



Science Based Probiotics
for Targeted Health

kaneka
PROBIOTICS

Who is Kaneka

- Kaneka Corp (est. 1949)
- Osaka, Japan
- \$5+ Billion in Annual Revenue
- 9,600+ Employees
- Businesses:

Chemicals, Functional Plastics, Expandable Plastics and Products, Foodstuffs Products, Nutritionals, Life Science Products, Electronic Products, Synthetic Fibers and Others

Kaneka & AB-Biotics Strategic Partnership and Investment

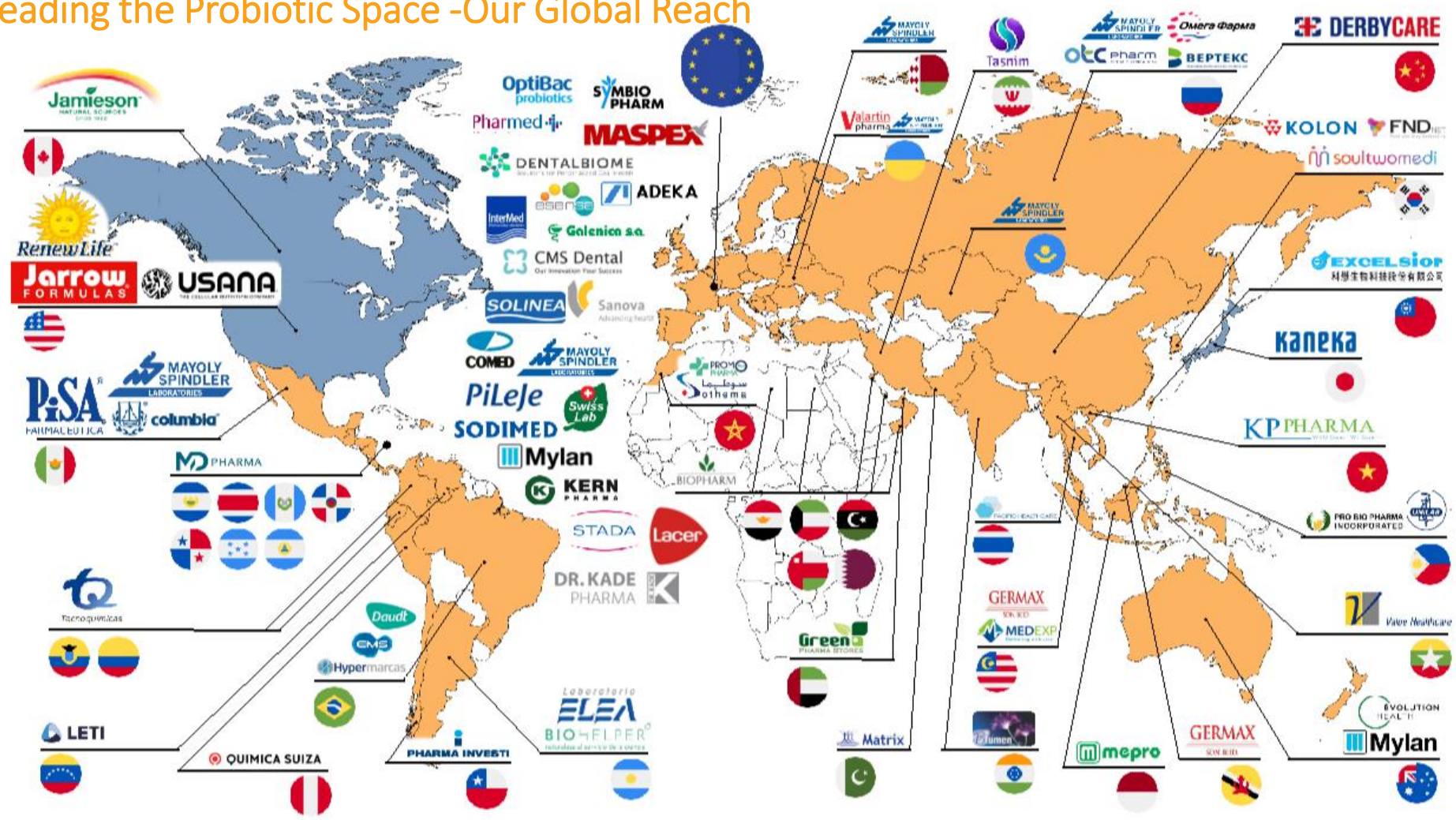
- Kaneka began the investment into AB-Biotics in 2018 and now owns a majority/controlling share (86.6%). AB-Biotics is a Spanish biotech company with 10+ years of research, development and distribution of Probiotic products.
- This culminated a multi year initiative by Kaneka to expand its nutritional business into the growing and developing probiotic market.
- Kaneka's expertise in fermentation, emphasis on clinical research and progress makes it an ideal strategic partner in this space.

KANeKA
P R O B I O T I C S



AB-BIOTICS

Leading the Probiotic Space -Our Global Reach






Populations in developed regions with modern lifestyles lack the necessary microbiome diversity contributing to health.



Uniquely Sourced Strains

- A Proprietary, Patented Strain Collection of more than 1,000+ different wild-type strains.
- Origin of Our Strains:
 - Remote Rural Areas
 - Non western-lifestyle – non compromised microbiome.
 - No use of antibiotics or modern hygienic products
 - Sourced from human microbiota



Uniquely Sourced
Strains
Uncompromised
Microbiome

| Floradapt Probiotic Formula | Strains Sourced From |
|--|--|
| Floradapt Gut Comfort | Young healthy children (0-5) in a tropical South American developing region |
| Floradapt Cardio | healthy infants in a tropical South American developing region |
| Floradapt Mature Immune Defense | Young healthy children (0-5) mostly fed with vegetables, in a tropical South American developing region |
| Floradapt Baby Colic, Floradapt Digest | Breast milk and fresh stool samples of healthy people and infants from a tropical South American developing region |
| Floradapt Gum Health | Saliva children (0-9 yrs.) from a tropical South American developing region |

The Kaneka Probiotics Approach

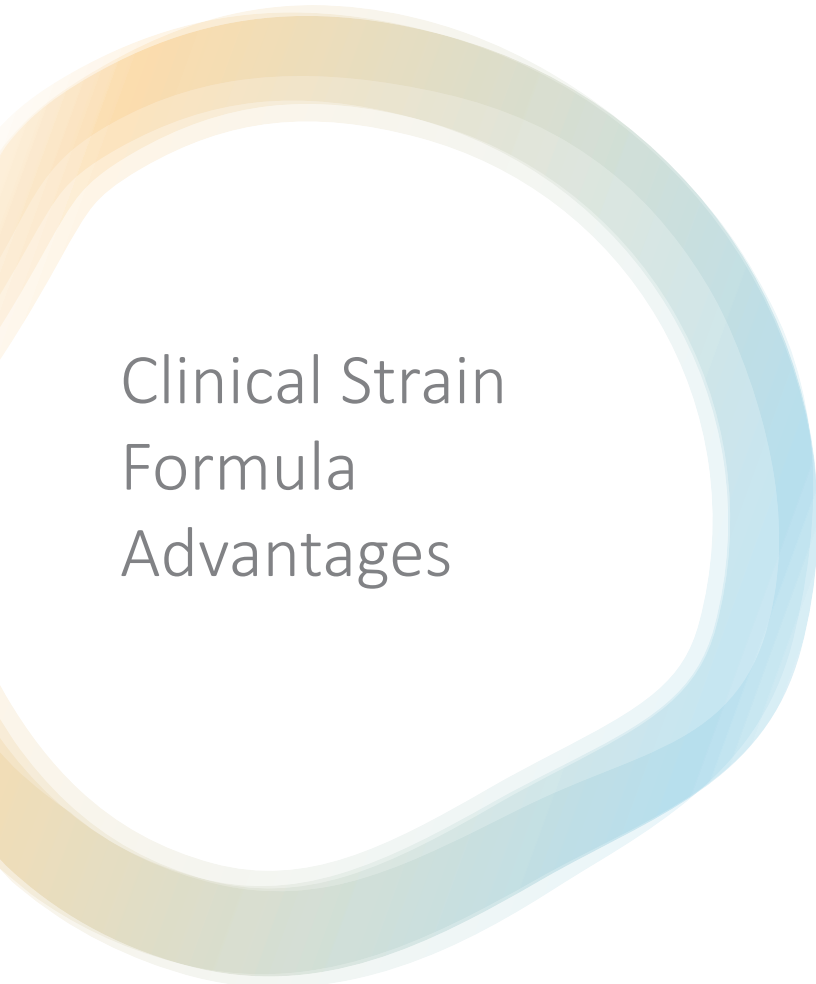
How to Select the Best Strains for Condition X

- Identify pathophysiology of condition X.
- Identify bacterial mechanisms of action (MoA) to target X condition (multiple).
- Select strains receptive to industrial production that excel at the given MoA.
- Verify safety of strains: absence of antibiotic resistances, GRAS status.
- Validate strains by means of randomized, double-blind, placebo controlled clinical trial.



The Advantage of Kaneka

- Science-based strains for a targeted health benefit.
- Formulated with proprietary strains, uniquely selected based on MoA.
- Peer reviewed clinical trials, double blind placebo controlled (gold standard).
- Utilize the actual dosage in the commercial finished product that was administered in the study.
- Shelf stable.
- 24 month stability
- The finished dosage contains the exact formulation, strains and potency used in the clinical trials.



Clinical Strain Formula Advantages

2 billion CFU vs. 20 Billion CFU

- The data and the dose are what matter! Is there clinical data supporting the combination of strains, in a specific modality?
- Are the CFU claims on pack accurate throughout the shelf life?
- Is the CFU level only “at time of manufacturing”?
- Is there published clinical data on the exact probiotic formula supporting health claims?
- Does the formula have verified real time stability?



Probiotic Ingredient Portfolio

| | | | | | |
|------------------------------|----------|---|---------------------------------|---|-------------------------------|
| L. Plantarum | KABP-011 | } | Cardio | } | Cholesterol |
| L. Plantarum | KABP-012 | | | | |
| L. Plantarum | KABP-013 | | | | |
| P. Acidilactici | KABP-021 | } | Gut Comfort | } | IBS, Gut Anxiety |
| L. Plantarum | KABP-022 | | | | |
| L. Plantarum | KABP-023 | | | | |
| P. Pentosaceus | KABP-041 | } | Baby Colic Digest | } | Colic and Kids Digestive |
| B. Longum | KABP-042 | | | | |
| L. rhamnosus GG (ATCC 53103) | | | | | |
| L. Brevis | KABP-052 | } | Gum Health | } | Gingivitis & Dental Plaque |
| L. Plantarum | KABP-051 | | | | |
| P. Acidilactici | KABP-053 | | | | |
| L. Plantarum | KABP-031 | } | Mature Immune Defense | } | Healthy Aging |
| L. Plantarum | KABP-032 | | | | |
| L. Plantarum | KABP-062 | } | Urinary Tract Vaginal Health | } | Women's Health |
| L. Plantarum | KABP-063 | | | | |
| L. Plantarum | KABP-061 | | | | |
| L. Plantarum | DR7 | } | Brain Mind | } | Gut-Brain |
| L. Plantarum | KABP-023 | | | | |
| L. Brevis | KABP-052 | | | | |

Under development

Floradapt Gum Health

Clinical Strains targeting Gum Health

L. plantarum CECT 7481

L. plantarum KABP-051

L. brevis CECT 7480

L. brevis KABP-052

P. acidilactici CECT 8633

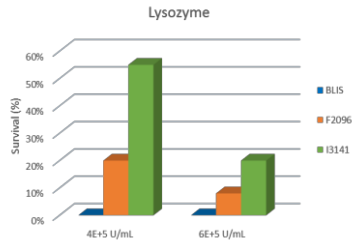
P. acidilactici KABP-053



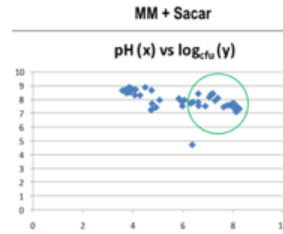
Floradapt Gum Health

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Mechanism of action



Survival to oral conditions and binding to epithelium



Low acidogenic activity



Absence of volatile sulfur compounds



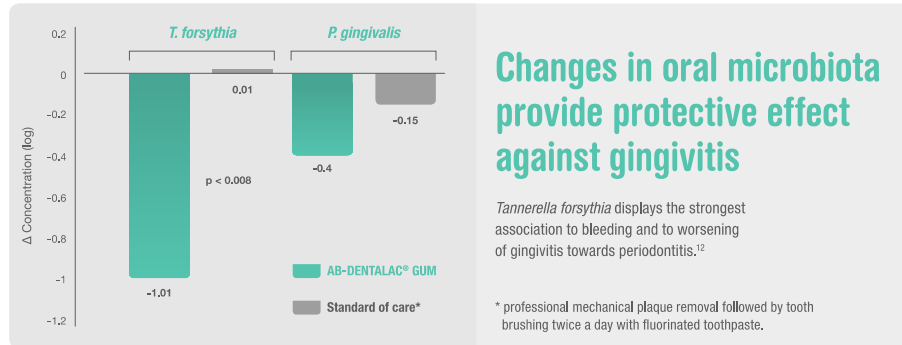
Inhibition of pathogens

| | Antagonism vs. Gingivitis pathogens | Caries prevention | Halitosis prevention | Antiseptic resistance |
|---|-------------------------------------|-------------------|----------------------|-----------------------|
| <i>Lactobacillus plantarum</i> CECT 7481 ^{a,b} | ● | ●●● | ●●● | ●● |
| <i>Lactobacillus brevis</i> CECT 7480 ^{a,b} | ● | ●●● | ●●● | ●● |
| <i>Pediococcus acidilactici</i> CECT 8633 ^b | ●●● | ●● | ●● | ●●● |

a: AB-Dentalac®; b: Dentalac® Gum * Relevance rating from ● to ●●● for the highest

Floradapt Gum Health

Clinical results



Floradapt Gum Health

Main product advantages



L. plantarum KABP-051
L. brevis KABP-052
P. acidilactici KABP-053

- ✓ Reduces Key pathogens in the mouth; Tannerella forsythia & Porphyromonas gingivalis
- ✓ Clinically tested to be released from gum and achieve colonization
- ✓ Patented probiotic formula specifically targeting dental health
- ✓ Promotes a healthy oral microbiome



BLIS K12™
Streptococcus salivarius K12

- ✗ No efficacy in reducing pathogens that cause gingivitis
- ✗ Marketing as general oral health due to lack of specific dental health benefits
- ✗ No effect on oral microbiome

Floradapt Gum Health

Take-home messages

- 1) Significant reduction in levels of key pathogenic species *Tannerella forsythia* and *Porphyromonas gingivalis* in humans.
- 2) Strains clinically tested to be released from gum and achieve colonization.
- 3) Significant reduction of dental plaque in chewing gum with probiotic compared to placebo chewing gum. Correlated with the levels of *Lactobacilli*.