

Science and Nutrition continue to build the future of Danone Dairy growth



Frédéric René, PhD, HDR - Dairy R&D VP

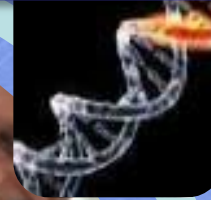
The understanding of FOOD impact on HEALTH is constantly increasing

Macro Nutrients



Kilo calories
Prot, Glu, Lip
H₂O

Genetic specificity



Micro Nutrients

Vitamins, amino acids,
Oligominerals,
polyphenols,

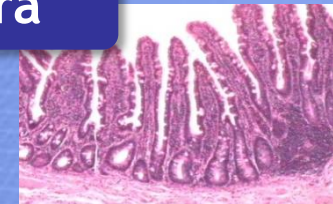
Probiotics



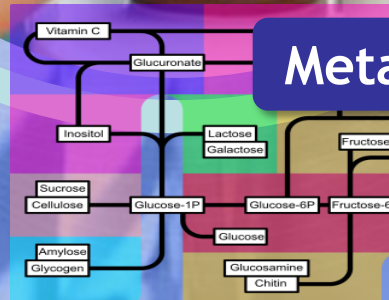
Physiology

Science of functioning
of living systems

Flora



Metabolism

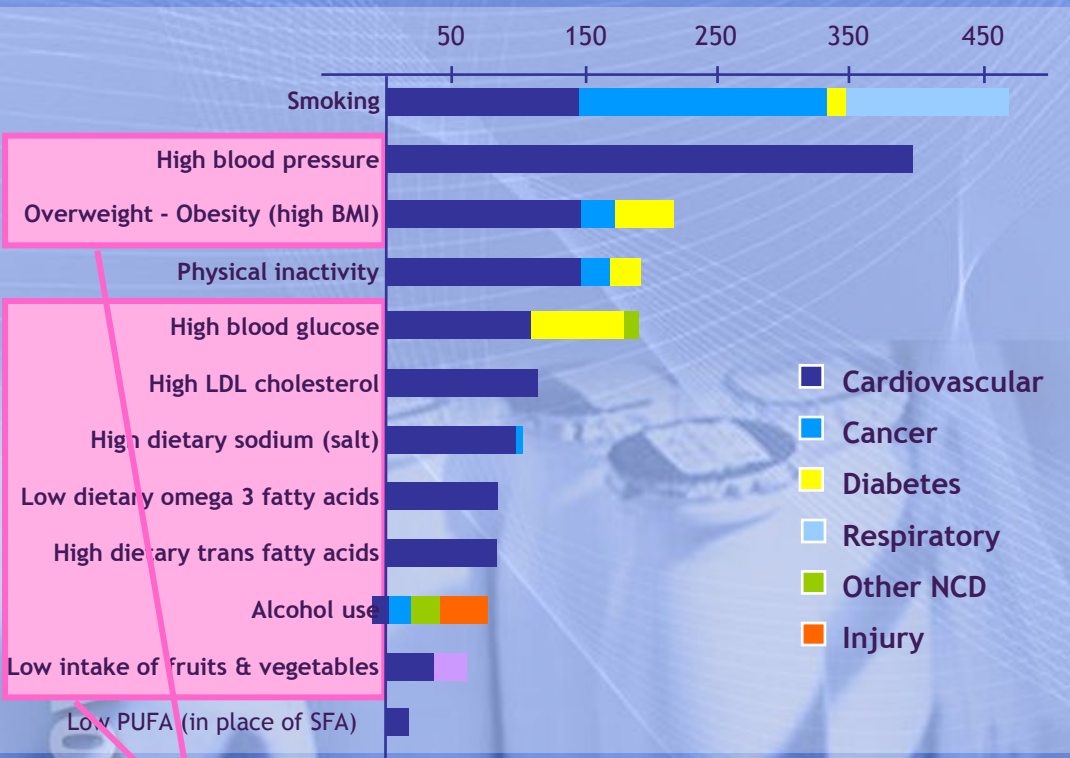


Innovation

Increasing evidence and awareness of the impact of inadequate dietary intakes

Most of the individual risks are linked to inadequate dietary intakes

Death attributable to individual risks (thousands):



Dietary determinant involved

Increase of allergic & auto-immune diseases



Prof. J-F Bach

“Epidemiologic data provide strong evidence of a steady rise in the incidence of allergic and autoimmune diseases in developed countries over the past three decades.

(...)

Concomitantly, there has been an obvious decrease in the incidence of many infectious diseases in developed Countries.”

Increasing evidence of the role of macro-biota, and interaction with food

The Intestine: a “smart” organ

60 to 70% of our
immune cells

Surface of ab.
300m²



10 times more bacterias
than cells in whole body

3 times more neurons
than the brain

“We can’t take nutrition properly without bacteria. We can’t fight bad germs without good germs.”

B. Birren, PhD

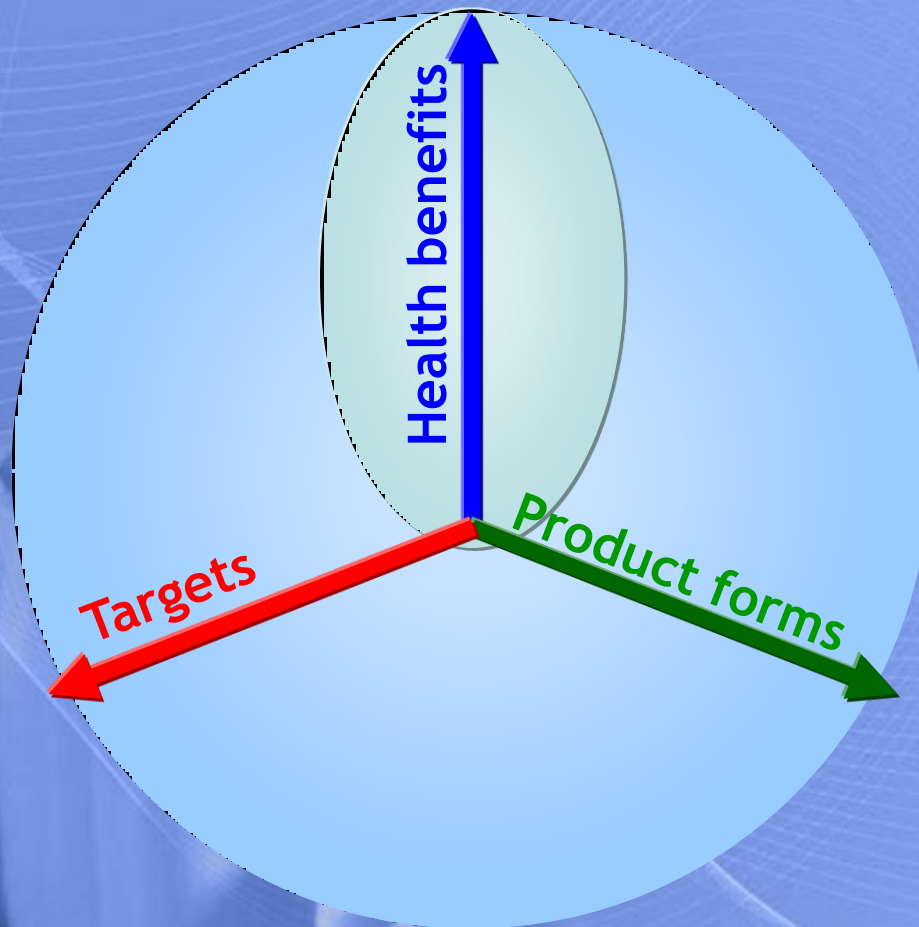


"Our genetic landscape is a combination of human genes and microbial genes and they have formed strategic partnerships that are mutually beneficial."

Prof. J. Gordon



Addressing health issues: a key axis for Danone innovation



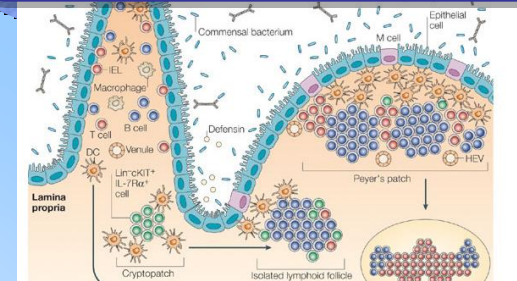
Innovation

2 areas of expertise to leverage

Expertise in Nutrition



Expertise in Food-Microbiota interactions



Health benefits

Targets

Product forms

Nutrition expertise is the backbone of our strategy

Basics Taste and Pleasure

Nature
Vitalinea
Danette
Dan'up
Greek
local brands...

Nutritional / Health-related Brands

(based on generally accepted science)

Danonino

Densia

Nutriday

Functional Brands (proprietary claims & products)

Actimel

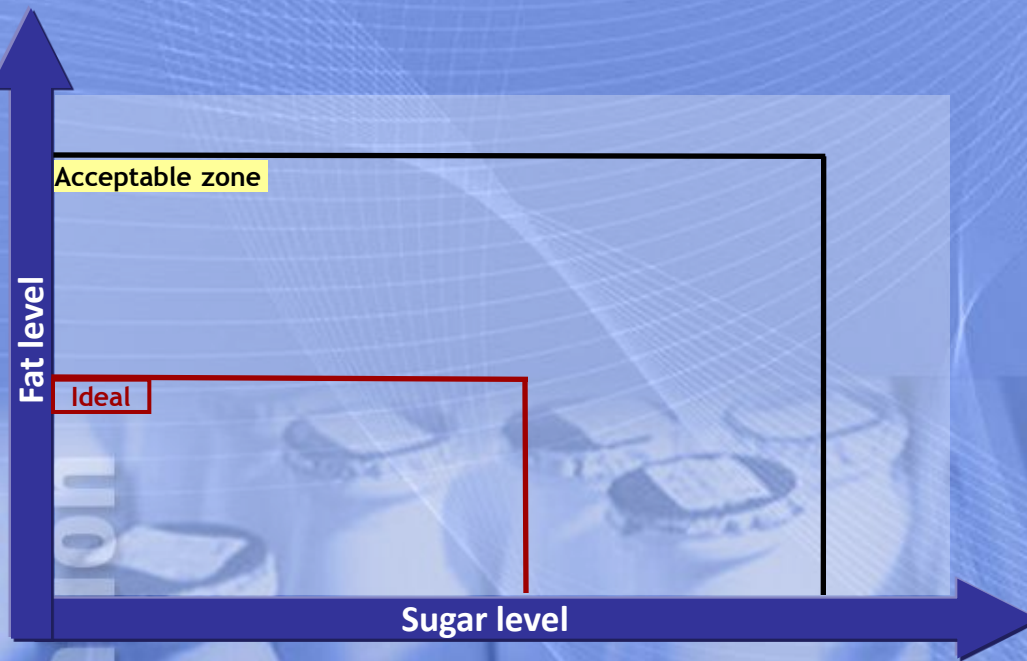
Activia

Danacol

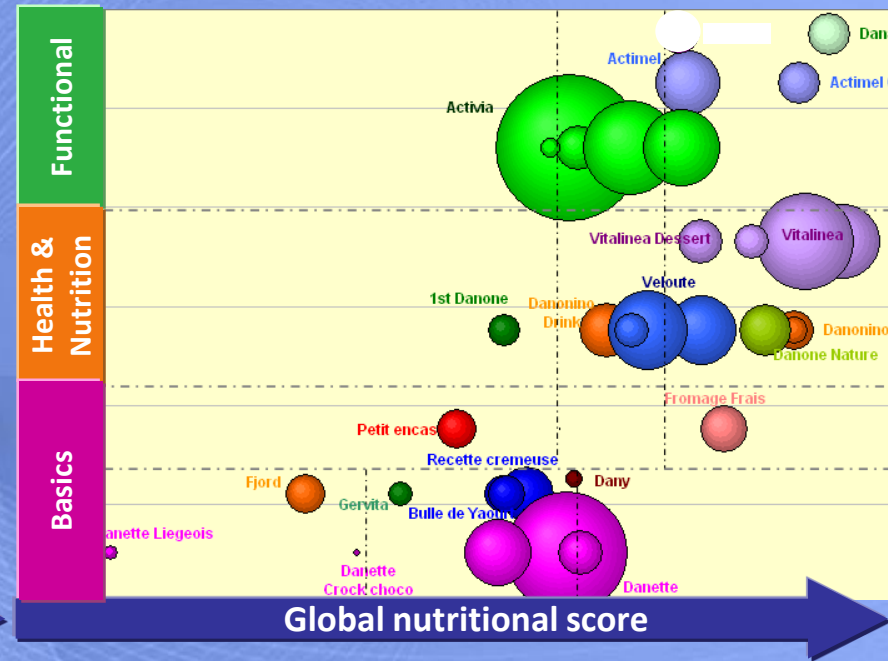
Superior taste & nutrition

We constantly reinforce the nutritional superiority of our portfolio

Mapping our products vs Danone guidelines and vs competition



Ensuring portfolio coherence



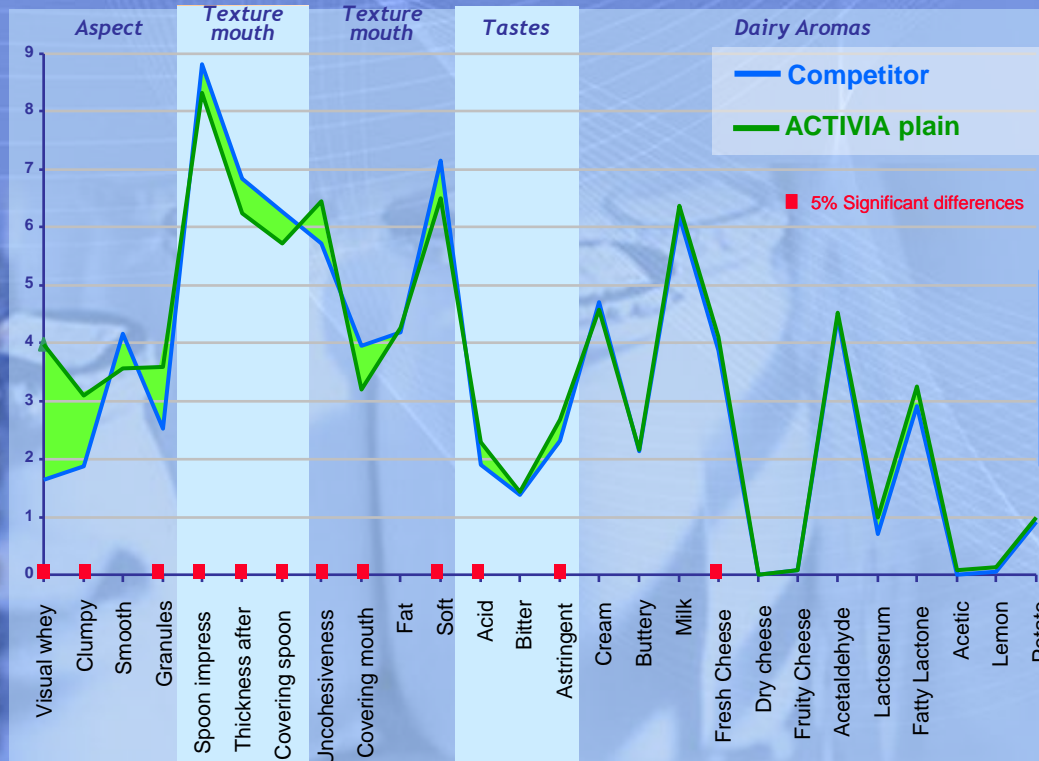
- Done each year for each country / brand
- Yearly action plan to address priorities

Without compromising on taste

BEST program: ensuring we keep significant preference vs competition

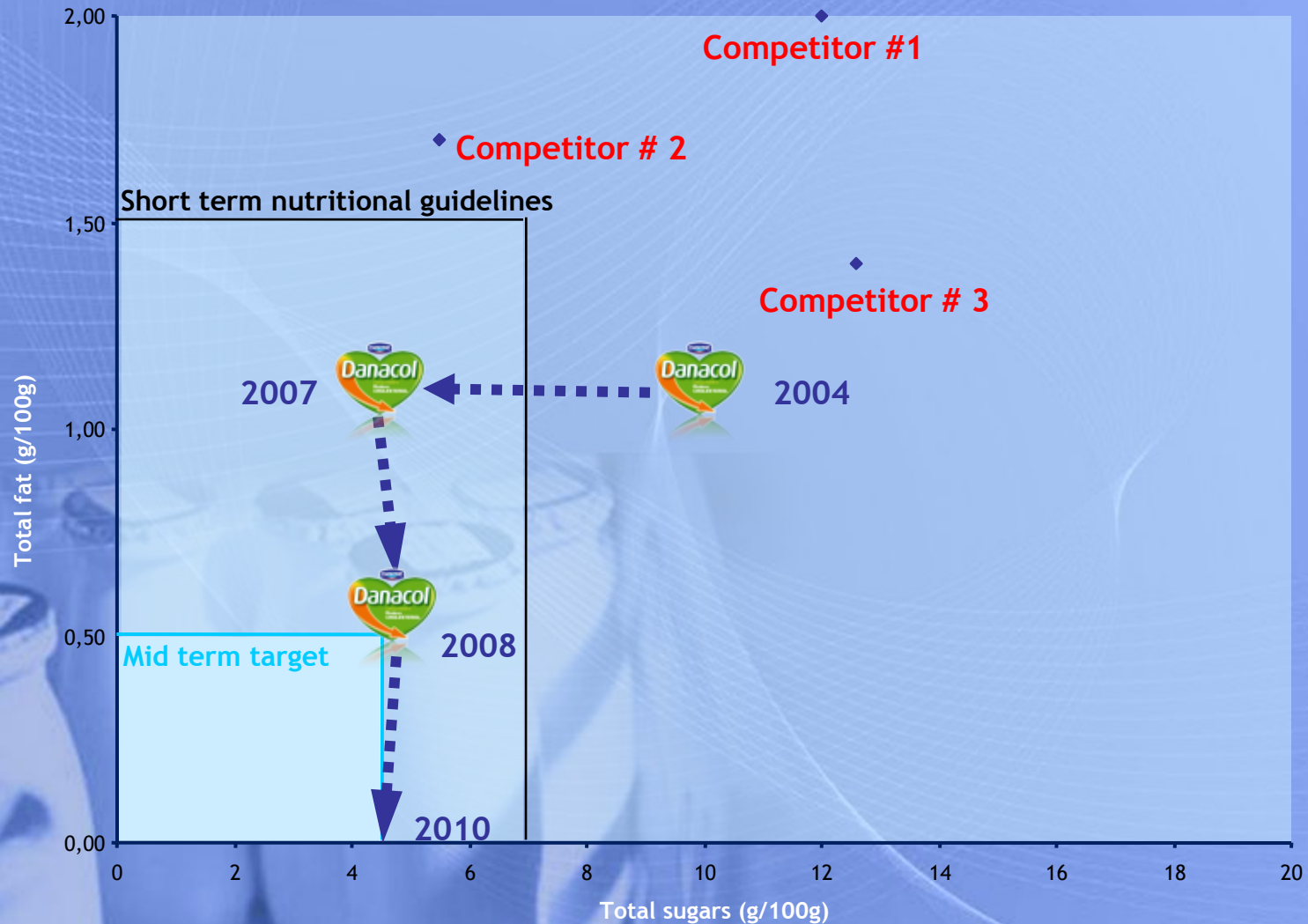
+

Unique approach to characterize the **SENSORY PROFILE** of our products on all dimensions and to compare it with consumer expectations



Key congruence criteria	Activia plain
High quantity of fruits	OK
Perfect appearance (white if plain, no whey on surface, no lumps)	OK
Middle texture (not too thick / liquid)	OK
Taste: not too acidic	OK
Fatty mouthfeel	OK
Creamy notes	OK
No off flavours	OK
Estimated congruence	100%

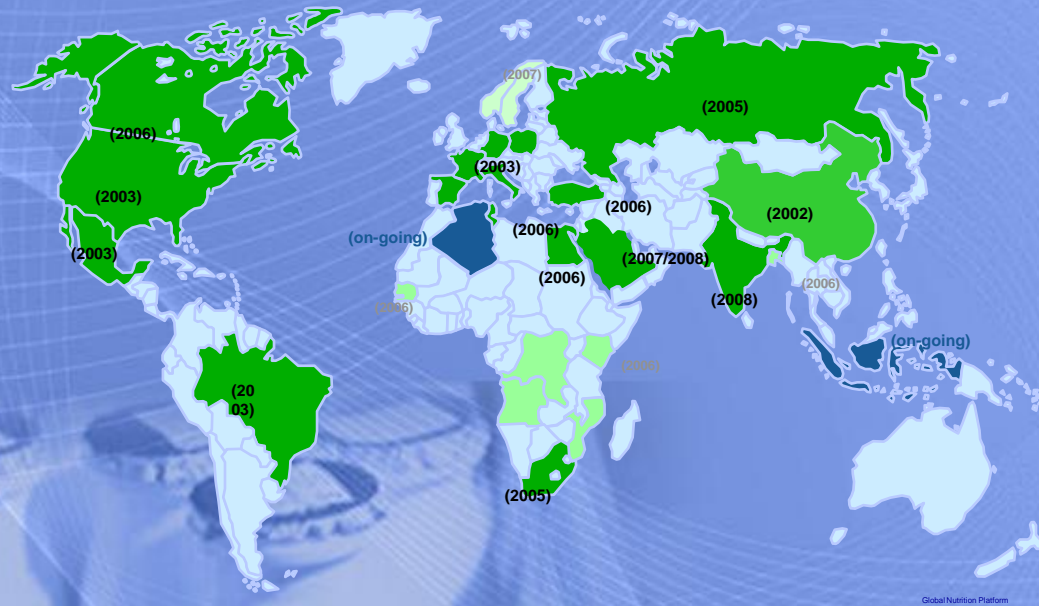
Nutritional superiority in action: The Danacol story



Innovation

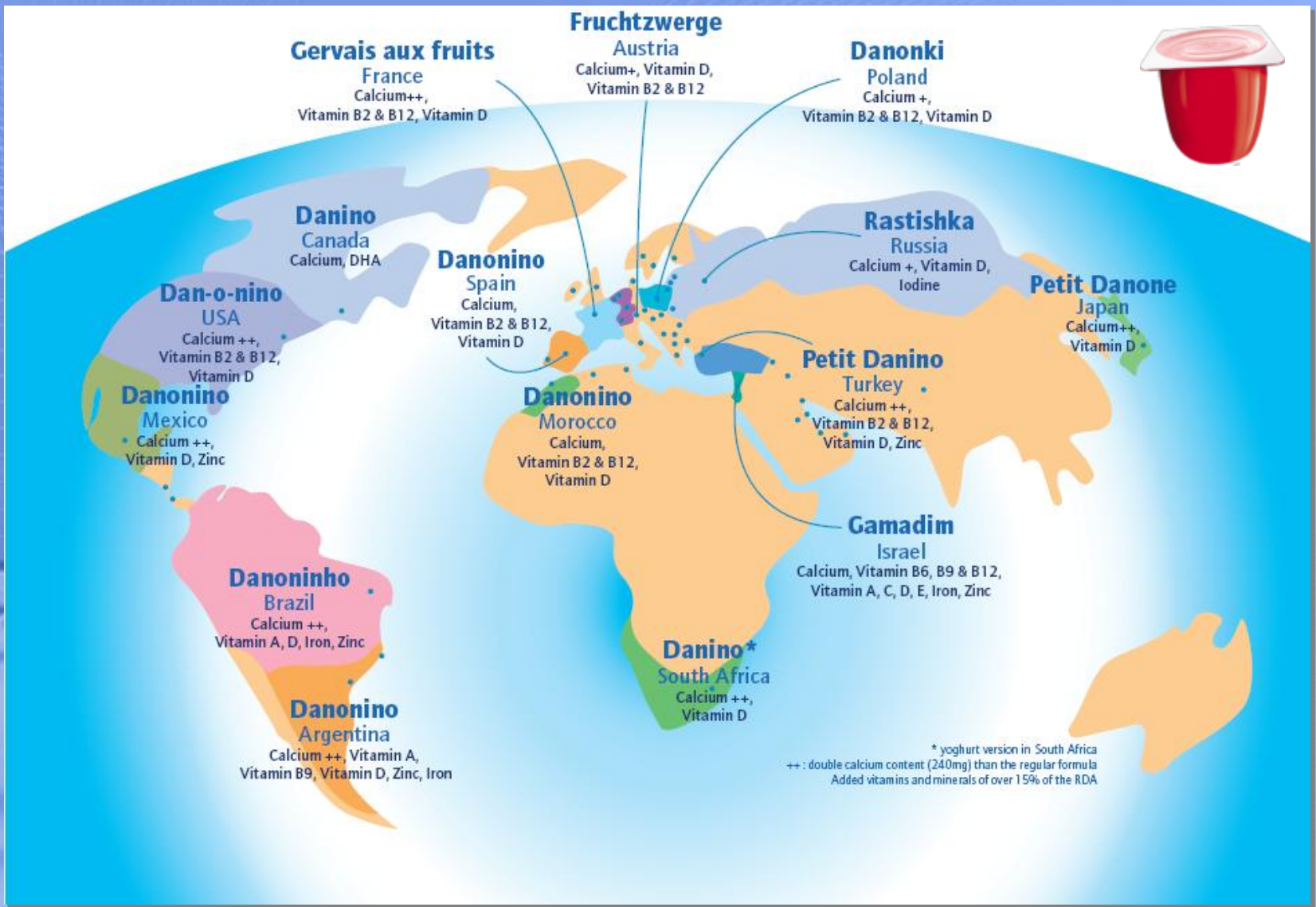
We build deep understanding of nutrition and public health in our key markets

NUTRIPACK: Multi-centric studies performed in collaboration with local authorities & KOLs



- 76% sales covered since 2003
- Process initiated in 50 % of Dairy CBUs
- 4.3 bn people under study
- More than 140 local experts and KOLs interviewed

We customize our products to local nutritional needs



Innovation

We have started to develop Nutrition Services

DANONE NUTRITION PARTNER

MXS neometis




Accès membre

identifiant :

mot de passe :

[mot de passe oublié ?](#)

► Mon Bilan

- Mon alimentation
Description de 1 à 3 journées de repas
- Mon activité physique
Inventaire de mes activités physiques quotidiennes et sportives
- Mon mode de vie
Mon comportement face au tabac et à l'alcool

► Mon Générateur de menus

- Simple et rapide
- Parfaitement équilibré
- Il respecte mes besoins énergétiques




DANONE RESEARCH CENTRE DANIEL CARASSO

neometis

Mes résultats

<p>Mon Poids</p> <p>▼</p> <p>L'indicateur de mon poids par rapport à ma taille.</p> <p><input type="button" value="accéder"/></p>	<p>Mon Activité Physique</p> <p>▼</p> <p>L'analyse de mes activités physiques (domestique, professionnelle, loisir).</p> <p><input type="button" value="accéder"/></p>
<p>Mon Equilibre Protéines Lipides Glucides</p> <p>▼</p> <p>La répartition des principaux nutriments dans mes aliments.</p> <p><input type="button" value="accéder"/></p>	<p>Mon Equilibre Bien-être</p> <p>▼</p> <p>Les points forts et les points faibles de mon alimentation.</p> <p><input type="button" value="accéder"/></p>
<p>Les Aliments à Surveiller</p> <p>▼</p> <p>Les pratiques alimentaires à surveiller en cas de maladies.</p> <p><input type="button" value="accéder"/></p>	<p>Objectif Equilibre</p> <p>▼</p> <p>Des conseils pour atteindre vos objectifs nutritionnels.</p> <p><input type="button" value="accéder"/></p>
<p>Alcool</p> <p>▼</p> <p>Grand plus sur ma consommation d'alcool.</p> <p><input type="button" value="accéder"/></p>	<p>Tabac</p> <p>▼</p> <p>Grand plus sur ma consommation de tabac.</p> <p><input type="button" value="accéder"/></p>
<p>Mes Apports Énergétiques</p> <p>▼</p> <p>Focus sur mes apports caloriques.</p> <p><input type="button" value="accéder"/></p>	<p>Mon Dossier Imprimable</p> <p>▼</p> <p>Je souhaite télécharger les résultats de mon bilan.</p> <p><input type="button" value="accéder"/></p>

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DANONE RESEARCH CENTRE DANIEL CARASSO

neometis

Mon Equilibre Protéines Lipides Glucides

ajoutées

Cholestérol

Lipides

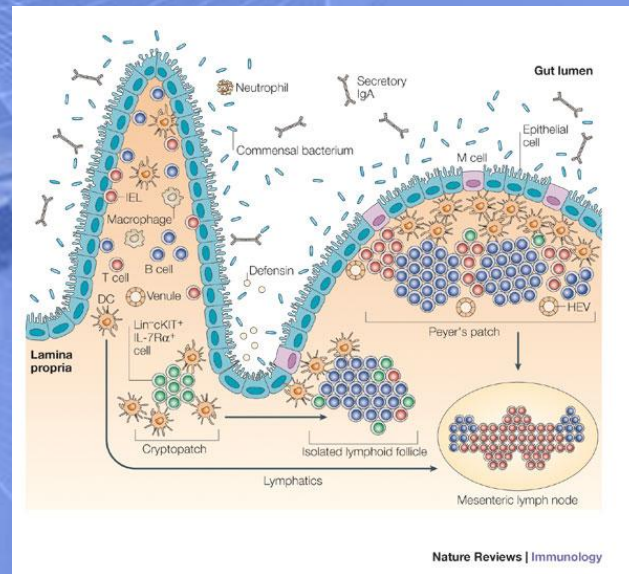
Protéines




New pilot:
Danone France for consumers

Innovation

Probiotics: our Microbes for Health



Continuous research on Probiotics (probably one of the most advanced)

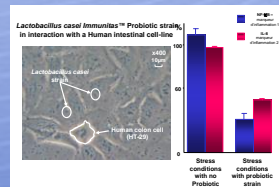
Selection & generic characterization



Over the last 10 years, we have:

- enriched our collection with 1,200 new individual strains
- functionally characterized 250 strains
- sequenced 19 strains

Functional characterization



Propagation & product formulation



We have developed unique technologies to include our probiotics in Actimel, Activia and still working on this for 2 innovation projects

Effect demonstration



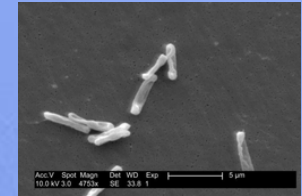
We have published 24 *L. Casei* strain specific clinical studies on Actimel over the last 15 years and 17 *Bifidobacterium* strain specific studies on Activia till its launch in 1987

Danone has one of the largest lactic acid bacteria collection in the world:

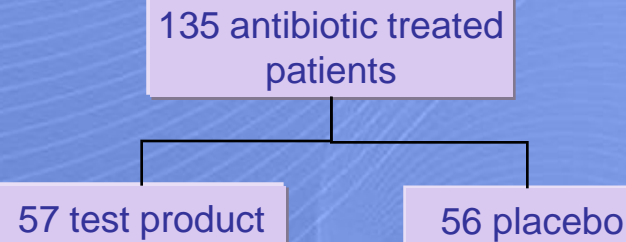
> 4,000 strains , 80 species isolated from dairy, vegetal and human gut sources

We contribute to build science on the interaction between food & micro-biota

Effect of Actimel with *L. Casei* DN 114 001 consumption in hospital against antibiotic and *C. Difficile* diarrhoea



C. difficile is the most serious cause of antibiotic-associated diarrhea (AAD) and can lead to severe infection of the colon



	<i>L. Casei</i> DN 114 001 (Actimel)	Control
Diarrea	12%	34%
No Diarrea	88%	66%
<i>C difficile</i> toxin	0	17%

Leveraging new technologies & partnerships

Our network is active



Example of partnership



- 5 scientific publications
- 1 patent
- Contribution to 2 clinical studies
- 1 new strain characterisation tool

Science in action

1) Constantly reinforcing our benefits

2) Exploring new benefits

We have a clear roadmap to upgrade the benefit of our brands

Actimel example:

2013
Re-Invention

2010
Upgrade

Standard
Actimel



Defenses
With L.Casei

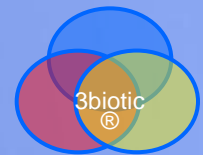


**double
reinforcement**

**L-Casei +
Immuno Nutrients
(Vitamins)**



Immunity
With Tribiotics



Innovation

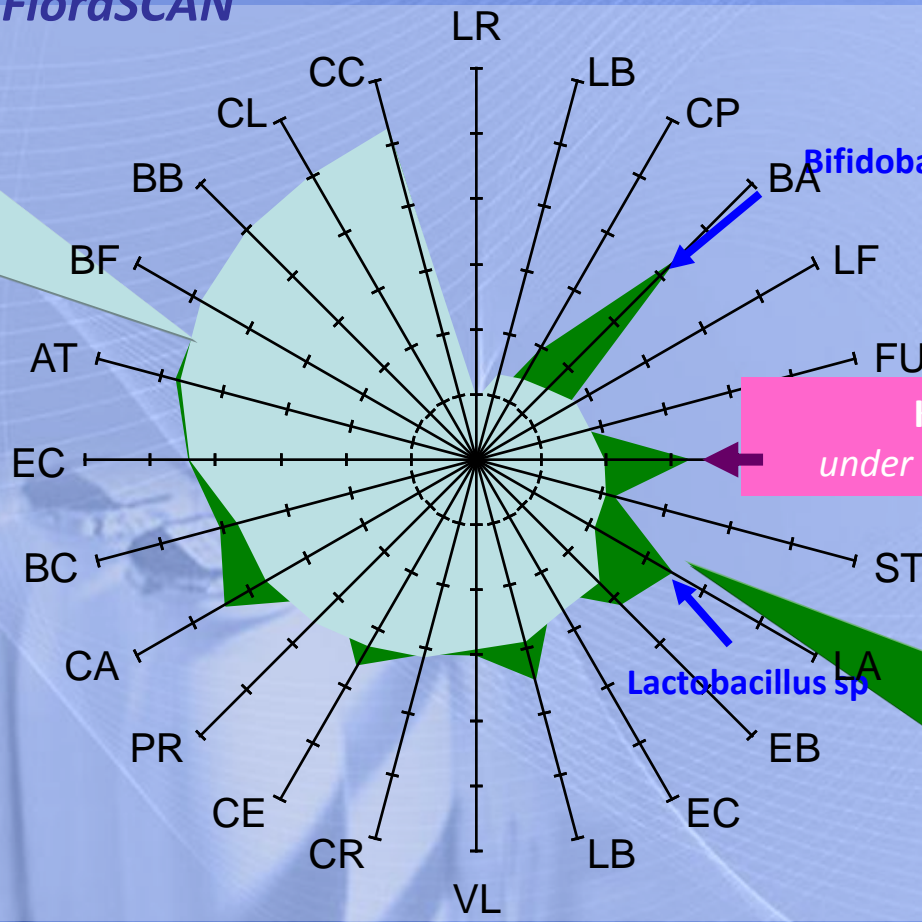
We still have potential to leverage our strains

Example on Activia: we investigate unexplored benefits on macrobiota



Microbiota with placebo

FloraSCAN



Bifidobacterium animalis

Key bacteria under investigation

Lactobacillus sp

Microbiota with Activia



Innovation

Science in action

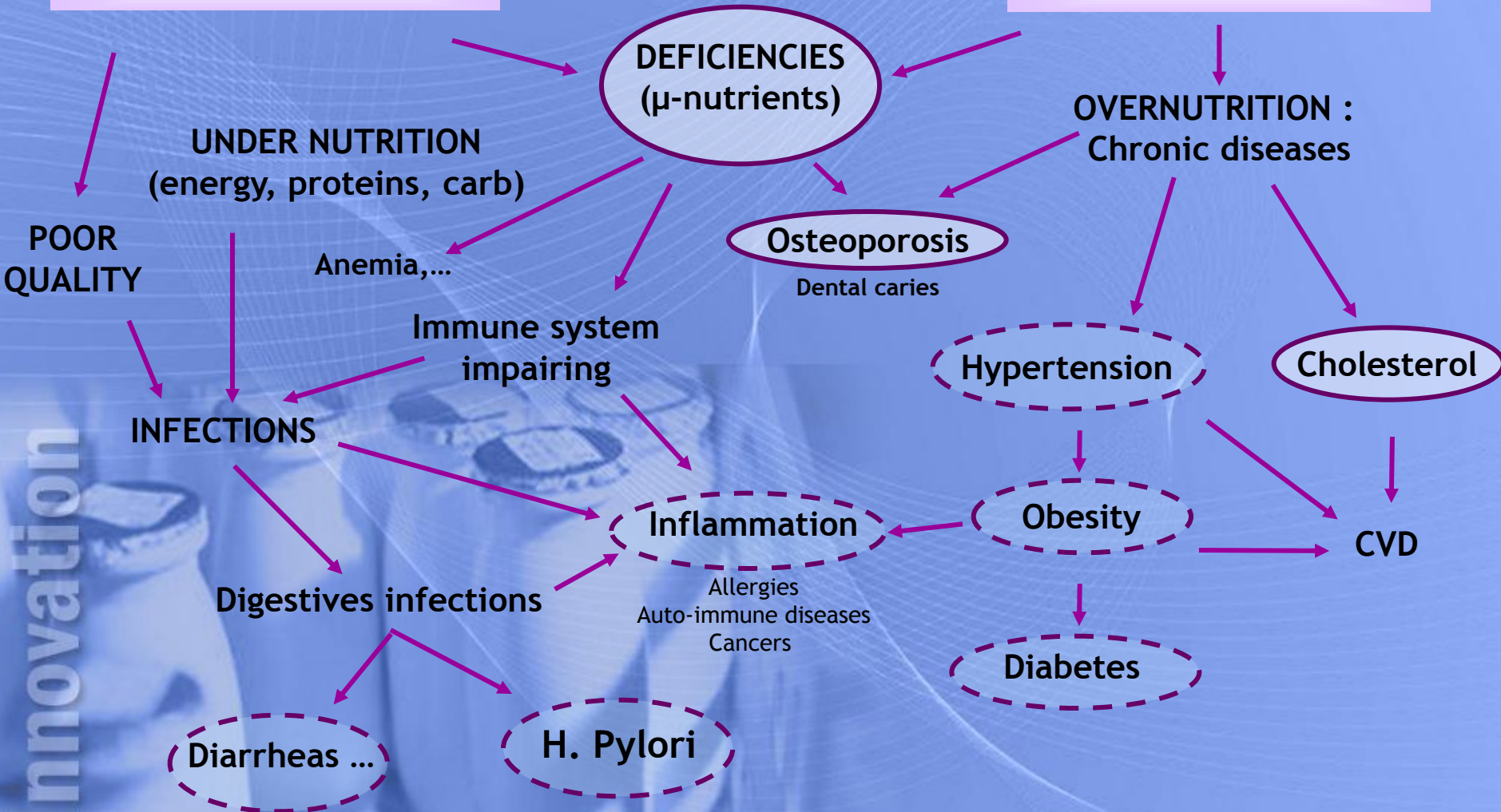
1) Constantly reinforcing our benefits

2) Exploring new benefits

There is still relevant health benefit innovation through food for the future

FOOD SCARCITY

FOOD ABUNDANCE



Innovation

And we have plenty of space to accelerate Innovation!



R&D Dairy employs about 560 people total in 20 countries
focus on scientific expertise based at the Daniel Carasso Research Center (F)

Innovation