PRESS RELEASE

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COVID-19. A probiotic formula reduces symptom duration and viral load, increases antibodies, and improves remission rate among patients with mild symptoms. The study conducted by AB-BIOTICS published in the scientific journal *Gut Microbes* demonstrates the benefits of the AB21 probiotic formulation, which acts on the immune system via the crosstalk between intestinal and pulmonary tissues

- After administering the probiotic formulation, complete remission from COVID-19 was achieved by 53.1% of patients in the probiotic group within 30 days, compared to 28.1% of patients in the placebo group. A significant increase in specific IgM and IgG antibodies against SARS-CoV2 was also recorded.
- The study throws new light on the importance of the gut-lung axis for the immune system, and supports the hypothesis that specific probiotic strains have an antiviral action.
- To date, there is no approved probiotic-based treatment for COVID-19. Should these results be confirmed by further studies, new scenarios could open up.

A new contribution to the fight against COVID-19 could come from **probiotics**. This is the conclusion suggested by a study conducted by **AB-BIOTICS**, a Spanish biotech company that is part of the Japanese multinational **Kaneka**, published in the prestigious scientific journal ***Gut Microbes***, a top journal reporting the latest science in microbiota. According to the research, the **AB21 formula**, consisting of four specific probiotic strains, produces significant positive effects in **COVID-19 outpatients**, with **benefits on remission rate, symptom duration and viral load**. These outcomes are the result of the interconnection between intestinal microbiota and pulmonary immunity referred to as the **gut-lung axis (GLA)**, where bacteria from the intestinal flora in our body cooperate with our immune mechanisms to protect us from infections.[1]

The study demonstrates that administering specific probiotic strains can strengthen these viral defence mechanisms. This is an interesting discovery which might open the floor to new options for treating COVID-19 patients with mild symptoms, and which offers scope for further study. At the present time, there are only a few observational and retrospective studies but no randomized placebo-controlled studies on this subject. [2,3] Hence, to date there is no approved or recommended probiotic-based treatment to treat or prevent COVID-19, but if this data were to be confirmed by further research, new scenarios could open up.

These encouraging results come from a study involving 293 non-hospitalized patients diagnosed with mild SARS-CoV-2 aged 18-60 years, of whom 126 (42%) had known risk factors like diabetes and/or hypertension; 147 patients were treated with AB21 and 146 were given a placebo.

AB21 was administered once a day for 30 days. AB21 is a **four-strain probiotic** composition consisting of three *Lactiplantibacillus plantarum* (KABP022, KABP023 and KABP033) strains and one *Pediococcus acidilactici* (KABP021) strain. At the end of the 30-day observation period, 53.1%

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[1] Panwar, RB et al. *Genes Immun* **22,** 255–267 (2021). https://doi.org/10.1038/s41435-021-00129-5

[2] Ceccarelli G et al. *Front Nutr*. 2021;7:613928. doi:10.3389/fnut.2020.613928

[3] Gutiérrez-Castrellón P. et al. *Gut Microbes*, 14:1, 2018899, DOI: 10.1080/19490976.2021.2018899

of patients in the probiotic group achieved complete remission (complete elimination of symptoms and viral load), compared to 28.1% in the placebo group – a statistically significant difference. Moreover, significant effects were also observed in the reduction of symptom duration, viral load and lung infiltrates, alongside an **increase in specific IgM** (Immunoglobine M) and **IgG** (Immunoglobine G), **antibodies against SARSCoV2**. At the same time, no significant changes were detected in fecal microbiota, suggesting that the probiotic formula influenced the gut-lung axis primarily through stimulating the host's immune system rather than by altering the composition of colon microbiota.

In other words, **with the AB21 probiotic formulation**, **COVID-19 symptoms seem to have a shorter duration, the viral load is reduced, antibodies increase** and adverse events, mainly consisting of digestive complaints, are marginal. Indeed, detailed analyses of the available studies have suggested that oral probiotics may play a role in respiratory infections such as cold and influenza.[4,5] It is important to note that no COVID-19 aggravations requiring hospitalization or ICU admission or resulting in death occurred during the study. Thus, the usefulness of this probiotic in preventing COVID-19 aggravation or death could not be directly assessed. Furthermore, the study was conducted in a single centre, and all the subjects were of Hispanic ethnicity and aged between 18 and 60 years. Further studies on different ethnic populations and different age groups will therefore need to be conducted in the future. Importantly, the probiotic immune effects reported in the study cannot be extrapolated to other probiotic formulations, because of the specific strains used[6,7,8].

The **AB21 formula, with added Vitamin D** to contribute to the normal functioning of the immune system, is contained in a food supplement already marketed in Italy, France, Spain and Portugal by **Zambon**, a multinational pharmaceutical company committed to innovation and development for the improvement of patients' quality of life and people's health.

"*The positive findings reported by this study are an important step forward in our continued efforts to support COVID-19 patients* – **commented Pedro Gutiérrez-Castrellón, MD, MSc, DSc, Hospital General Dr. Manuel Gea González. Sec. Salud. Mexico**. *Few trials to date have found effective approaches for reducing symptom duration and viral load in COVID-19 outpatients. Therefore an oral probiotic that helps to reduce viral load, lung infiltrates and symptom duration – like the AB21 probiotic intervention trialled in this study – could help to support COVID-19 outpatients more cost-effectively, and in addition to standard recognized therapies."*

The study:
Gutiérrez-Castrellón P. et al. Gut Microbes, 2022 ; 14:1, 2018899, DOI: 10.1080/19490976.2021.2018899
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8757475/

For further information, please contact:

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[4] King S et al. Br J Nutr. 2014;112:41–54. doi:10.1017/ S0007114514000075

[5] Hao Q et al. Cochrane Database Syst Rev. 2015;2015:CD006895. doi:10.1002/14651858. CD006895.pub3

[6] Paineau D et al., 2008 DOI:10.1111/j.1574-695X.2008.00413.x

[7] Hill, C. et al. Nat. Rev. Gastroenterol. Hepatol. 11, 506–514; doi:10.1038/nrgastro.2014.66

[8] Zhao W et al., 2021, Front. Immunol. 12:643420. doi: 10.3389/fimmu.2021.643420

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About AB-BIOTICS

AB-BIOTICS is a Spanish biotech company which is part of the KANEKA Group. AB-BIOTICS focuses on research, development, protection, and distribution of its own solutions, which contribute to improving people's health and wellbeing. It has 2 divisions:

1. Functional Ingredients: probiotics and other nutraceuticals for pharmaceutical and food sectors.

2. Genetics: genetic analyses for conducting pharmacogenetic studies which provide specialists with more information about the most effective therapies and doses for each patient.

About Kaneka

Kaneka Corporation, established in 1949, is a leading technology-driven company, headquartered in Osaka and Tokyo, Japan. Aligned with the global business strategy, Kaneka focuses its activities on four strategic solutions units: materials, quality of life, health care and nutrition.

Kaneka is committed to promoting business development to provide solutions that support healthy and energetic lives.

About Zambon S.p.A.

Zambon is a pharmaceutical multinational company committed to innovating cure & care to improve patients' lives. With ambitious plans for growth, its goal is to improve people's health through the development of innovative and quality medicines. Zambon products are commercialized in 87 countries. The company has 23 subsidiaries in three different continents – Europe, America and Asia – and owns manufacturing units in Italy, Switzerland, China and Brazil. The company has taken now a new role in the industry On top of the diseases of the respiratory system, the urological system and Pain, Zambon is establishing a global pipeline and introducing important treatments for serious illness such as Parkinson's Disease, Cystic Fibrosis, BOS and NCFB. Zambon was established in 1906 in Italy and today counts around 2,398 employees all over the world. For further information please visit www.zambon.com