



29 October 2017

Press release Dutch Food CRC NIZO presents microbiome capability with the Holland Pavilion at BioJapan 2017.

NIZO, the Dutch food contract research company is showcasing its integrated approach to understanding and modulating the human microbiome as part of the Holland Pavilion at BioJapan 2017, Yokohama.

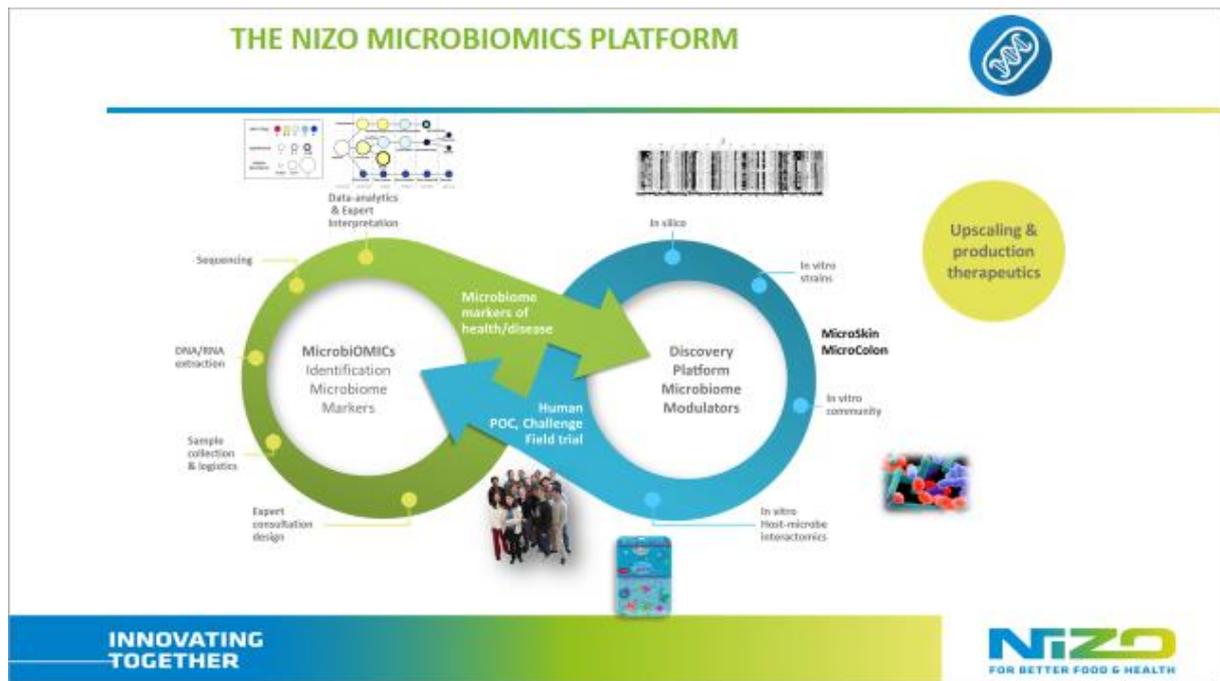
NIZO has extensive experience working with bacteria gained over 70 years of industry-orientated research, moving from the study of the mixed populations of strains used in dairy starter cultures, through to study of human microbiome niches such as the intestinal tract, skin and vagina.

NIZO has developed a fully-integrated approach that allows their clients to go from start to finish with NIZO – or to work with NIZO on a specific part of their development pipeline. We have several in silico and high-throughput in vitro micromodel systems of different ecological human niches and microbe–host cell interaction models, enabling the discovery of microbiome modulators affecting metabolic activity, key community members, population structures and health-promoting metabolites. The integrative approach, from study design to interpretation of the data, ensures that solid conclusions can be drawn from the data generated from complex genomics projects, to identify and validate intervention targets for gut or skin health.

For the interpretation of these complex data we use various analysis and visualization tools designed for the analysis of genomics data. These tools can also be applied to other large, complex datasets (big data). In addition, text-mining algorithms developed by our experts are used to complement the conclusions from microbiota and genomics studies with scientific literature or patent databases. Coupled with the knowledge of NIZO experts in the field of fermentation, gut health and immunity and food safety this results in solid conclusions on the relation of the microbiota to a food product or (human or animal)

The platforms for identification of microbiome biomarkers and discovery of modulators are linked for efficiency, and NIZO is also able to provide upscaling and production of potential therapeutics for clinical studies etc.

The NIZO microbiomics platform is shown in the diagram below:



Most NIZO projects are confidential one-to-one projects with clients across the food, personal care and biopharma industries. Even so, NIZO is able to demonstrate its capabilities through collaborations with academic partners, such as the following topics:

- **Gut microbiome in ADHD and its relation to neural reward anticipation**
 Aarts E, Ederveen THA, Naaijen J, Zwieters MP, Boekhorst J, Timmerman HM, et al. (2017) Gut microbiome in ADHD and its relation to neural reward anticipation. PLoS ONE 12(9): e0183509. <https://doi.org/10.1371/journal.pone.0183509>
- **Intestinal colonisation patterns in breastfed and formula-fed infants during the first 12 weeks of life reveal sequential microbiota signatures.**
 Timmerman HM, Rutten NBMM, Boekhorst J, Saulnier DM, Kortman GAM, Contractor N, Kullen M, Floris E, Harmsen HJM, Vlieger AM, Kleerebezem M, Rijkers GT Sci Rep. 2017 Aug 21;7(1):8327. doi: 10.1038/s41598-017-08268-4.
- **Microbiome dynamics of human epidermis following skin barrier disruption.**
 Zeeuwen PL, Boekhorst J, van den Bogaard EH, de Koning HD, van de Kerkhof PM, Saulnier DM, van Swam II, van Hijum SA, Kleerebezem M, Schalkwijk J, Timmerman HM. Genome Biol. 2012 Nov 15;13(11):R101. doi: 10.1186/gb-2012-13-11-r101.
- **The adult nasopharyngeal microbiome as a determinant of pneumococcal acquisition.**
 Cremers AJ, Zomer AL, Gritzfeld JF, Ferwerda G, van Hijum SA, Ferreira DM, Shak JR, Klugman KP, Boekhorst J, Timmerman HM, de Jonge MI, Gordon SB, Hermans PW. Microbiome. 2014 Dec 15;2:44. doi: 10.1186/2049-2618-2-44. eCollection 2014.

About NIZO

NIZO is world leading in contract research for better food and health. We operate one of the most advanced R&D centers in the world and bring the latest food technologies to life in our food grade processing center. We focus on the development and applications of innovations for the global food and health industry.

Our customers value their gains in product quality, sustainability, cost effectiveness and speed to market. We are continuously looking for new ways of improving food products, and at the same time quality of life. NIZO is a private and independent contract research and manufacturing company, with headquarters in Ede, the Netherlands.

For more information, please contact:

Marc Goemans, COO , Marc.Goemans@nizo.com

Daphne Koeman, Marketing & Communication, T: +31 318 659 626, E: daphne.koeman@nizo.com