

# Gut Health & Immune Defense

*Foods offering health claims are especially attractive to consumers and can translate into higher sales volumes and premium prices. Almost 90% of people say they consume or are interested in products that improve immunity.*

*With our large array of research models, solid track record, and dedicated experts NIZO is a key research partner in the field of nutritional modulation of gut health & immunity.*

*Team up with NIZO and together we will bring your functional food ambitions to the next level!*



## Your next level in...

### Concept development

Develop new concepts centred around your ingredients, products, and/or brands by using our expertise in nutrition, gut physiology & immunity.



### Ingredient screening

Quickly determine and/or benchmark the potential of your ingredients or products in *in vitro* efficacy studies.

### Proof-of-principle assessment

Obtain first proof of efficacy of your ingredient or product before deciding on a nutritional intervention study.

### Building health claims

Tightening of legislation requires evidence based health claims. NIZO can assist you by showing clear health benefits in your target population as well as by clarifying the underlying mode of action.

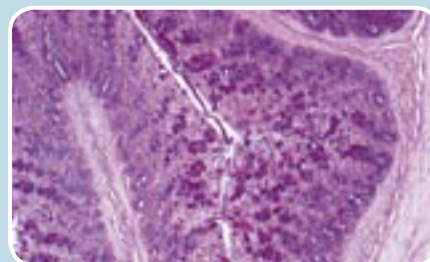


### Why NIZO?

- 60+ years experience
- Extensive knowledge on the interplay of nutrition, gut health & immunity
- *In vivo* challenge models
- Human volunteer studies
- *In vitro* screening models

*“Promoting human health via the gastro-intestinal tract is without doubt within the reach of food industries”,* says Dr. Tim lambers at NIZO food research





### Our in vivo research models:

#### Gut health

- Microbiota composition
- Infections (Challenge models Heliobacter, ETEC, Listeria, Salmonella)
- Antibiotic-associated diarrhoea
- Cell culture infection models
- Gut development and differentiation models

#### Gut barrier integrity

- Intestinal permeability and integrity
- Inflammation (DSS, TNBS, HLA)
- Colon cancer
- Gastrointestinal output

#### Immune modulation

- Vaccination
- LPS challenge
- Cytokine profiling
- Cell differentiation/functioning

#### Respiratory health

- Influenza
- Common cold

#### Oral health

- Breath analysis
- Microbiota

## What we offer

#### Consultancy

- Expertise on nutrition, nutrient sensing and gut physiology
- Literature review and expert recommendations
- Health claim opportunities

#### Key achievements

- Complete health claim dossier for calcium and resistance to gut infections
- 70+ peer-reviewed publications

#### Ingredient screening

- Simulation of G.I. digestion (SIMPHYD)
- Fermentation profiling
- Antimicrobial activities
- Immune modulation
- Pre- and probiotic potential
- Gut integrity and differentiation
- Cytotoxicity

#### Proof of principle assessment

Research models for:

- Gut health
- Gut barrier integrity
- Immune modulation
- In vitro and in vivo research models for: Respiratory health

#### Building health claims

- Nutritional intervention trials
- Unique traveller's diarrhoea trial
- Human volunteer database
- 'Cause and effect relation' support studies
- Extensive network of partners
- Design and production of test products in food-grade pilot plant

#### Technologies

- Biomarker analysis and development
- High throughput sample processing (e.g. faeces, blood and urine)
- Broad set of microbiota characterisation technologies

#### About NIZO food research

NIZO food research is a leading, independent contract research organization located in 'Food Valley', the Netherlands. Our services support your innovations (flavour, texture, health), cost management (process efficiency, ingredient replacement, test productions), and responsible entrepreneurship (food safety and quality, sustainability, evidence-based health claims). **Creating benefits together with you**

#### For more information, please contact:

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