



## Probiotic Pioneer



### Danone: 100 years of pioneering gut microbiome and probiotic research

Danone was founded over 100 years ago on a breakthrough concept of the time: that fermented foods and the bacteria they contained could target the gut and its microbiome to bring health to all.

Studies show that our bodies host trillions of microorganisms which are vital to our well-being, and may influence how we sleep and even our energy levels.<sup>1,2</sup> To help support our ecosystem of gut microbes, probiotics found in certain foods, like yogurt, may help.<sup>3</sup>

Danone continues to place the gut and its microbiome at the core of its health strategy to deliver the company’s mission of “bringing health through food to as many people as possible”.

### Simple beginnings: isaac carasso and the first Danone yogurt

It all began when Isaac Carasso, a prominent Greek businessman, and his family traveled to Spain and was disturbed by the levels of malnutrition and intestinal disorders among local children. Concerned for their health and of his young son Daniel, he set out to make a difference.

Inspired by the earlier research of Metchnikoff, who believed that human life can be enhanced with the introduction of Lactobacilli found in yogurt and sour milk into the gut,<sup>5</sup> Isaac mixed fresh milk with ferments to create the first Danone yogurt- a food that is common in Greece, but not in Spain. He sold his yogurt as a health food to pharmacies across the city. He officially registered this yogurt adopting his son’s nickname in Catalan which is ‘Danon’ and added an ‘e’ to make it sound like a product at that time.

Two decades later Danone grew rapidly in popularity in both Spain and in France when Daniel, who studied bacteriology at Pasteur Institute in France, decided to open his first retail outlet on the rue Andre Messager in Paris, introducing Danone yogurt to people all over France.





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## Bringing the gift of yogurt and probiotics to America

In 1941, Daniel and his wife settled across the Atlantic in New York and bought a small yogurt shop in the Bronx. Like his success in Europe, his yogurt was highly regarded due to its good quality and taste.

Danone’s commitment to bringing health through food continued over the next several decades and led to the production of two probiotic-containing fermented milks – one containing *Bifidobacterium lactis* CNCM I-2494 and another containing *Lactobacillus casei* CNCM I-1518.

Up to this day, one simple yogurt brought to the United States by Daniel Carasso has become a household staple under the Danone brand. The Carasso family’s commitment to the promotion of scientific research and the belief that one’s health and well-being starts in the gut is reflected in Danone’s commitment to inspire better choices through a portfolio of health-focused products that include the yogurt brand, Activia®.

## Activia: continuing the probiotic legacy and research

Activia has been pioneering probiotic research for over 20 years with more than 18 clinical studies. As part of the Danone family of brands, Activia believes that an individual’s well-being starts in the gut. Activia supports gut health by offering delicious probiotic products.

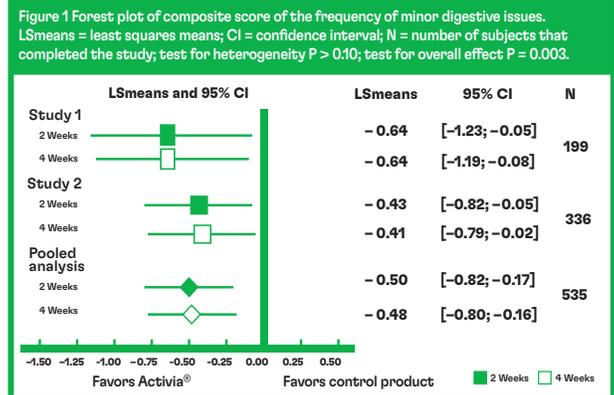
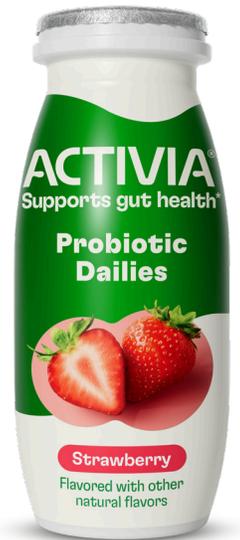
In 2020, Danone North America and probiotic brand Activia® funded research at Rutgers University’s Center for Advanced Biotechnology and Medicine to explore the link between the oral and gut microbiome and the severity of COVID-19. The microbiome study is part of a series of clinical trials of US healthcare workers exposed to COVID-19 – one of the nation’s largest prospective studies on the topic.

## Activia may help reduce the frequency of minor digestive discomfort.\*

Activia contains 4 live and active cultures as well as our exclusive probiotic *Bifidobacterium animalis lactis* DN-173 010/CNCM I-2494.

Two double-blind, randomized, placebo-controlled studies, and a pooled analysis of these studies, show that Activia may help reduce the frequency of minor digestive discomfort.<sup>6,7\*</sup>

Both studies investigated the effect of Activia on various GI outcomes, including GI well-being and frequency of minor digestive discomfort, in healthy women. In both studies, and in the pooled analysis, the composite score of the frequency of minor digestive issues over the two-<sup>8</sup> and four-week<sup>2,3</sup> test periods in the Activia group was significantly lower ( $P < 0.05$ ) than in the control group.



\*Consume twice a day for two weeks as part of a balanced diet and healthy lifestyle. Minor digestive discomfort includes bloating, gas, abdominal discomfort, and rumbling.



ACTIVIA®

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### The making of a probiotic pioneer

1857

Louis Pasteur discovered fermentation by lactic acid bacteria. Pasteur demonstrated that the lactate produced during fermentation inhibited the growth of pathogens and avoided food spoilage.<sup>9</sup>

1899

Henri Tessier, a pediatrician from the Institut Pasteur, discovered *Bifidobacterium bifidum* in fecal samples of breast-fed infants and reported that the bacteria could be used to help prevent babies from developing diarrhea.

1908

Russian-born biologist and Nobel prize recipient Élie Metchnikoff observed that food could be used to beneficially modulate the gut flora, in particular the bacteria contained in fermented foods.<sup>10</sup> He worked to isolate pure cultures from a sample of Bulgarian fermented milk, among them *Lactobacillus bulgaricus* and *Streptococcus thermophilus*, the two species used today to produce yogurt.

1916

Isaac Carasso and his family traveled to Spain and was disturbed by the levels of malnutrition and intestinal disorders among local children. Concerned for their health and of his young son Daniel, he set out to make a difference.

1919

Through experimentation Carasso mixed fresh milk with ferments isolated at the Institut Pasteur to create the first Danone yogurt – named after his son, Daniel. The yogurt was packaged in porcelain pots and was sold as a health food to pharmacies across the city.

1929

Daniel Carasso, who studied bacteriology at Pasteur Institute in France, joined the family business and successfully expanded Danone yogurt across France.

1941

Daniel moved the family business to the United States. Following WW1 and WW2, yogurt was consumed as a way of providing healthy nutrients through fermentation. His yogurt was highly regarded due to its good quality and taste.

1987

Danone started the production of two probiotic-containing fermented milks with *Bifidobacterium lactis* CNCM I-2494 named Activia® and *L. casei* CNCM I-1518 named Actimel®. Numerous probiotic studies were launched, resulting in more than 40 peer-reviewed scientific publications.

2008

Danone Nutricia Research joined the MetaHIT consortium (Metagenomics of the Human intestinal Tract, a project financed by the European Commission, 2008–2012) and Human Microbiome Project (2007–2013), which have led the way and developed bioinformatics tools and concepts that have unlocked microbiome research.

2013

Danone Nutricia Research and collaborators from UCLA<sup>11</sup> published the first gut–brain probiotic clinical trial with Activia®.

2020

Danone North America and probiotic brand Activia® funded research at Rutgers University's Center for Advanced Biotechnology and Medicine to explore the link between the oral and gut microbiome and the severity of COVID-19.