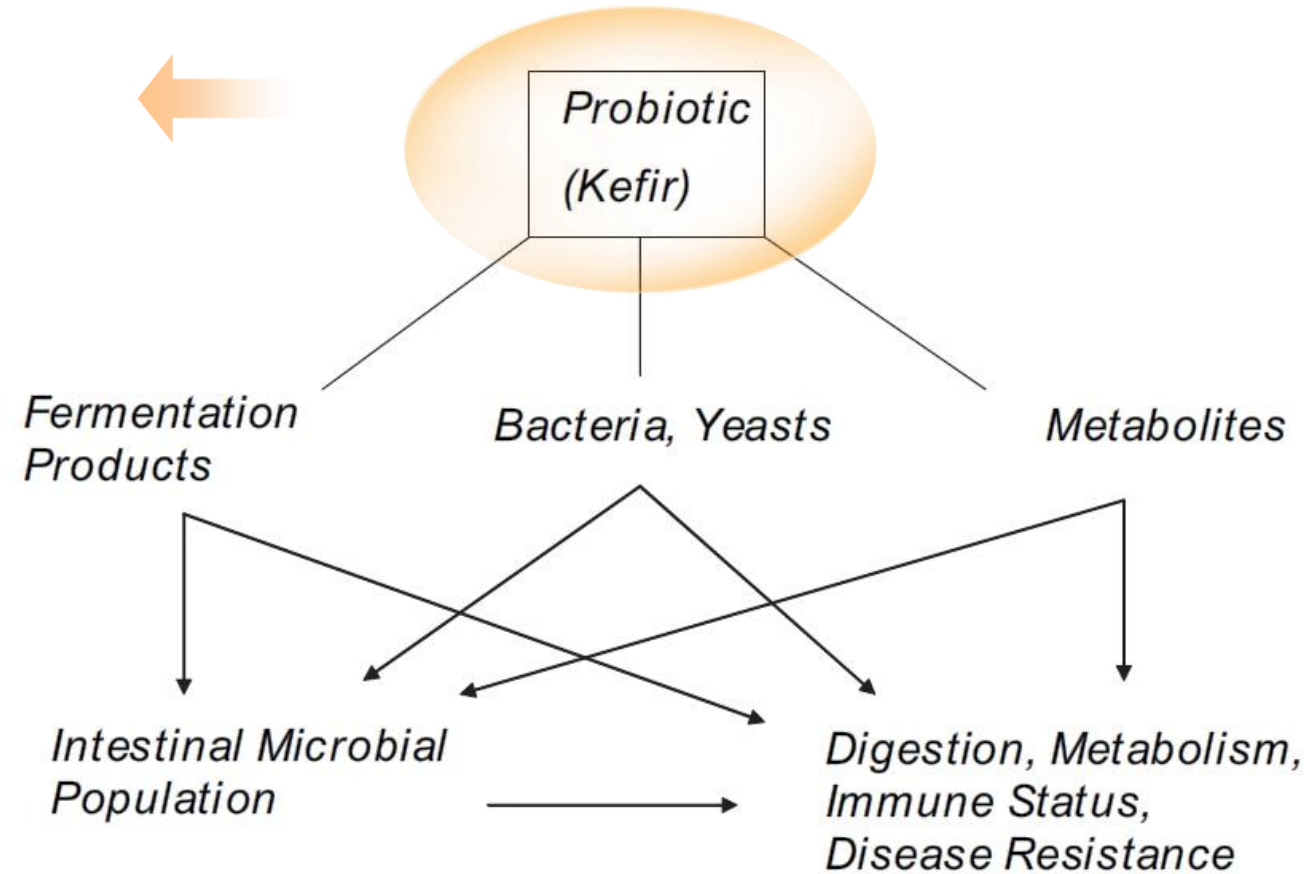


Kefir grain

Functions of Kefir



Microbiota



(Lopitz-Otsoa et. al., 2006)

Kefir: Re-establish Microbiota, Inhibit Pathogens

Food Sci. Biotechnol. 24(4): 1397-1403 (2015)
DOI 10.1007/s10068-015-0179-8

RESEARCH ARTICLE

Modulation of Intestinal Microbiota in Mice by Kefir Administration

Dong-Hyeon Kim, Jung-Whan Chon, Hyunsook Kim, and Kun-Ho Seo

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System. Appl. Microbiol. 26, 434–437 (2003)
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<http://www.urbanfischer.de/journals/sam>

SYSTEMATIC AND
APPLIED MICROBIOLOGY

The Antimicrobial Properties of Different Strains of *Lactobacillus* spp. Isolated from Kefir

A. Santos, M. San Mauro, A. Sanchez, J. M. Torres, and D. Marquina

Department of Microbiology III, Biology Faculty, Complutense University of Madrid

Received: April 14, 2003

Summary

The characteristics of 58 strains of *Lactobacillus* spp. isolated from kefir were studied. These strains were tested for adherence to human enterocyte-like Caco-2 cells, resistance to acidic pH and bile acid, antimicrobial activities against enteropathogenic bacteria and inhibition of *Salmonella typhimurium* at-

Kefir: Improve GI Discomfort And Immune System

RESEARCH

Kefir improves lactose digestion and tolerance in adults with lactose maldigestion

STEVEN R. HERTZLER, PhD, RD; SHANNON M. CLANCY, MS, RD

ABSTRACT

Objective Kefir is a fermented milk beverage that contains different cultures than yogurt. The objective of this study was to determine whether kefir improves lactose digestion and tolerance in adults with lactose maldigestion.

Lactose maldigestion is the inability to digest lactose, the major carbohydrate in virtually all mammalian milks. Lactose maldigestion affects approximately 75% of the world's adult population and is the result of a genetically programmed decrease in lactase activity after the age of 3 to 5 years. The term "lactose intolerance" is used synonymously with lactose maldigestion.

Journal of Dairy Research (2005) 72 195–202. © Proprietors of *Journal of Dairy Research* 2005
doi:10.1017/S0022029905000828 Printed in the United Kingdom

Immunomodulating capacity of kefir

Celso G Vinderola^{1,2}, Jairo Duarte¹, Deepa Thangavel¹, Gabriela Perdigon^{2,3}, Edward Farnworth⁴ and Chantal Matar^{1*}

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² Centro de Referencia para Lactobacilos (CERELA-CONICET), Tucuman, Argentina

³ Universidad Nacional de Tucuman, Tucuman, Argentina

⁴ Agriculture and Agri-Food, FRDC, St. Hyacinthe (QC), Canada

Received 25 August 2004 and accepted for publication 13 October 2004

Kefir is a fermented milk produced by the action of lactic acid bacteria, yeasts and acetic acid bacteria, trapped in a complex matrix of polysaccharides and proteins. Beyond its inherent high nutritional value as a source of proteins and calcium, kefir has a long tradition of being regarded as good for health in countries where it is a staple in the diet. However, published human or animal feeding trials to substantiate this view are not numerous. The aim of this work was to determine the immunomodulating capacity of kefir on the intestinal mucosal immune response in mice and to demonstrate the importance of dose and cell viability on this response. BALB/c

Kefir: Improve Diarrhea And Constipation

ARTICLE

A Randomized Clinical Trial Measuring the Influence of Kefir on Antibiotic-Associated Diarrhea

The Measuring the Influence of Kefir (MILK) Study

Daniel J. Merenstein, MD; Jennifer Foster, BA; Frank D'Amico, PhD

Objective: To examine the role of commercially available kefir, a fermented milk similar to yogurt but containing different fermentation microbes, in preventing antibiotic-associated diarrhea (AAD). Probiotics have shown some promise in preventing AAD.

Main Outcome Measure: the incidence of diarrhea during the study period in children receiving

Results: There were no cases of antibiotic-associated diarrhea per group, with 18% of children in the placebo group (p = 0.001).



Turk J Gastroenterol 2014; 25: 650-6

Effects of a kefir supplement on symptoms, colonic transit, and bowel satisfaction score in patients with chronic constipation: A pilot study

COLORECTAL

Ilker Turan¹, Özden Dedeli², Serhat Bor¹, Tankut İlter¹

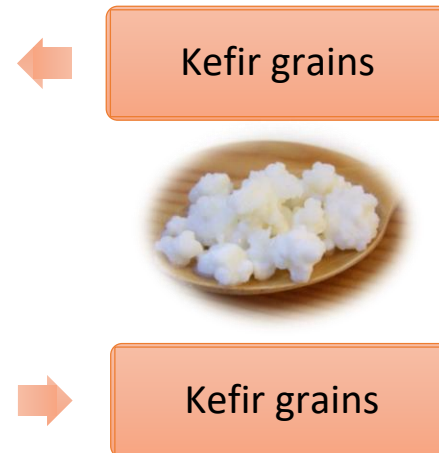
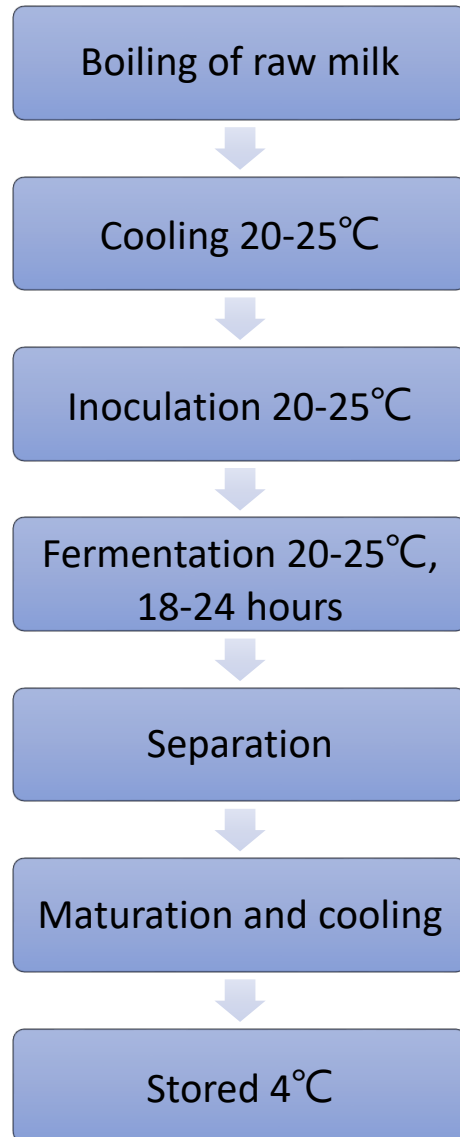
¹Department of Gastroenterology, Ege University Faculty of Medicine, İzmir, Turkey

²Department of Internal Medicine, Celal Bayar University School of Health, Manisa, Turkey

ABSTRACT

Background/Aims: Although probiotics have been extensively studied in irritable bowel syndrome, data on the

Production of Traditional Kefir

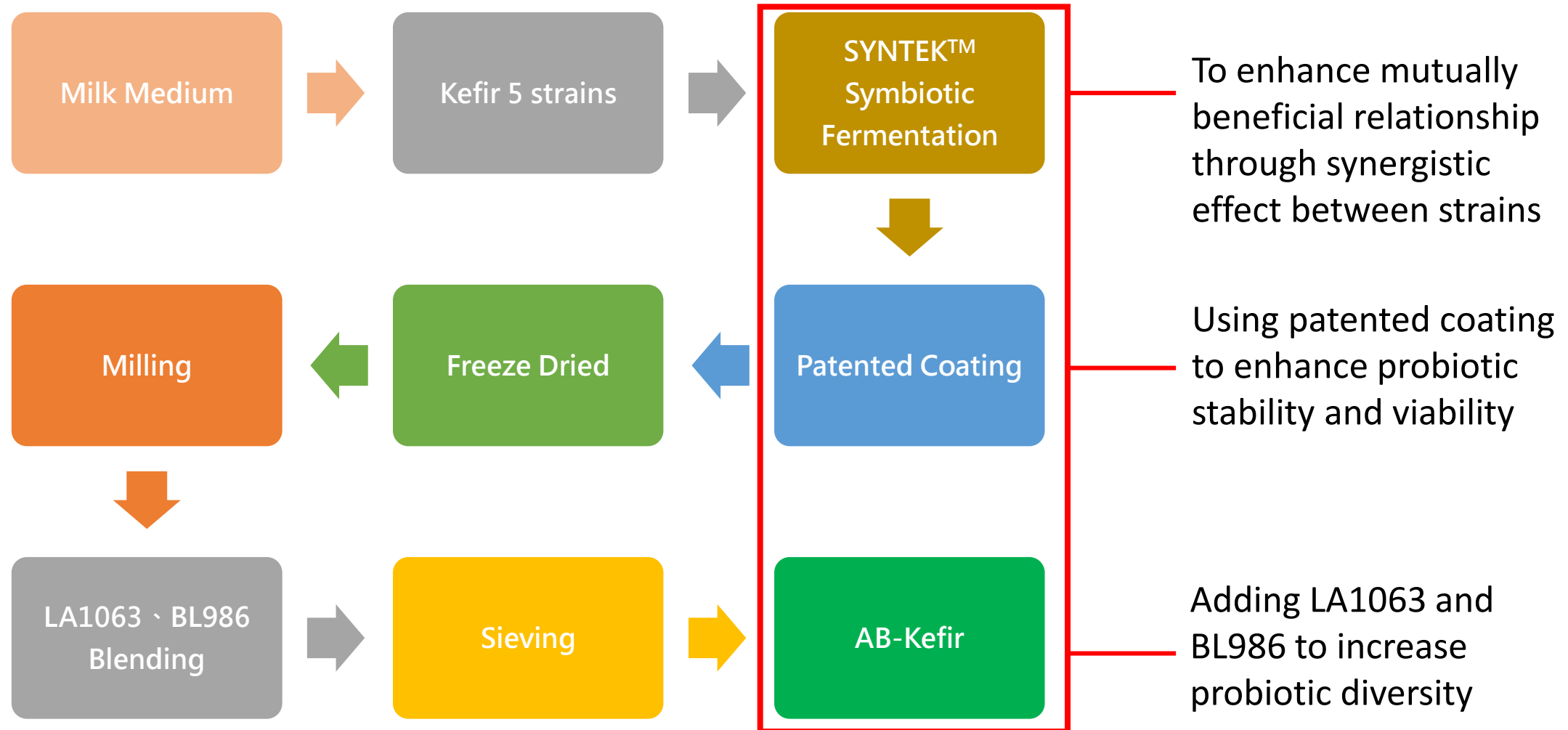


- The lactic acid bacteria is the main group of kefir, e.g. *Lactobacilli*, *Lactococci*, *Streptococci*, yeasts, acetic acid bacteria
- Strains composition and potency are different in each fermentation
- Production process is complicated

(Ogles, S. and C. Ozlem,, 2003)

What We Actually Do?

Manufacturing Standardization




Culture Optimization of Integrated Manufacturing Technology

- Production plays an important role in **stability** and **functionality** of probiotics

Development of a new strain

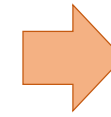
SYNTEK™ thorough



Aim to each strain's properties to set up manufacturing parameters

- Culture medium
- Cultivation condition
- Freeze drying
- Coating material

Up to 100 production matrixes and over 60 QC check points



Induce the best performance of strain



Lactic acid bacteria



Fermentation development



Coating and freeze drying

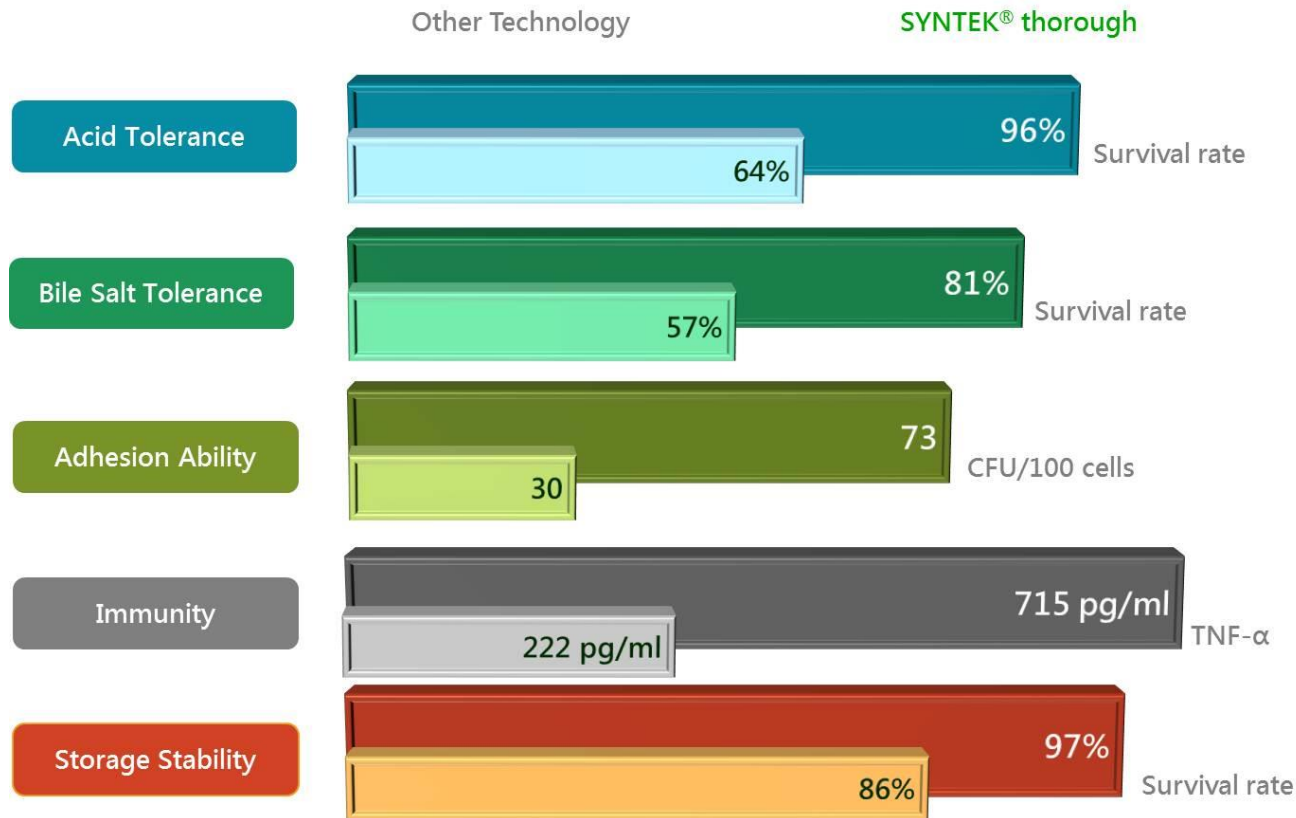


Qualified inspection



Packaging

Promotes overall strains' performance



- Increase stability
- Enhance colonization
- Improve efficiency
- Improve process applicability

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Probiotics in Nutraceuticals-Industrial Bioprocessing Alert

Share this: [Facebook] [Twitter] [LinkedIn] [Email]

Published: 8 Apr 2016 **Customized Research** **Request sample** **Subscribe Now USD 6,950**

This Industrial Bioprocessing Alert features innovations that enable the use of probiotics in nutraceuticals. This corresponds to the current market interest in probiotics as a nutraceutical ingredient, especially in functional foods. The innovations profiled in this Alert feature probiotics microencapsulation technology, highly stable strains, probiotic controlled-release technology, and an optimized probiotic production system.

The Industrial Bioprocessing Alert provides intelligence on technologies, processes and strategic insights of industries involving bioprocessing, including innovations in the development and production of chemicals, pharmaceuticals, nutraceuticals, alternative fuels, chemical feedstocks, food and beverages, and consumer products.

The Materials and Coatings cluster tracks research & innovation trends and developments across speciality chemicals, plastics, polymers, chemicals, bio-chemicals, metals, coatings, thinfilms, surface treatments, composites, alloys, oil and gas, fuel additives, fibers and several other related technologies and its impact and application across industries.

Keywords: Probiotics, nutraceuticals, microencapsulation

1. PROBIOTICS IN NUTRACEUTICALS-INDUSTRIAL BIOPROCESSING ALERT

Probiotics in Nutraceuticals

- Probiotics in Nutraceuticals – Introduction
- Strategic Perspectives

Innovations for Probiotics in Nutraceuticals

- Intelicaps Probiotic Technology, Vésale Pharma, Belgium
- ProDURA™ Bacillus coagulans, Nebraska Cultures, California, U.S.A
- BIO-tract®, Nutraceutix, Washington, USA
- SYNTEK®, SynbioTech Inc., Taiwan Optimized probiotic production**

Opportunities for Probiotics in Nutraceuticals

- Funding and Technology Roadmap

Key Patents and Contacts

- Patents in Probiotics Innovations in Nutraceuticals
- Patents in Probiotics Innovations in Nutraceuticals
- Key Industry Participant Contacts

SYNTEK®, SynbioTech Inc., Taiwan Optimized probiotic production

Unmet Needs

- High levels of viable probiotics are recommended in probiotic foods for efficacy.
- There is difficulty in maintaining probiotic counts throughout preparation, processing, and storage
- The survival of probiotics during the drying process depends on strain, drying process and culture media.

Innovative Technology Attributes

Growth medium, fermentation conditions and coating materials are designed specifically according to strain's characteristics.

It produces probiotics with enhanced lactic acid bacteria adhesion, acid and bile salt tolerance, immunity and storage ability.

Tech Profile

SynbioTech Inc.'s "SYNTEK® thorough" system is a probiotics optimizing development system that designs the medium, incubation conditions and coating materials for producing probiotics using its coating technology and freeze-drying technologies.

Advantages

- ✓ Easy and convenient production
- ✓ Reduced labor cost
- ✓ Reduces the risk of probiotics contamination
- ✓ Product value can be maintained
- ✓ Uses relatively lower temperatures than for the spray-drying technique

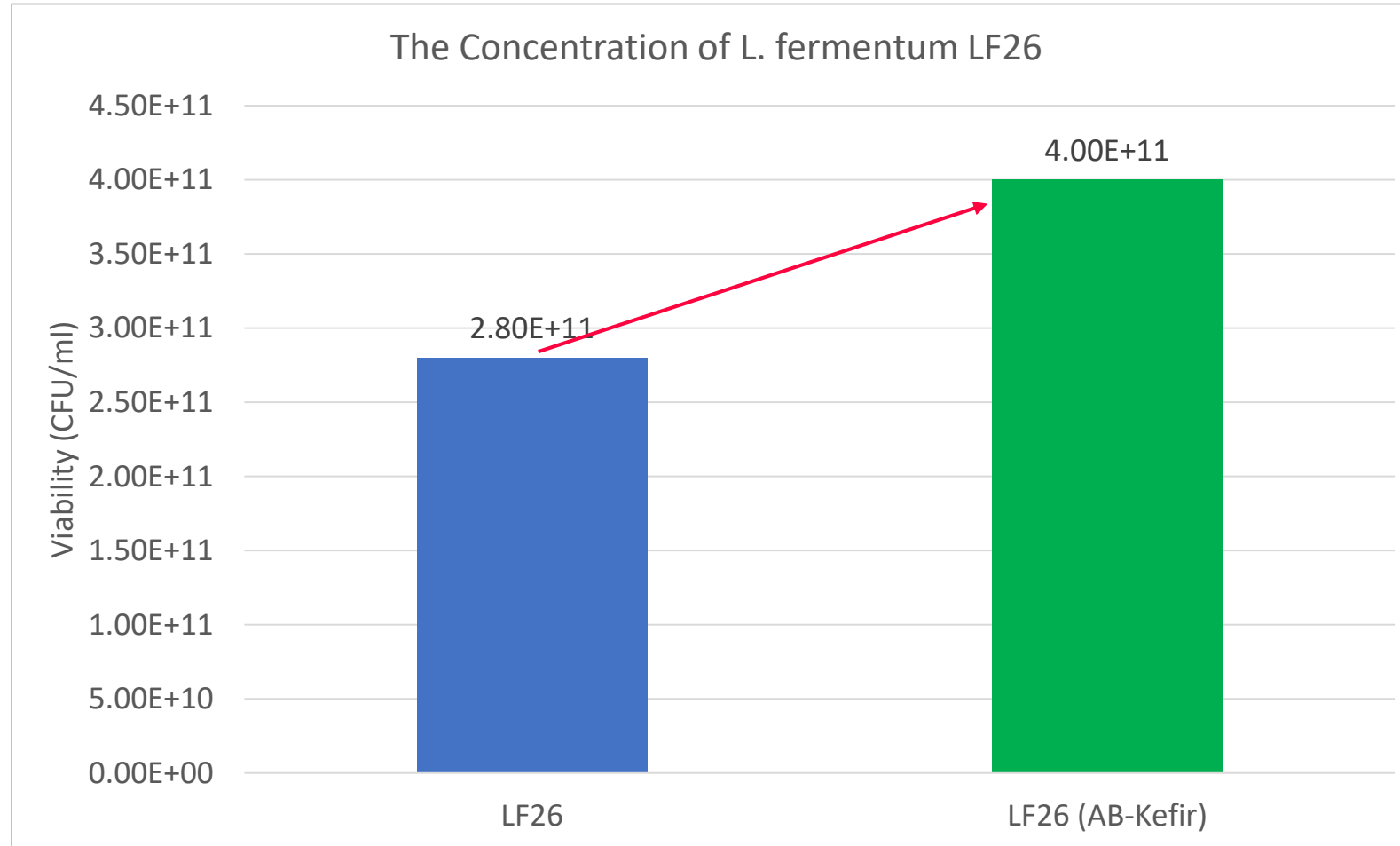
Results

- ✓ The survival rate of powdered freeze-dried probiotics is higher compared to other drying techniques.
- ✓ The high viability of dried probiotics is vital for health-promoting effects of nutraceuticals.

Innovations for Probiotics in Nutraceuticals

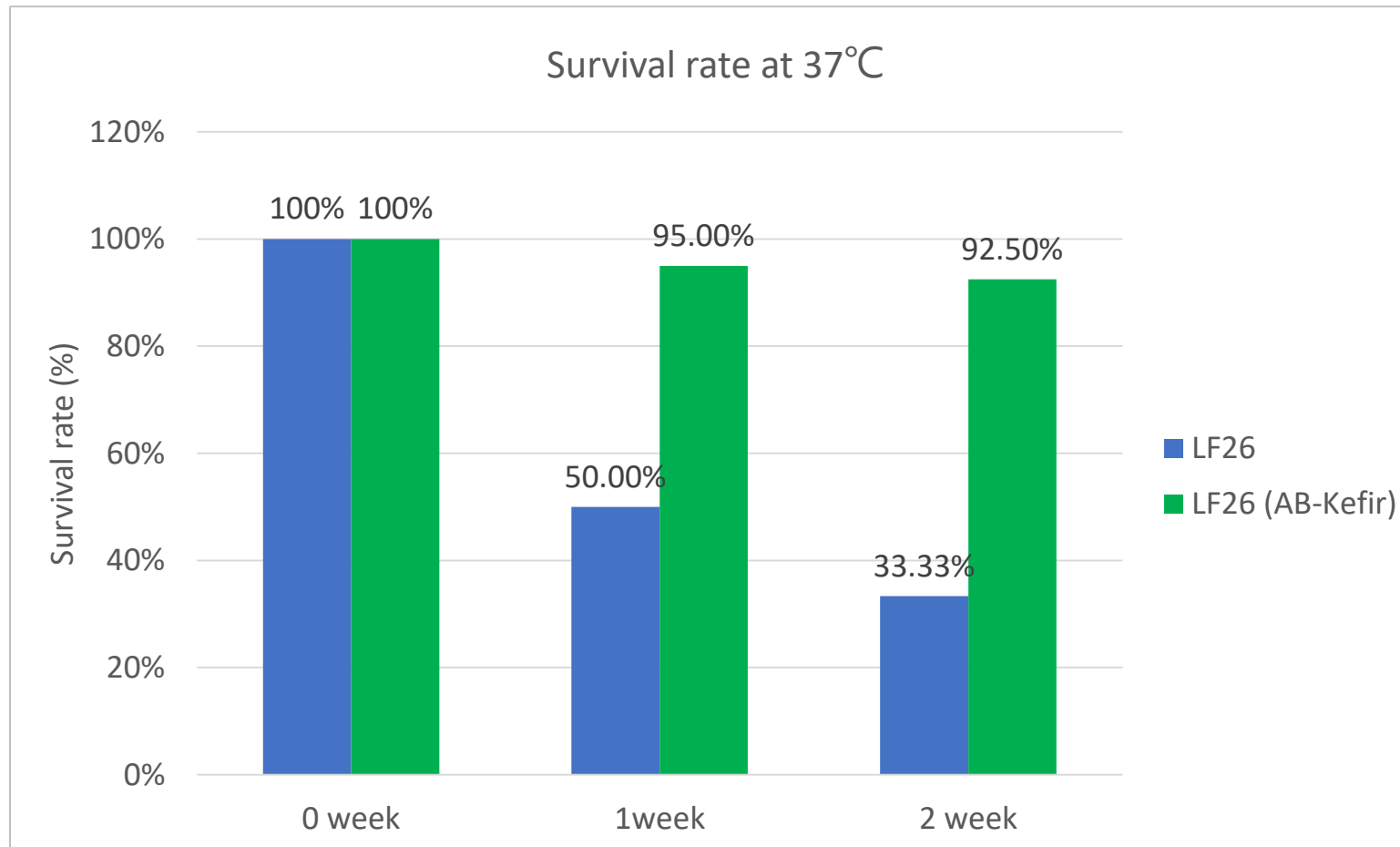
- Intelicaps Probiotic Technology, Vésale Pharma, Belgium
- ProDURA™ Bacillus coagulans, Nebraska Cultures, California, U.S.A
- BIO-tract®, Nutraceutix, Washington, USA
- SYNTEK®, SynbioTech Inc., Taiwan Optimized probiotic production**

Symbiotic fermentation increases the concentration



Increased **40% in average** compared with single-strain fermentation

Symbiotic fermentation increases stability

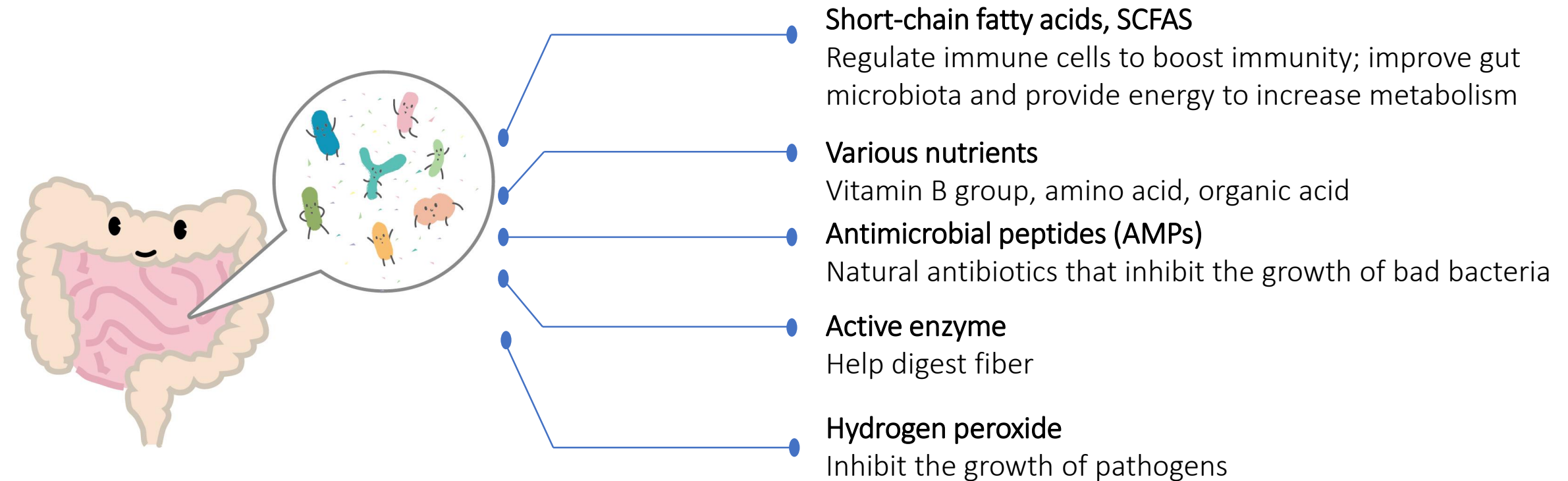


Increased **50% in average** compared with single-strain fermentation

Postbiotics

Non-viable bacterial products or metabolic byproducts from probiotic microorganisms that have biologic activity in the host. (Patei, et al. 2013)

Types of Postbiotics



AB-Kefir produces a variety of metabolites

Items
Vitamin B ₁
Vitamin B ₂
Folic acid
Citric acid
Water soluble polysaccharides

- **Vitamin B1, Vitamin B2, and folic acid:** involves in the regulation of the cell metabolism and energy production
- **Organic acid:** Organic acids play a crucial role in numerous metabolic processes
- **Essential amino acids:** cannot be synthesized de novo by the human, and therefore must be supplied in diet
- **Water soluble polysaccharide:** takes part in various biochemical reactions within the cell.

AB-Kefir includes 28 free amino acids

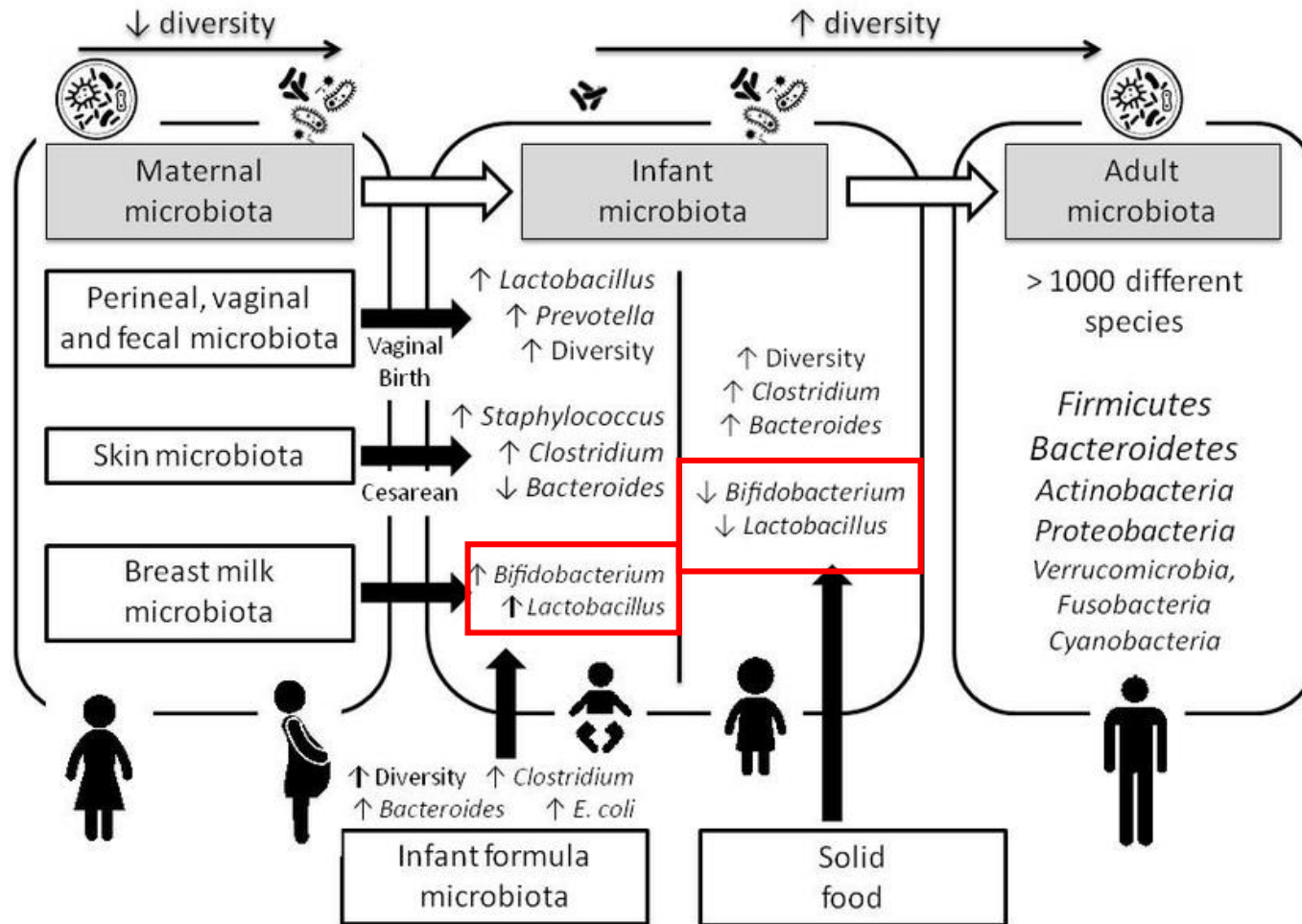
Items	Items	Items
Phosphoserine	Valine	Histidine
Taurine	Cystine	Proline
Phosphoethanolamine	Methionine	
Threonine	Isoleucine	
Aspartic acid	Tyrosine	
Serine	Phenylalanine	
Asparagine	Cystathionine	
Glutamic acid	β -Alanine	
α -Aminoadipic acid	γ -Aminobutyric acid	
Glycine	L-Tryptophan	
Alanine	Ethanolamine	
α -amino-n-butyric acid	Ornithine	
Leucine	Lysine	

- **Essential amino acids:** cannot be synthesized *de novo* by the human, and therefore must be supplied in diet
- **Branched-chain amino acids (BCAAs):** a group of three essential amino acids: leucine, isoleucine and valine and commonly benefit to to boost muscle growth and enhance exercise performance

BCAAs: 116.09mg/100g

Total free amino acids: 1018.01 mg/100g

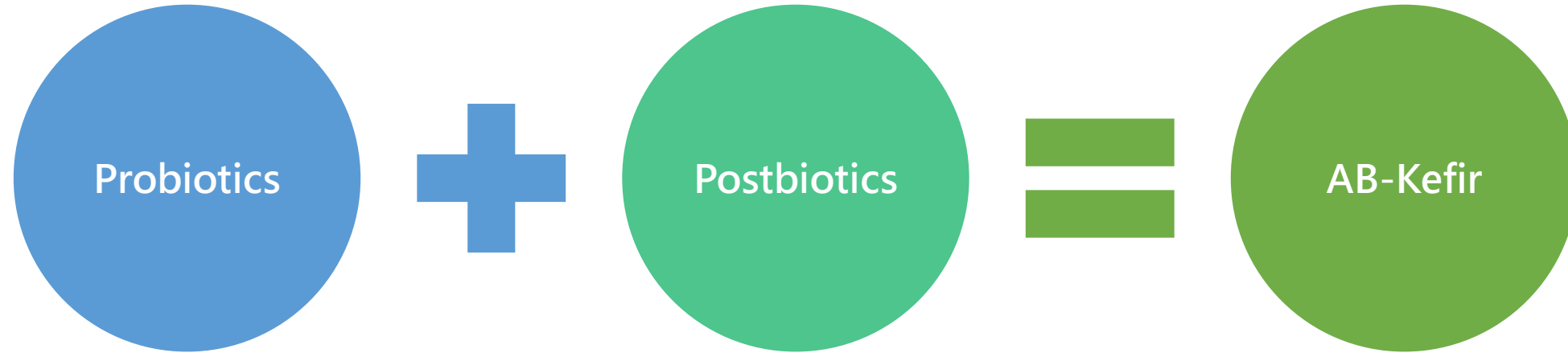
Gut microbiota diversity



- Change of Microbiota with age and diet
- *Lactobacilli* spp. and *Bifidobacterium* spp. decrease with increasing age

AB-kefir specially formulated with *Lactobacillus acidophilus* LA1063 and *Bifidobacterium longum* BL986 for the improvement of gut microflora

Characteristics of AB-Kefir



- Symbiotic stains
- Organic acid, lactic acid
- Polysaccharide
- Vitamin B group
- peptides

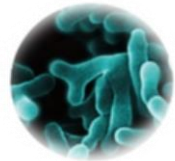


- Improve microbiota
- Improve digestion
- Inhibit bad bacteria
- Improve lactose digestion
- Improve gut disorder

Composition of AB-Kefir



Lactobacillus acidophilus LA1063



Bifidobacterium longum BL986

Well documented strains

Lactobacillus paracasei LPC12

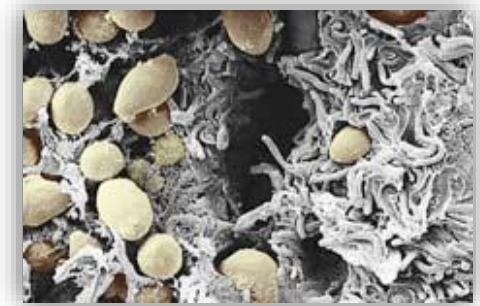
Lactobacillus rhamnosus LRH10

Lactobacillus fermentum LF26

Streptococcus thermophilus ST30

Lactobacillus helveticus LH43

Symbiotic kefir strains



Features of AB-Kefir

Symbiotic Effect

+

L. acidophilus

LA1063

+

B. longum BL986

Symbiotic 5-strain:

- produce abundant of metabolites (postbiotics)

LA1063 and BL986:

- Common in human skin, oral cavity, intestines, vagina, etc.
- Widely studied in different functions, for example, for immune health, women health and so on.

Lactobacilli and bifidobacteria:

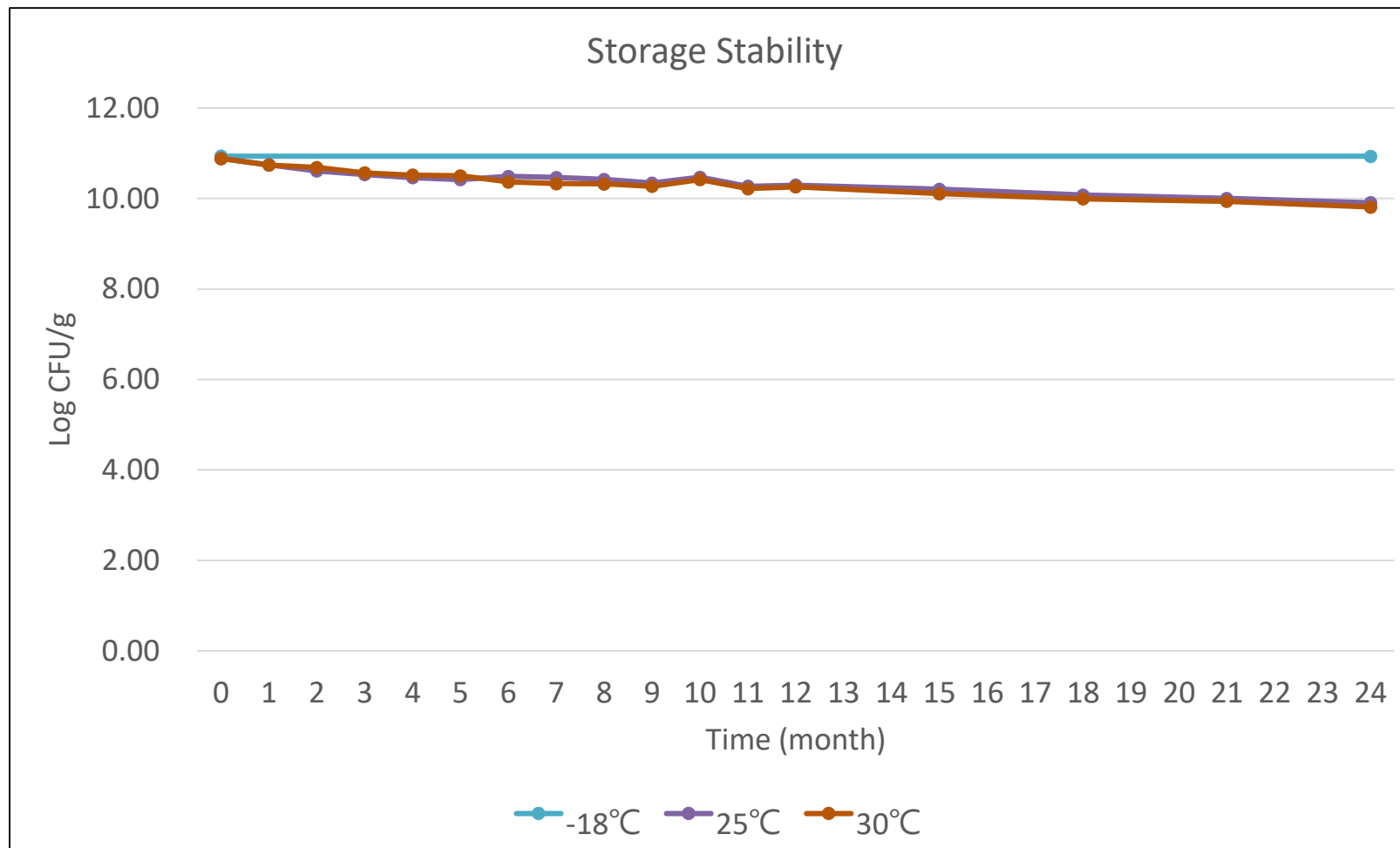
- produce lactic acid and organic acid to inhibit pathogens and maintain microbiota

Streptococci:

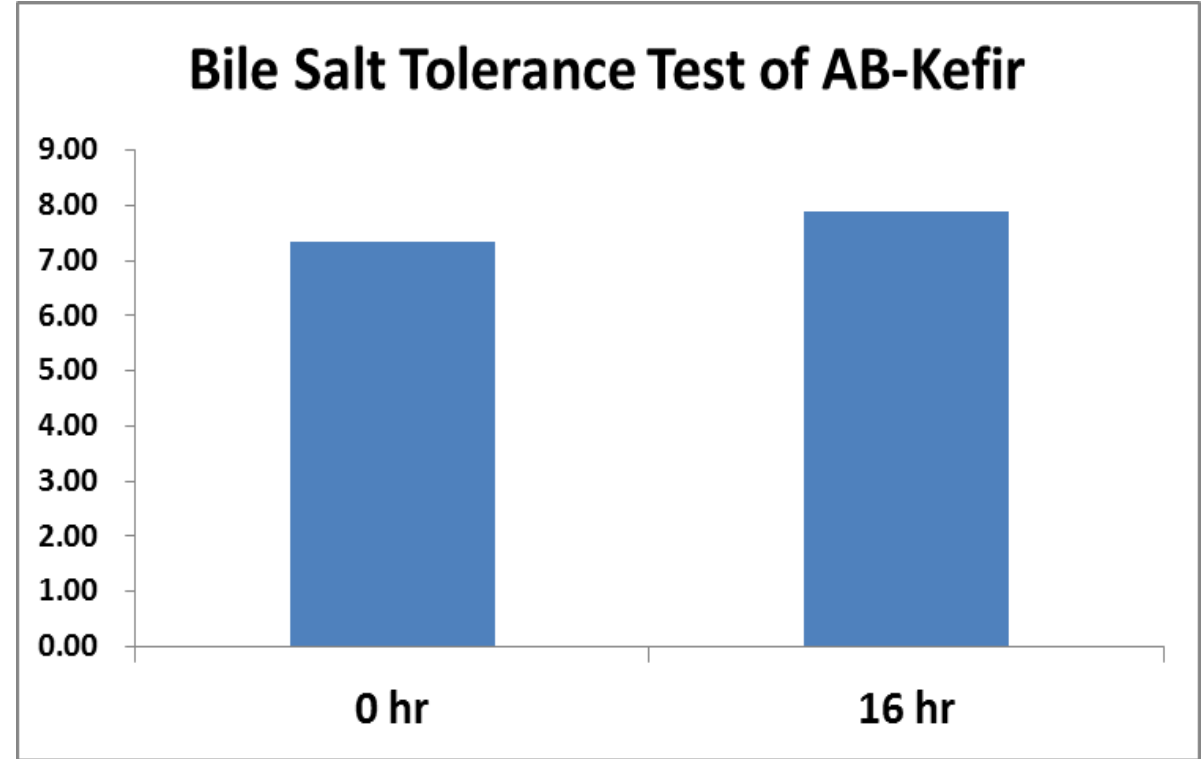
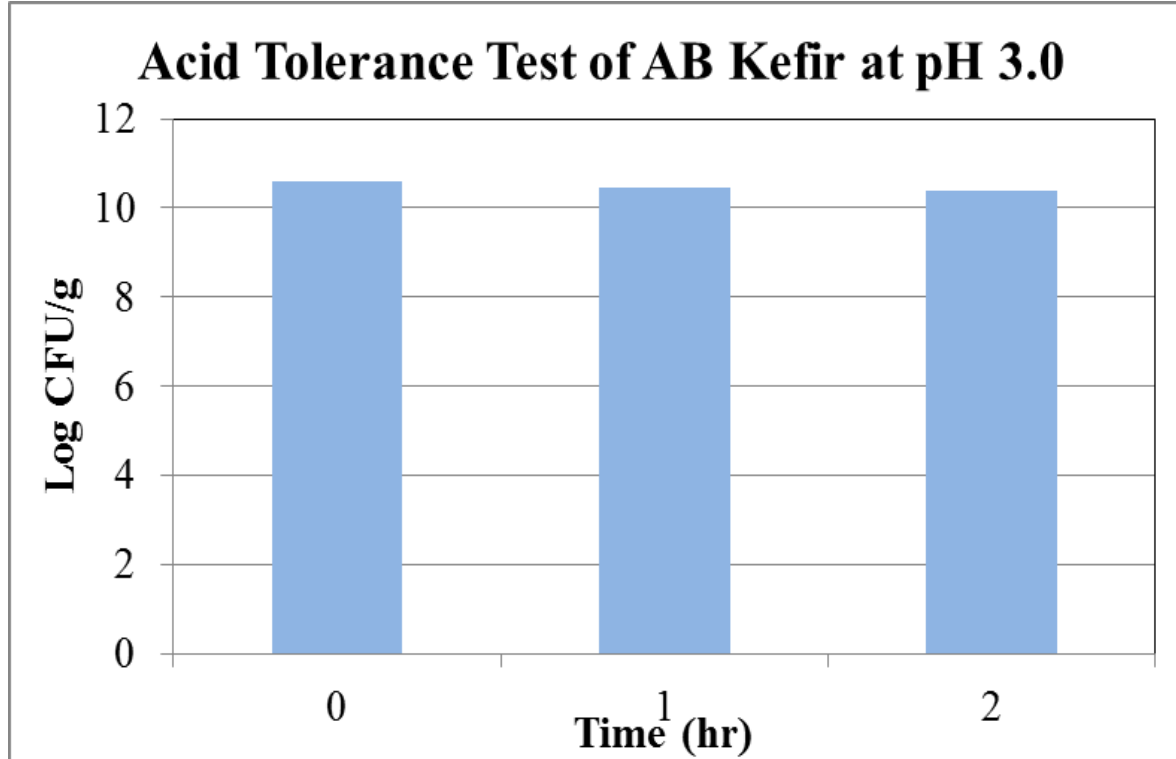
- produce growth factor and provide nutrients for increasing lactobacilli spp.
- produce polysaccharides to improve immunity

Stability of AB-Kefir

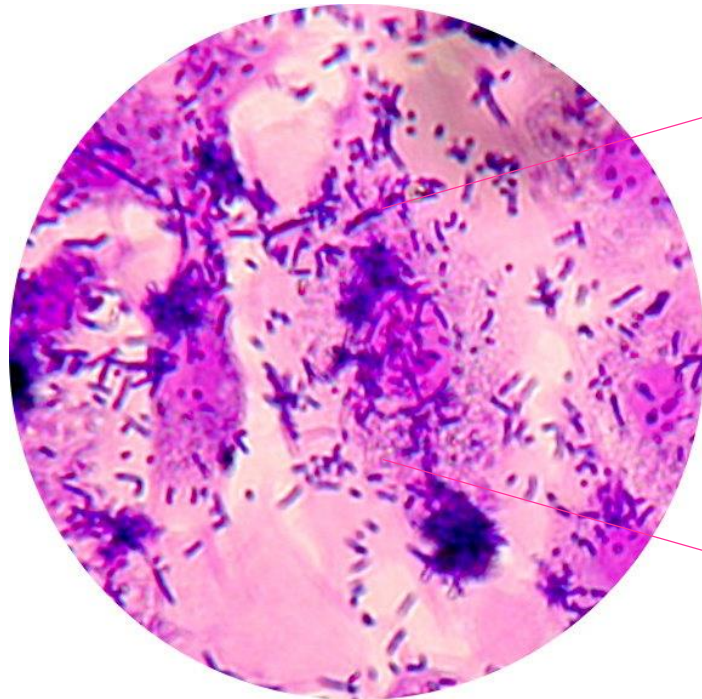
(-18°C/24 months; 25°C/24 months; 30°C/24 months)



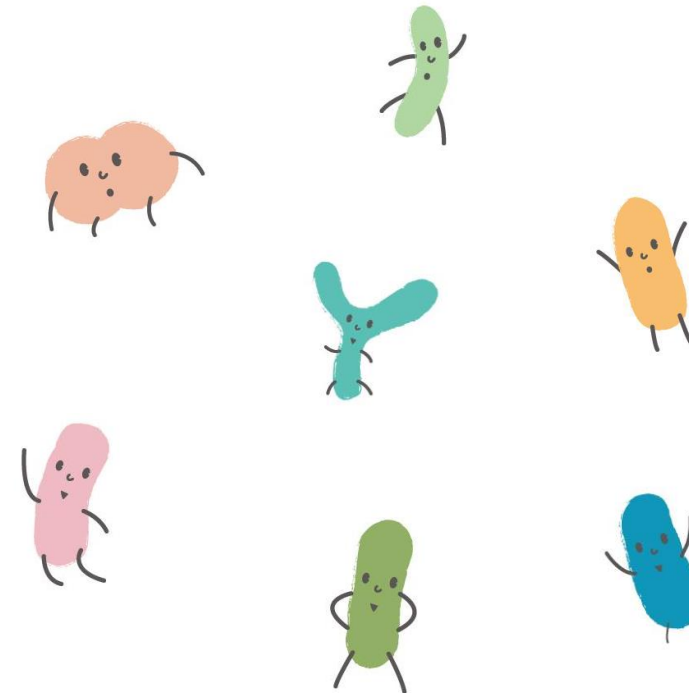
Tolerance of AB-Kefir



Adhesion of AB-Kefir: Excellent



Adhesion test (Caco-2 Cell)



AB-Kefir

Human Trial

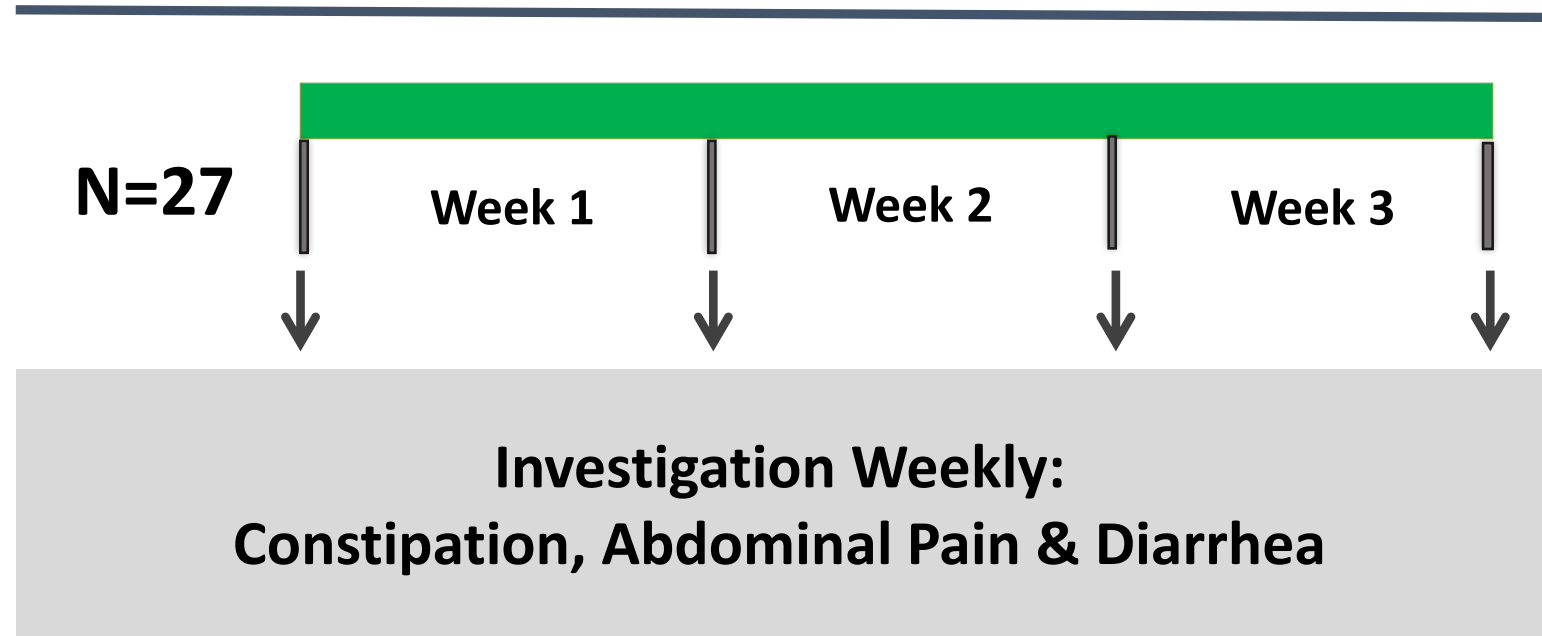
National Cheng Kung University Hospital
Department of Medicine, Taiwan



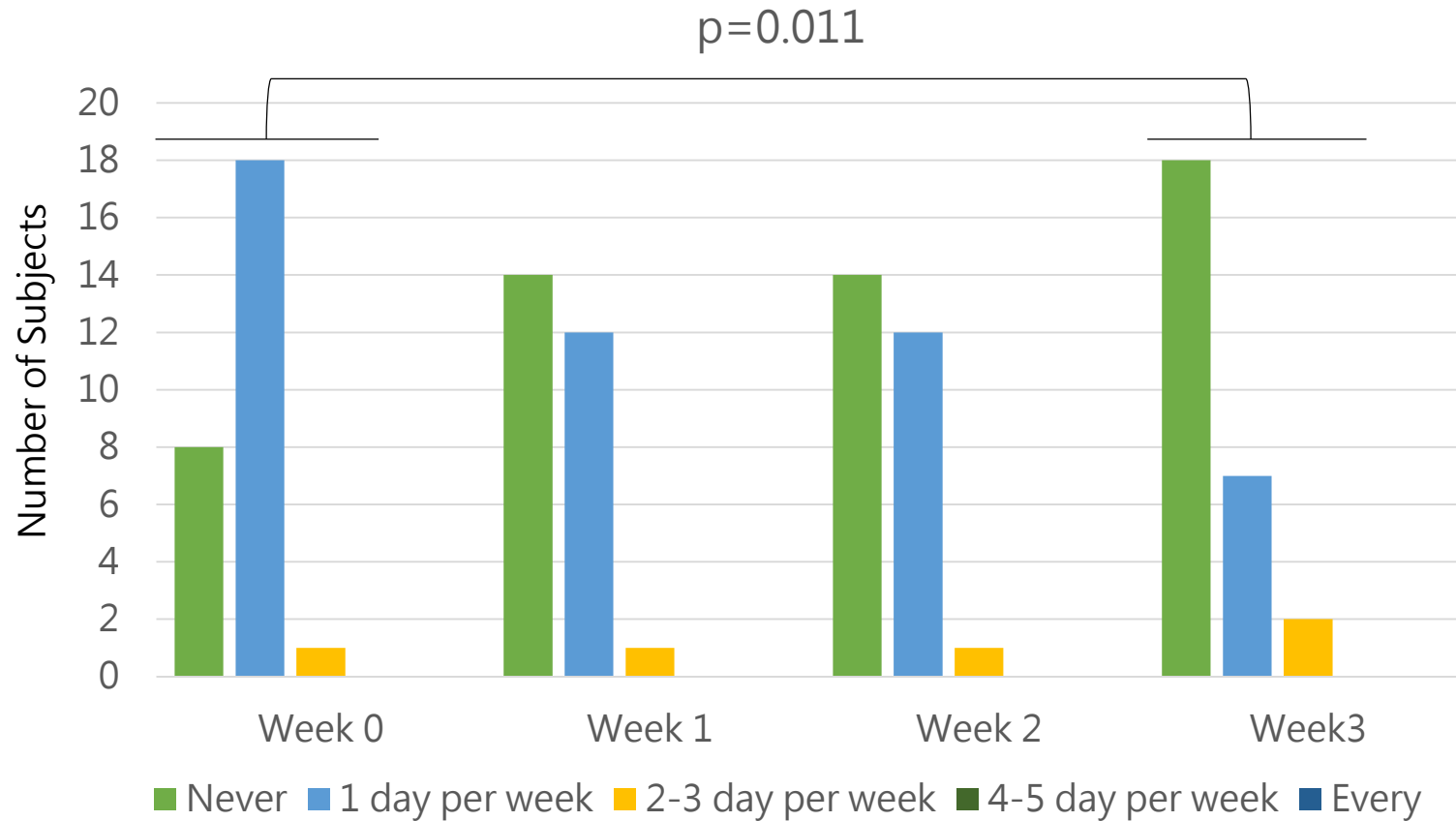
Study Design



AB-Kefir Sachet: 40 Billion CFU/day

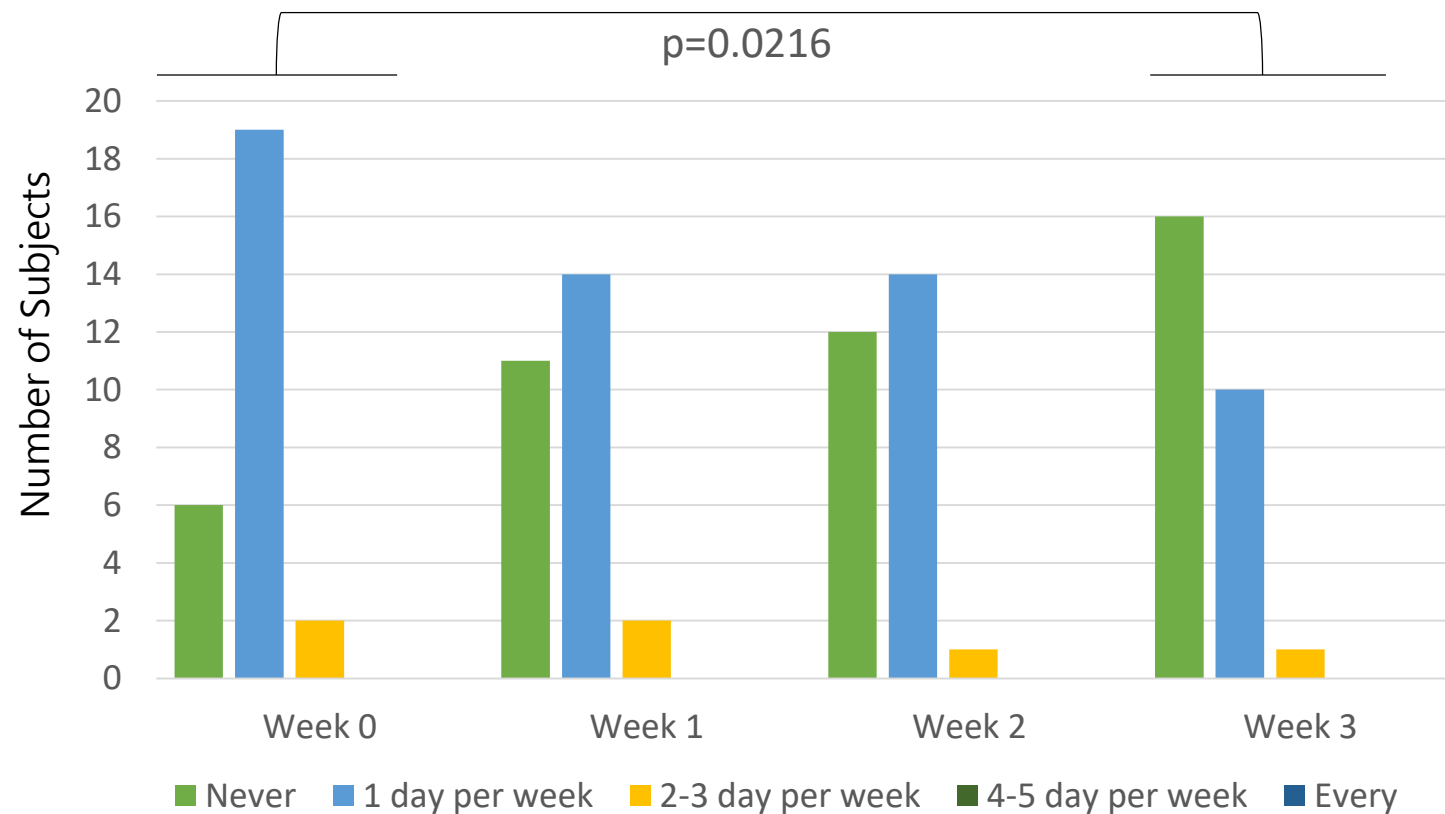


Constipation



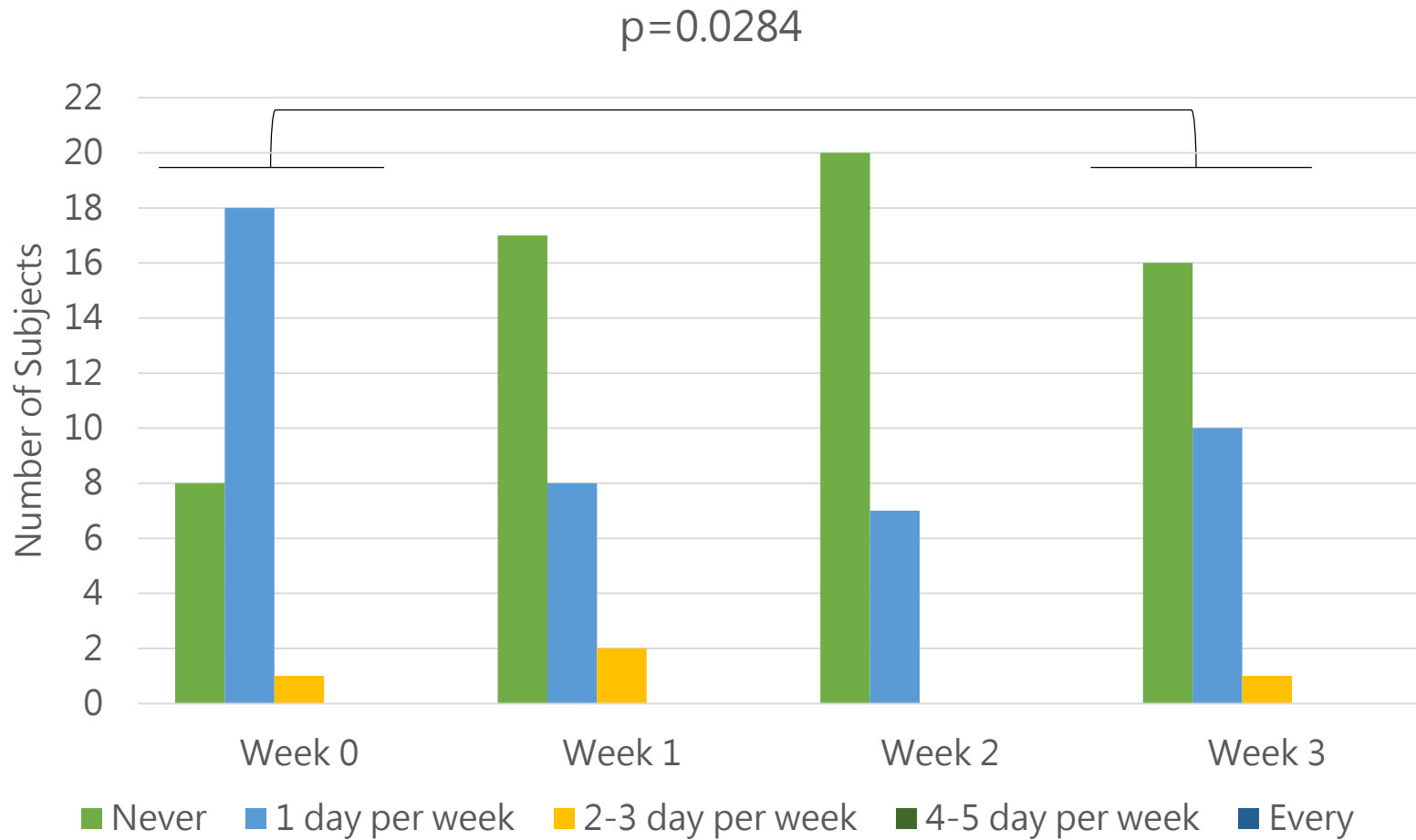
➤ Reduced constipation significantly.

Frequency of type 1 feces (separate hard lumps, like nuts)



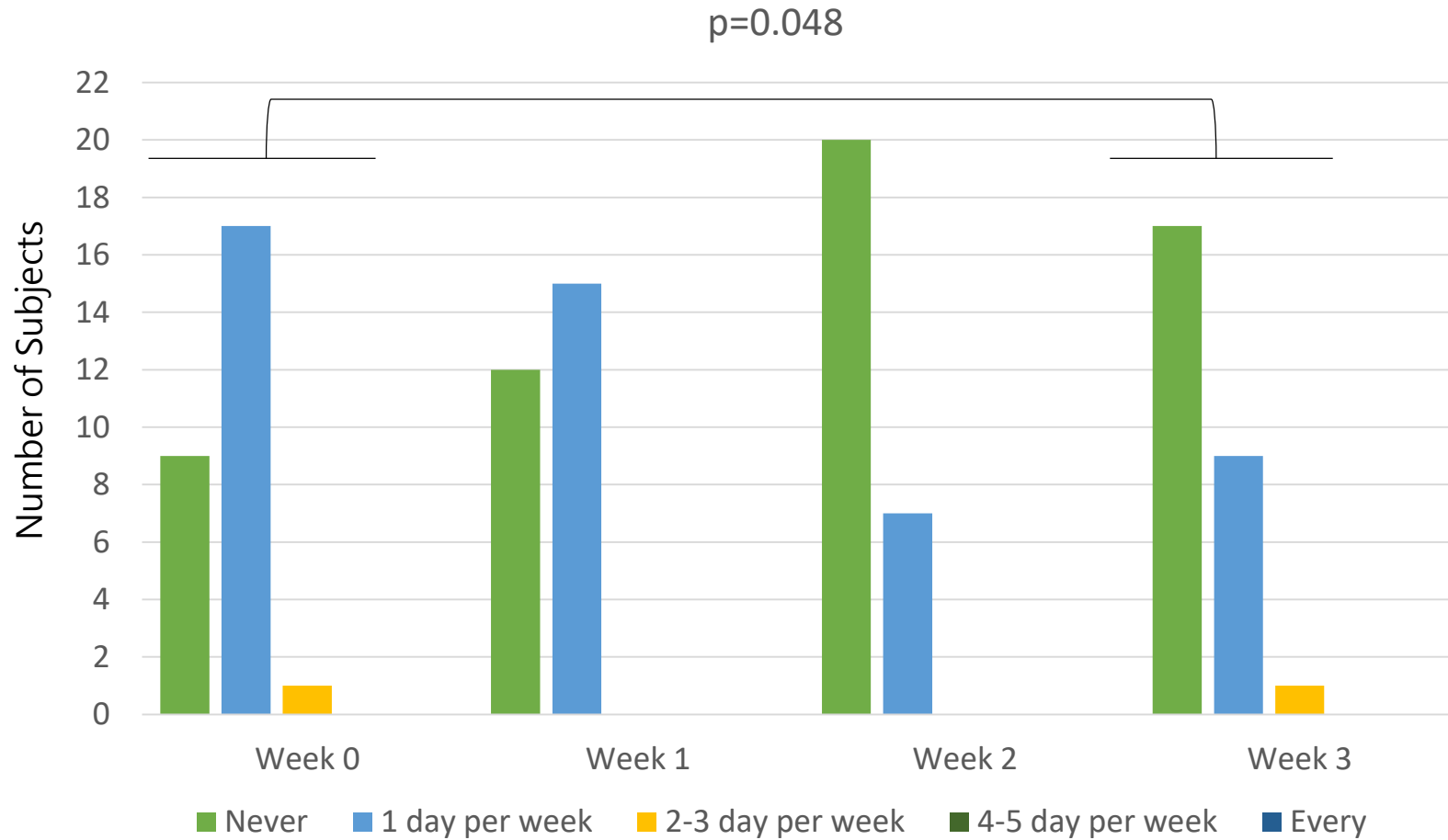
➤ Improved fecal consistency after 3 weeks ingestion of AB-Kefir

Diarrhea



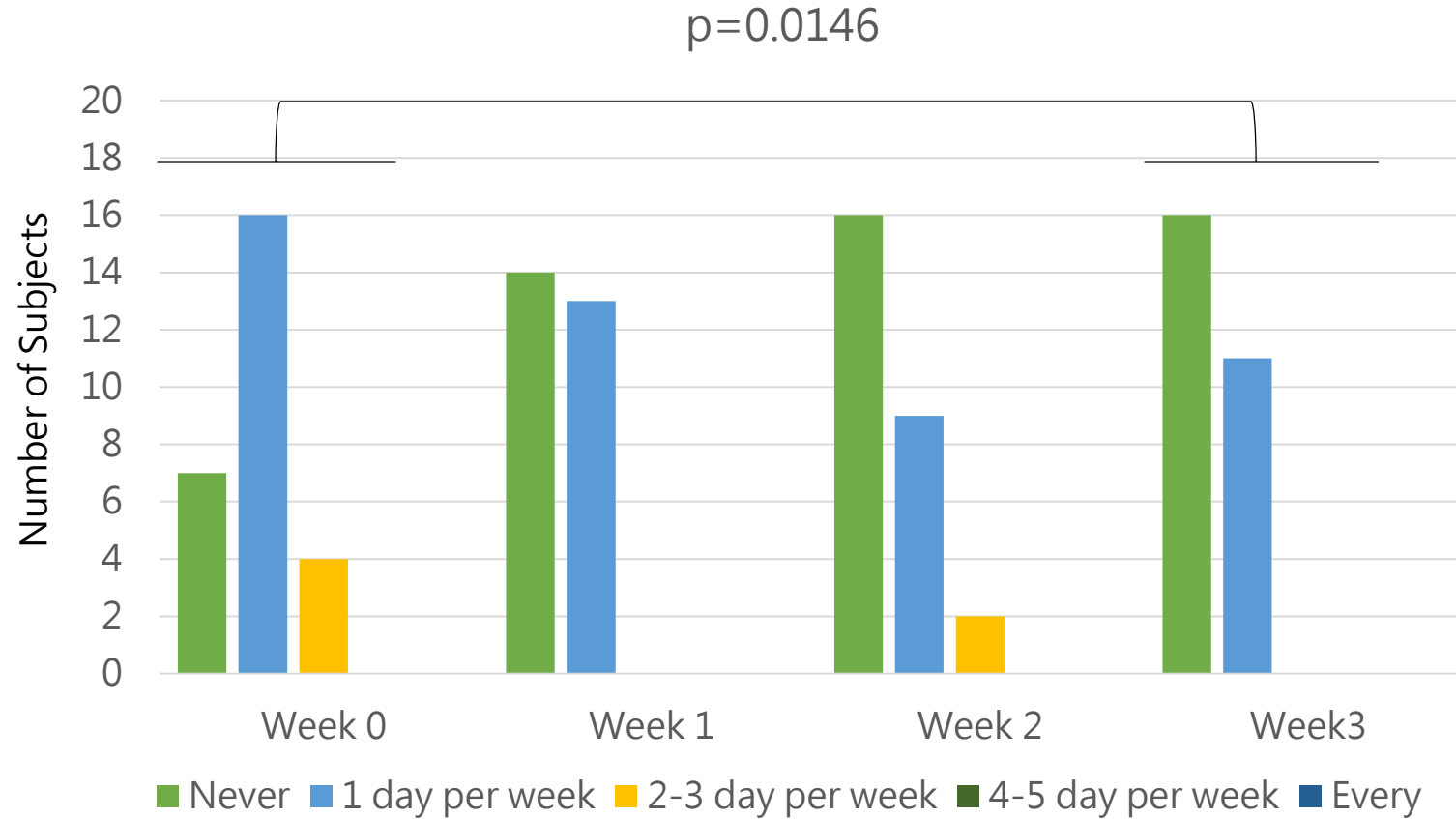
➤ Significantly reduced episodes of diarrhea

Abdominal pain



➤ Helps with abdominal pain caused by imbalanced microflora

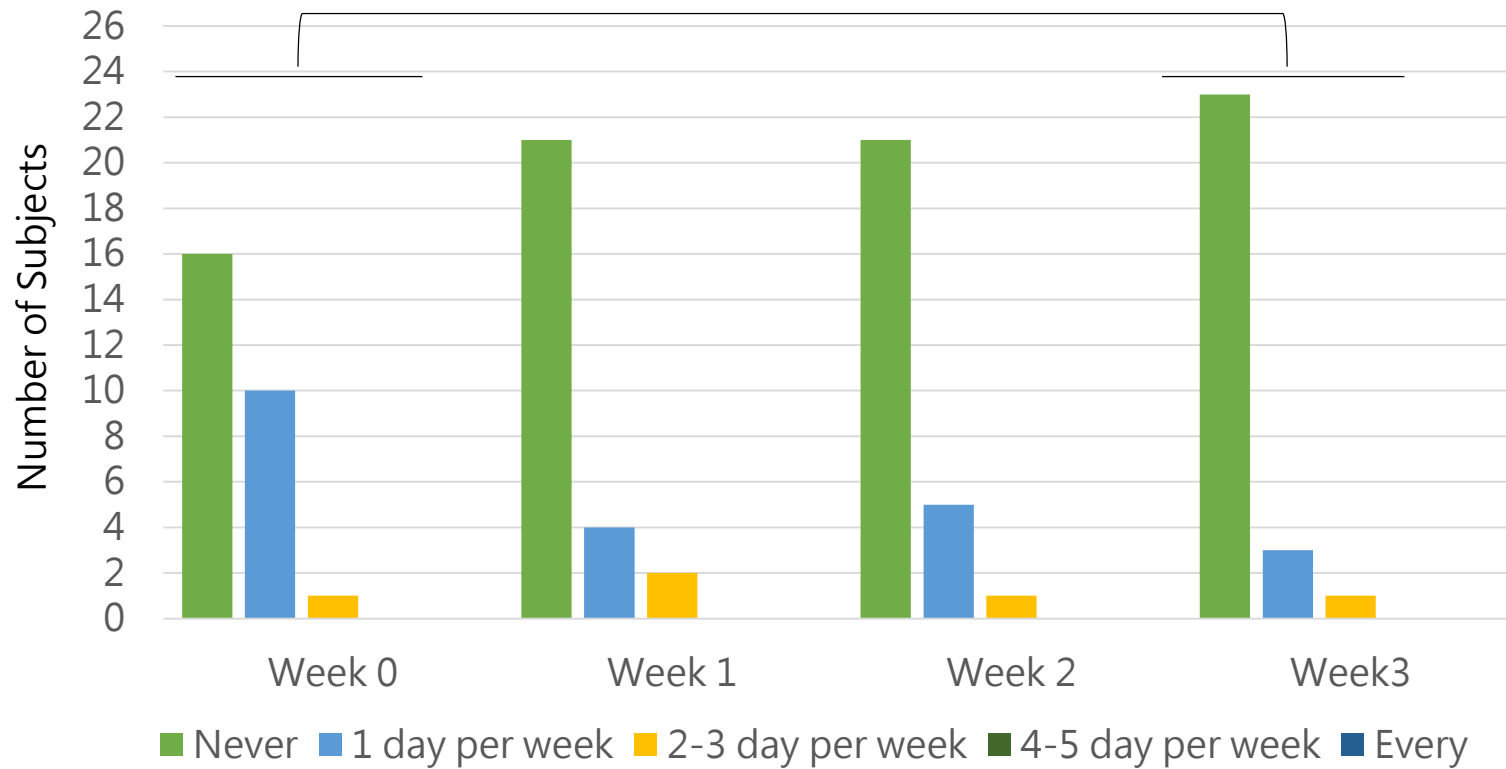
Abdominal bloating



➤ Improved abdominal bloating significantly

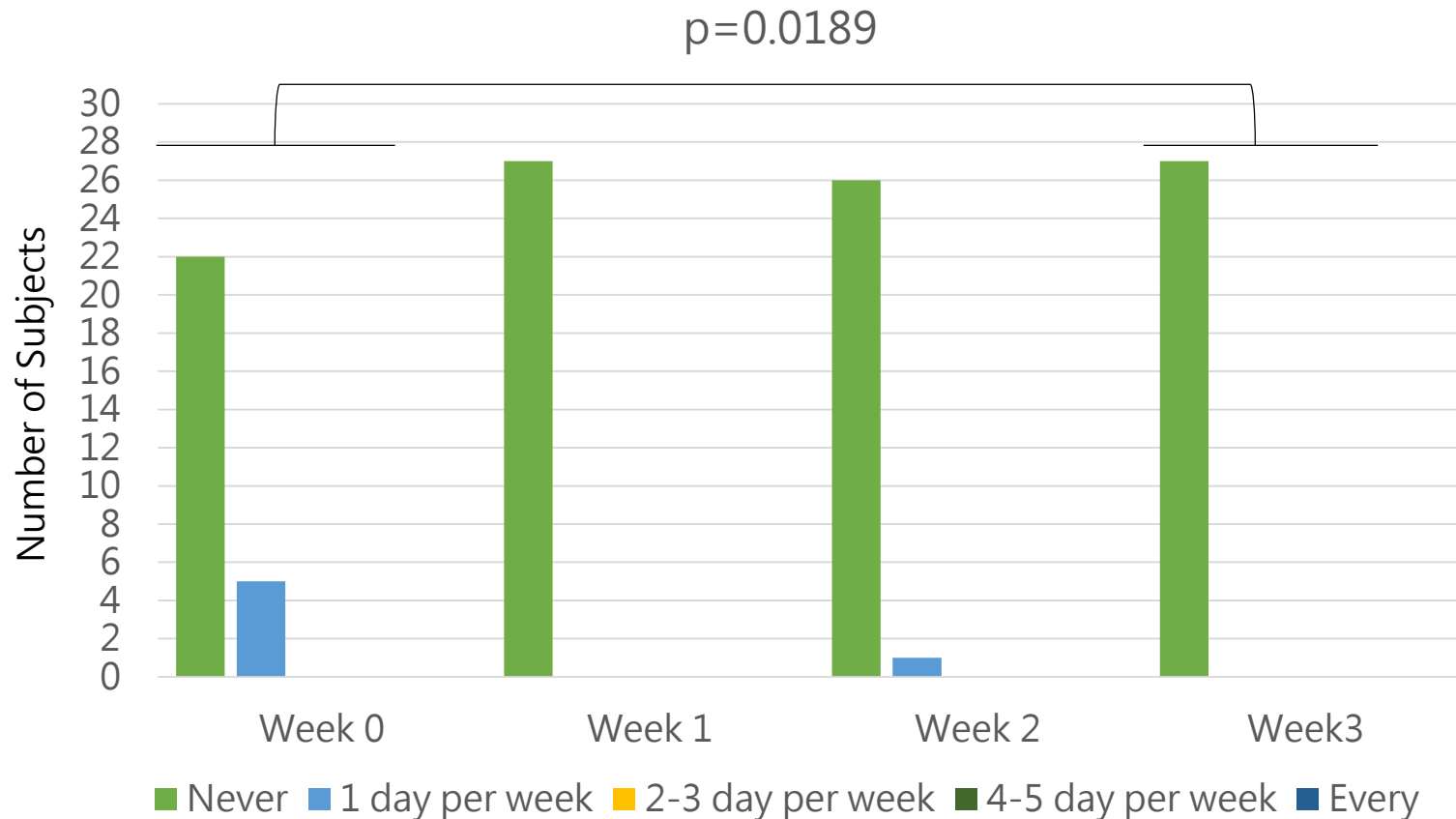
Poor appetite

$p=0.0302$



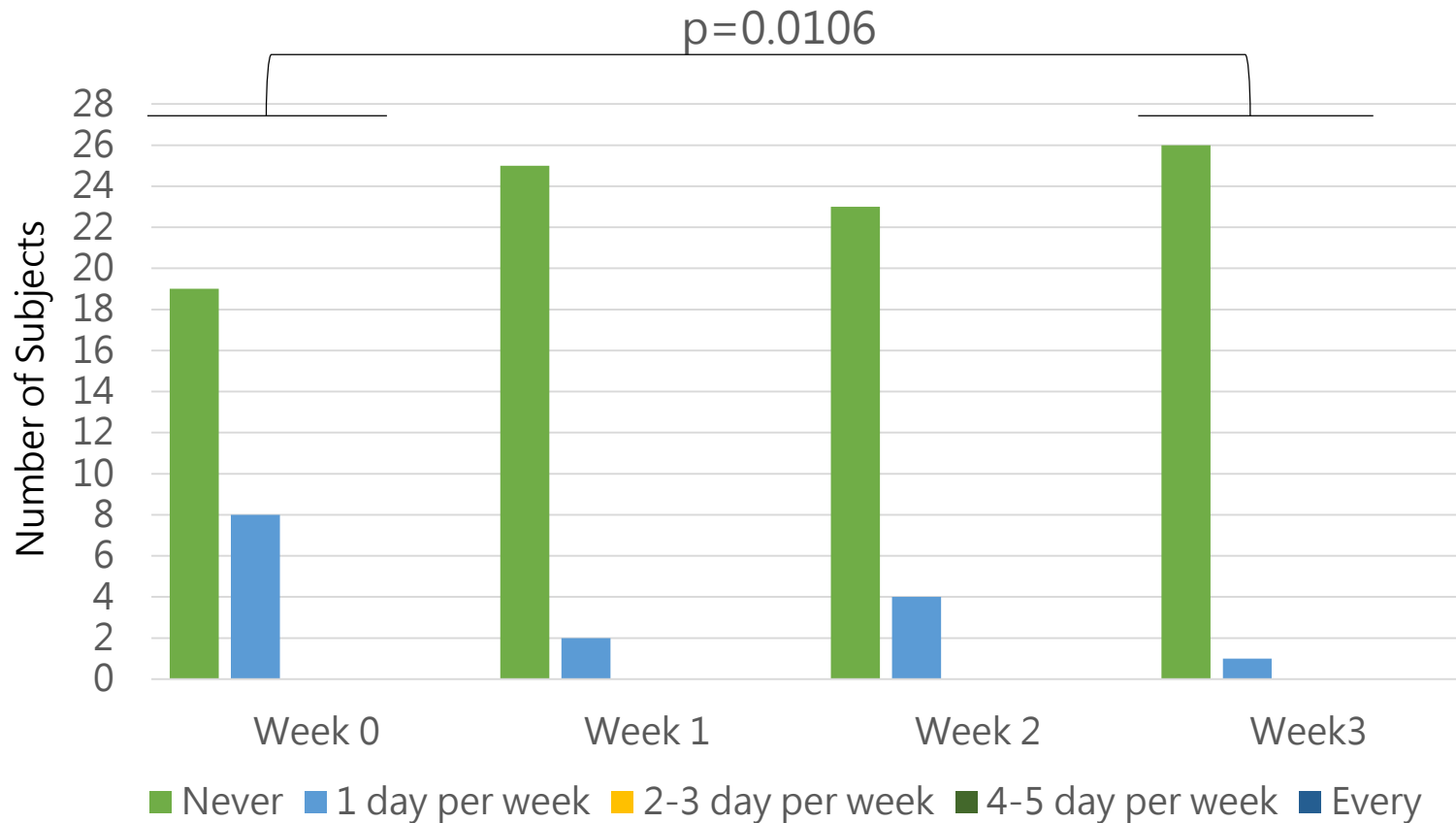
➤ Reduced poor appetite at fourth week

Chocking and difficulty in swallowing



➤ Significantly reduced chocking and difficulty in swallowing after 4 weeks

Feeling of nausea and vomiting



➤ Significantly improved the feeling of nausea and vomiting

AB-Kefir Probiotics



- Unique symbiotic fermentation technology can enhance product's stability



- Includes 28 types of free amino acids and over 5% of water soluble polysaccharide



- 7-strain formulation to improve gut microbiota and increase good bacteria



- Human trial approved to improve diarrhea, abdominal pain and floating



 **SYNBIO**
TECH.
Better Probiotic Better Life

*Thank
you!*



07-6955680



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