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New *ex vivo* trial in collaboration with The University of Bologna shows molecular mechanisms by which AB-BIOTICS & KANEKA PROBIOTICS' KABP® Intensive G.I. probiotic blend may help restore compromised intestinal barrier function.

New mechanistic study reports that AB-BIOTICS' and KANEKA PROBIOTICS' KABP® Intensive G.I. probiotic blend restores intestinal permeability alterations caused by irritable bowel syndrome (IBS) mediators in an ex vivo model.[1]

Barcelona, Spain (1 April 2025) – A new study from AB-BIOTICS and KANEKA PROBIOTICS has added to the growing body of evidence for an innovative probiotic blend's beneficial role for intestinal barrier integrity in gut-brain disorders like IBS.[1] Examining AB-BIOTICS' and KANEKA PROBIOTICS' KABP® Intensive G.I. blend, comprising the strains *Pediococcus acidilactici* KABP® 021 (CECT 7483), *Lactiplantibacillus plantarum* KABP® 022 (CECT 7484) and *Lactiplantibacillus plantarum* KABP® 023 (CECT 7485), researchers were also able to clarify the molecular mechanisms of action on intestinal permeability.[1] The study, published in Gut Microbes, was conducted in collaboration with the Gastroenterology Unit of University of Bologna, Italy, and led by renowned gastroenterologist Professor Giovanni Barbara, MD and Dr. Maria Raffaella Barbaro, PhD.

Using a special *in vitro* experiment – often referred to as "*ex vivo*" – real IBS patient biopsies were used in the study, in addition to laboratory cell lines in order to provide a more realistic model and to incorporate natural patient variability in the experiment. Incubation of these *ex vivo* cells with AB-BIOTICS' and KANEKA PROBIOTICS' KABP® Intensive G.I. probiotic blend resulted in reinforced barrier function, restoring it to levels comparable to that of the healthy controls after just three hours.[1]

The cells incubated with *P. acidilactici* KABP® 021, *L. plantarum* KABP® 022 and *L. plantarum* KABP® 023 also showed increased expression of genes associated with the actin cytoskeleton (β-actin) – a crucial structure that maintains the shape and function of intestinal cells – and gut detoxification via CYP1A1,[1] an essential enzyme that breaks down toxins and harmful compounds present in the diet or produced during inflammation.[2] These findings suggest that the KABP® Intensive G.I. probiotic blend may be able to reprogram gene expression in the intestinal cells of IBS patients in order to restore intestinal permeability.

Additionally, metabolomic analysis of *P. acidilactici* KABP® 021, *L. plantarum* KABP® 022 and *L. plantarum* KABP® 023 revealed that all three strains produced high levels of indole-3-lactic acid, a molecule also known to activate CYP1A1 expression.[1]

"*We are thrilled to announce the groundbreaking results of this study, made possible by the collaboration with Professor Barbara and the Gastroenterology Unit of University of Bologna*," comments Jordi Espadaler-Mazo, Director of Innovation at AB-BIOTICS. "*These new findings reinforce previous clinical evidence which showed that our KABP® Intensive G.I. probiotic blend helps reduce stress-induced abdominal symptoms and improves the quality of life for IBS patients.*[3,4,5] *Through this research partnership, and others like it, we are excited to continue building the science and understanding behind*

the role of probiotics in conditions of the gut-brain axis – revealing opportunities to transform peoples' lives."

Espadaler-Mazo explains, "*The strains in KABP® Intensive G.I. were specifically selected for their potential to target the key pathophysiological factors of IBS, namely increased intestinal permeability, inflammation and IBS-specific gut dysbiosis. Understanding more about how these strains restore the intestinal barrier by evaluating their effects on intestinal cells is central to our precision probiotics approach, and further builds the body of evidence for next generation solutions to alleviate the effects of IBS and other functional gastrointestinal disorders.*"

The latest study substantiates the existing robust clinical evidence for the high efficacy of *P. acidilactici* KABP® 021, *L. plantarum* KABP® 022 and *L. plantarum* KABP® 023 strains in KABP® Intensive G.I. in alleviating the effects of IBS, lactose intolerance and stress-related diarrhea, as measured by industry recognized diagnostics as well as IBS quality of life scores, abdominal hypersensitivity and stool consistency.[3,4,5,6] Research also indicates that the strains help activate cytoprotective pathways in the gut epithelium that lead to improved barrier integrity, as well as producing high levels of anti-inflammatory metabolites and antimicrobial factors known to target IBS-associated bacteria and other enteropathogens.[7]

The importance of barrier function in IBS

IBS is a common and complex disorder of the gut-brain axis, which may affect up to 10% of the global population.[8] The condition causes gastrointestinal disturbances, changes in bowel movements and severe abdominal pain and discomfort, which greatly reduce quality of life for those affected. One of the many factors of IBS pathophysiology is increased intestinal permeability, leading to impaired intestinal barrier function and allowing harmful molecules to enter the bloodstream.

Probiotic supplementation is often used as an adjuvant treatment for individuals with IBS,[9] supporting through a number of mechanisms. The KABP® Intensive G.I. probiotic blend has been shown in clinical trials to modulate the gut-brain axis, reducing IBS-like symptoms in both patients and healthy subjects.[3,4,5] This new study further clarifies the mechanism by which KABP® Intensive G.I. could confer these benefits for people affected by IBS.

To learn more about KABP® Intensive G.I. and other precision probiotic formulas for gastrointestinal health from AB-BIOTICS' and KANEKA PROBIOTICS', visit: Probiotics for Gastrointestinal health — AB-BIOTICS

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About Kaneka Probiotics

The Kaneka Probiotics portfolio includes formulations for Immune, Upper Respiratory Tract, Digestion, GI Health, Oral-Gum Health, Baby Colic, Women's, Gut-Brain Axis, Cardiovascular, and Stress/Mood/Anxiety. We are committed to quality, innovation & science and have 20+ studies that are ongoing for areas in Sports Nutrition, Gut Health [or Permeability], Nutrition Absorption, Halitosis, and many other disciplines.

Editor's note: AB-BIOTICS is an affiliate company of Kaneka that manufactures and distributes probiotic solutions globally. Products are available in the North American and Japanese markets under the Kaneka Probiotics brand.

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