BIOPOLIS

Tailor-made Biotechnology

General information

- Biopolis SL was set up in 2003 as a spin-off of the CSIC
- Its current partners are Central Lechera Asturiana, CSIC, Naturex and Talde Capital Riesgo
- We offer something different: R & D covering the whole product development process in close collaboration with our clients
- We use scientific excellence as a tool to market high-added-value products
- Biopolis has three business lines: R&D services *a la carte*, industrial production of microorganisms, and out-licensing of our internal research developments

Our facilities

- Biopolis SL is located in a 1500 m^2 building within the University of Valencia's Science Park
- This building has eleven laboratories and two production plants (one GMO and a non-GMO), as well as a number of ancillary facilities
- All facilities have been authorized by the National Commission on Biosafety

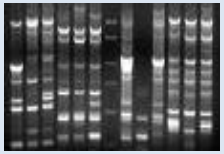
Biopolis SL platforms

Biochemistry

Cell culture

Microbiology

Model microorganisms



Molecular biology

Scale up

Fermentation

Genomics

Metabolomics

Murine models

Our most valuable asset: our staff

- The Biopolis group has 49 staff members (42 at Biopolis SL, and 7 at Lifesequencing SL)
- Most are PhD-holders (18) or Graduates (21); the others have high-level Professional Training qualifications (10)
- Our staff includes biologists, biotechnologists, chemists, computer scientists, agronomists and chemical engineers, chemists, food technologists, lawyers and economists

Biopolis' experience in ageing

OUR AREAS OF EXPERTISE	OUR SOURCE OF KNOWLEDGE
C. elegans model for ageing evaluation	Projects with clients
Probiotics for elderly people	CENIT SENIFOOD
Massive genome sequencing	Ageing with *elegans* H2020

C. elegans models

Alzheimer disease

Antioxidant effect

Energizing compounds

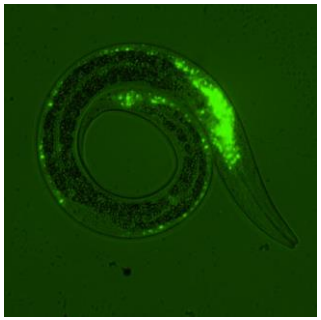
Inflammation

Longevity

Obesity

Bacterial pathogens

Viral pathogens



Isolated molecules

Chromatographic fractions

Plant extracts

Probiótics

Beer

Coffee

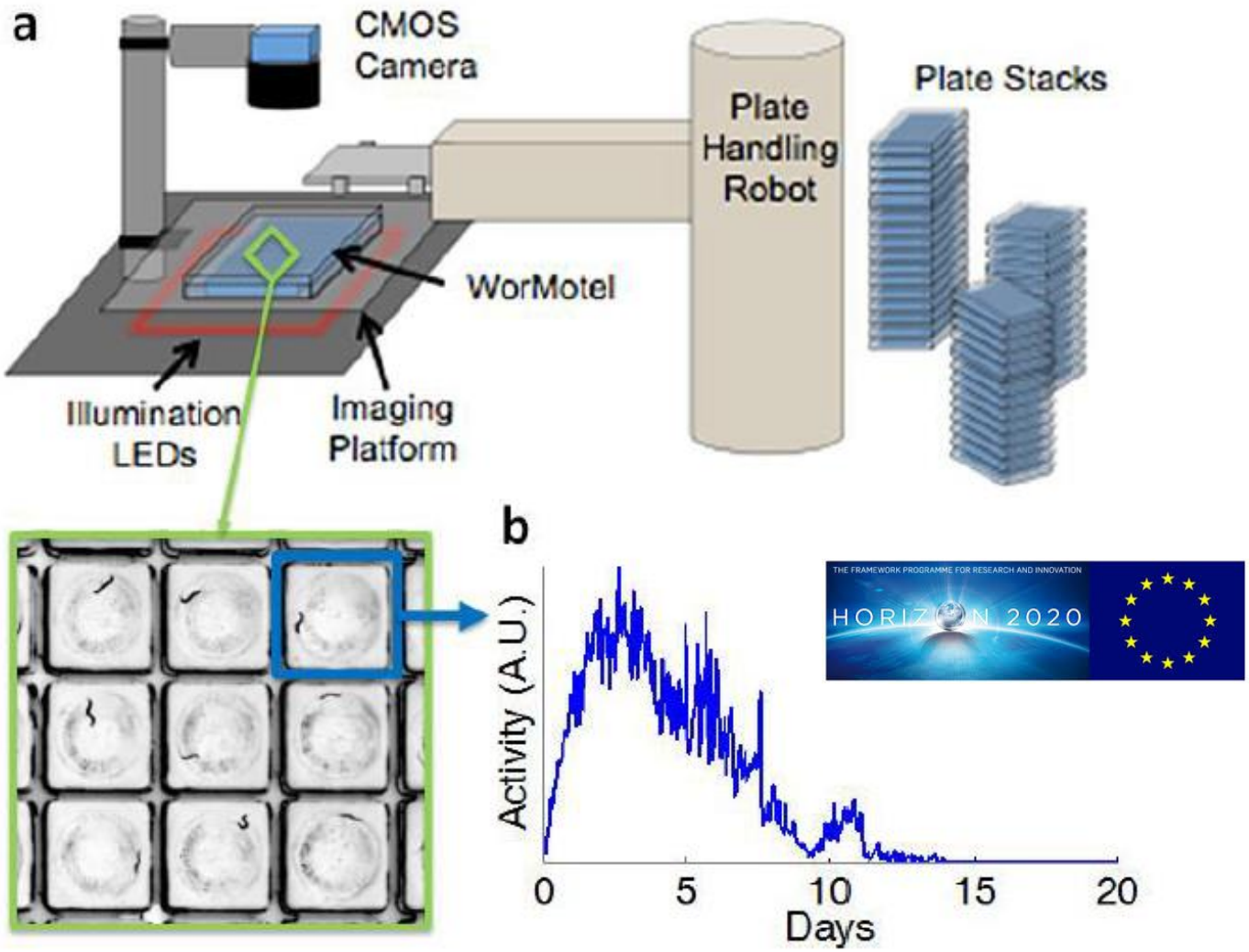
Soft fizzy drinks

Yogurt

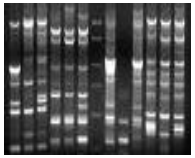
Fruit juices

Solid food matrix

C. elegans automation



Collection of functional probiotics

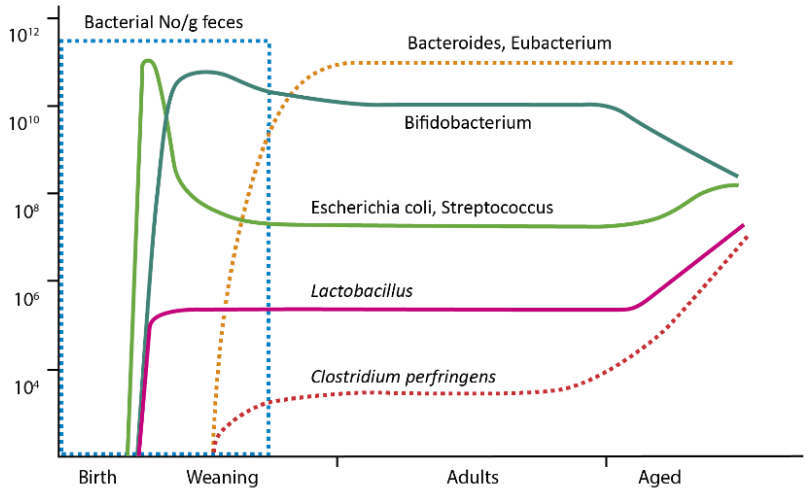


Selection → Identification → Evaluation → Safety → Scale up → Production → **Trials**

- Inflammatory bowel syndrome *Bifidobacterium longum* ES1
- Immune system: *Bifidobacterium breve* I-4035, *Lactobacillus paracasei* I-4034, *Lactobacillus rhamnosus* I-4036
- Rotavirus: *Bifidobacterium longum* subsp. *infantis* CECT 7210

- *Helicobacter pylori: Bifidobacterium bifidum* CECT 7366
- Metabolic syndrome: *Bifidobacterium animalis* subsp. *lactis* CECT 8145
- Vaginosis: *Lactobacillus rhamnosus*

Rebalancing microbial dysbiosis



- Gut microbiome disbiosis is frequent in elderly peopleGut inflammation is frequent in elderly people
- We have isolated a *B. longum* strain, named ES1, with a strong anti-inflammatory phenotype
- In a clinical trial we have demonstrated that the ingesta of this probiotic produced a statistically significant decrease in *Bacteroides* and *Clostridium* isolates in gut microbiome compared to the group receiving placebo
- On the other hand, the group ingesting the ES1 strain had higher Bifidobacteria counts, although the data were not statistically significant

Scientific dossier on ES1

- Izquierdo E, Medina M, Ennahar S, Marchioni E, Sanz . (2008). Resistance to simulated gastrointestinal condtions and adhesions to mucus as probiotic criteria for *Bifidobacterium longum* strains. Current Microbiology 56: 613-618
- Medina M, de Palma G, Ribes-Koninckx C, Calabuig M, Sanz Y. (2008). *Bifidobacterium* strains suppress *in vitro* the pro-inflammatory milieu triggered by the large intestinal microbiota of coeliac patients. Journal of Inflammation 3: 5-19
- Laparra JM, Sanz Y. (2010). Bifidobacteria inhibit the inflammatory response induced by gliadins in intestinal epithelial cells via modifications of toxic peptide generation during digestion. Journal of Cell Biochemistry 109: 801-807
- Olivares M, Laparra M, Sanz Y. (2011). Influence of *Bifidobacterium longum* CECT 7347 and gliadin peptides on intestinal epithelial cell proteome. Journal of Agricultural and Food Chemistry 59: 7666-7671
- Laparra JM, Olivares M, Gallina O, Sanz Y. (2012). *Bifidobacterium longum* CECT7347 modulates immune responses in a gliadin-induced enteropathy animal model. PLoS ONE 7: e30744
- de Palma G, Kamanova J, Cinova J, Olivares M, Drasarova H, Tuckova L, Sanz Y. (2012). Modulation of phenotypic and functional maturation of dendritic cells by intestinal bacteria and gliadin: relevance for celiac disease. Journal of Leukocyte Biology 92: 1043-1054
- Olivares M, Laparra M, Sanz Y. (2012). Oral administration of *Bifidobacterium longum* CECT 7347 modulates jejunal proteome in an *in vivo* gliadin-induced enteropathy animal model. Journal of Proteomics 77: 310-320
- Chenoll E, Codoñer FM, Silva A. Ibañez, Martínez-Blanch JF, Bollati-Fogolin M, Sanz Y, Ramón D, Genovés S. (2013). Genomic sequence and pre-clinical safety assessment of *Bifidobacterium longum* CECT7347, a probiotic able to reduce the toxicity and inflammatory potential of gliadin-derived peptides. Journal of Probiotics and Health 1: 106 doi:10.4172/jph.1000106
- Laparra JM, Olivares M, Sanz Y. (2013). Oral administration of *Bifidobacterium longum* CECT 7347 ameliorates gliadin-induced alterations in liver iron mobilization. British Journal of Nutrition 110: 1828-1836
- Olivares M, Castillejo G, Varea V, Sanz Y. (2014). Double-blind, randomized, placebo-controlled intervention trial to evaluate the effects of *Bifidobacterium longum* CECT 7347 on children with newly diagnosed celiac disease. British Journal of Nutrition 112: 30-40.

Products on the market

Massive genome sequencing services

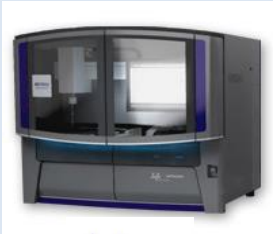
Roche

Roche

illumina

life technologies

life sequencing



life technologies

illumina

life technologies

PACIFIC BIOSCIENCES

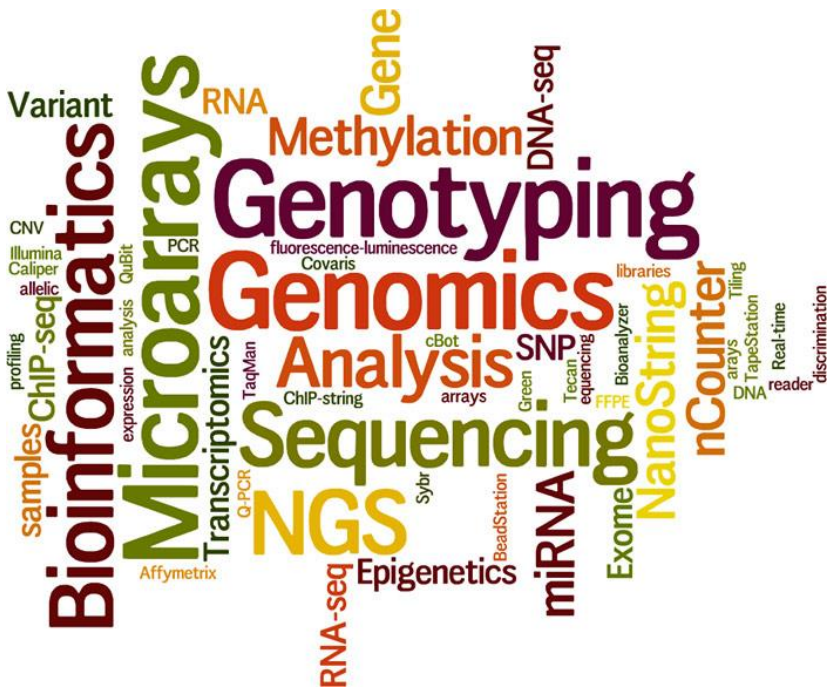
华大基因 BGI

VNIVERSITAT DE VALÈNCIA

PACIFIC BIOSCIENCES

genometra

Our services

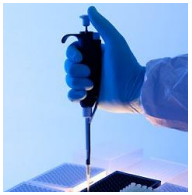


- Amplicon analysis
- Hotspot panels
- Metagenomics
- Transcriptomics
- Microbial genomics
- Plant genomics
- Animal genomics
- Food authentication
- Human exome analysis
- Human genomics

Deciphering microbiomes

Sample

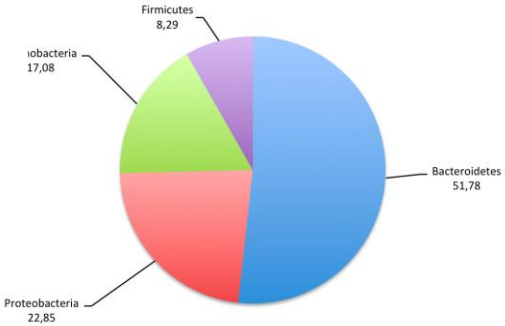
DNA isolation

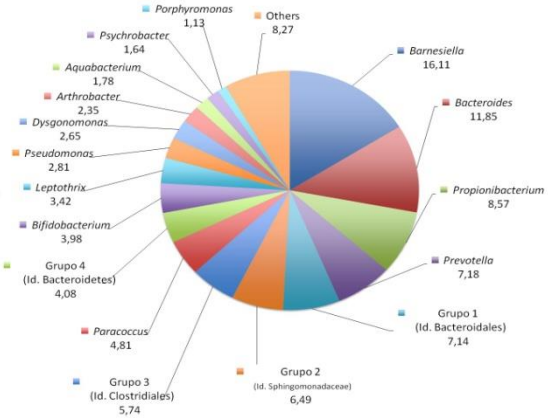


DNA amplification

MGS

Bioinformatic analysis





Bacterial species	Percentage
Barnesiella intestinihominis	15,12
Bacteroides acidifaciens	10,11
Propionibacterium acnes	8,47
Caulobacter leidyia	6,49
Paracoccus marcusii	4,81
Bifidobacterium breve	3,03
Prevotella buccae	2,97
Dysgonomonas nossii	2,57
Prevotella loescheii	1,98
Flavonifractor plautii	1,94
Pseudomonas migulae	1,94
Arthrobacter bergere	1,35
Prevotella oris	1,03

Phylum

Genera

Species

Biopolis
Tailor-made Biotechnology

AENOR
Registered Company
ER-0767/2014

CERTIFIED IQNet MANAGEMENT SYSTEM

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