
BIO-ILIBERIS R&D

SOLUCIONES BIOTECNOLÓGICAS A PROBLEMAS MEDIOAMBIENTALES



<http://www.bio-iliberis.com/>

Matilde Fernández Rodríguez

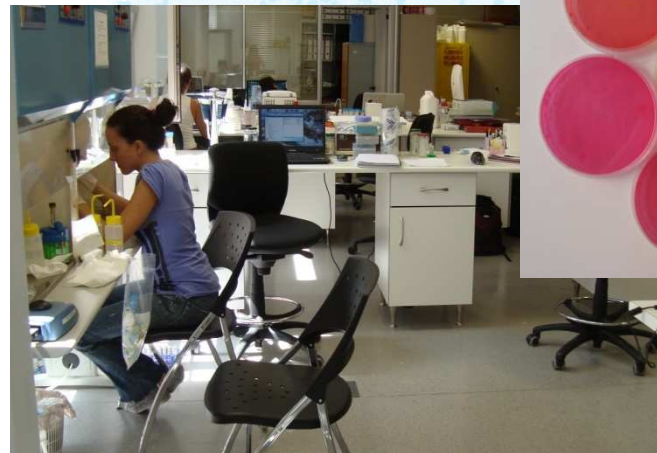
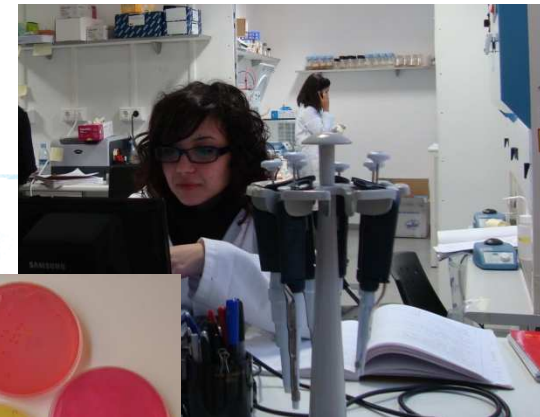
Lille, September 2009

BIO-ILIBERIS R&D is a recent spin-off company created by personnel that have worked for years in Biotechnology at the Spanish Council for Scientific Research (CSIC)

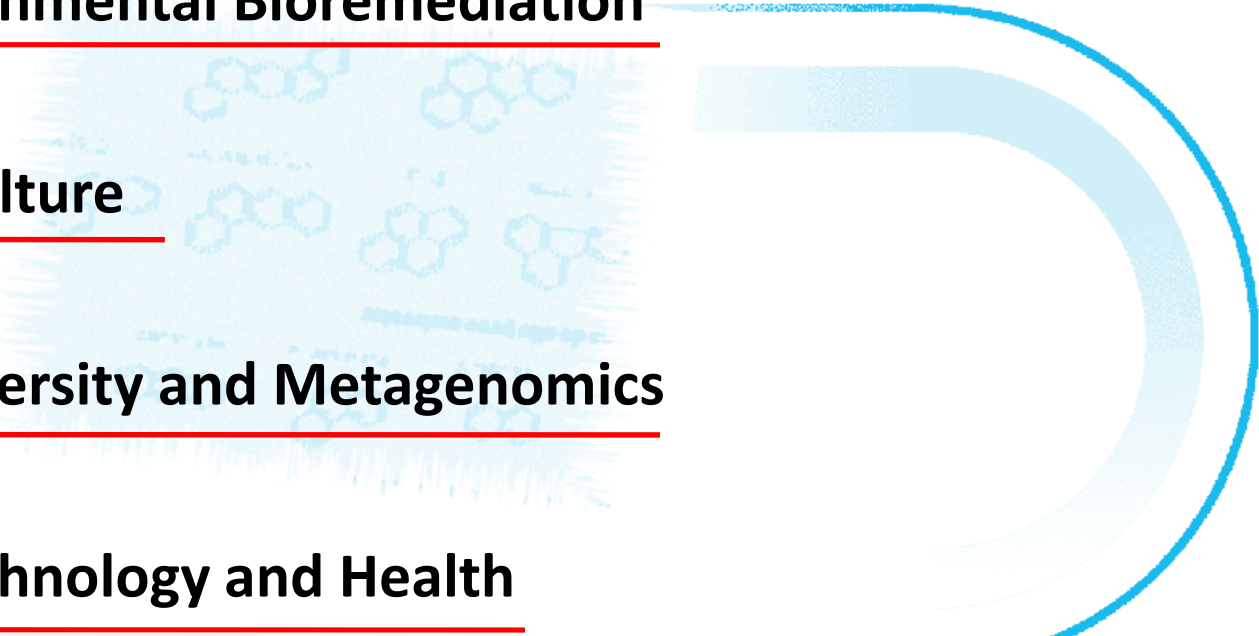


Parque Tecnológico de Ciencias de la Salud. Armilla. Granada. Spain

BIO-ILIBERIS R&D (BIRD) dissects
different biological aspects of
microorganisms to exploit them for
biotechnological use



The company maintains four main different working areas:

1. Environmental Bioremediation
 2. Agriculture
 3. Biodiversity and Metagenomics
 4. Biotechnology and Health
- 
- A decorative graphic on the right side of the slide. It features a large, light blue, semi-circular arc that curves from the top right towards the bottom right. In the background, there are faint, light blue molecular structures and a grid pattern.

Environmental Bioremediation

Restoring polluted areas and the prevention of environmental impacts derived from human activities



Burnt soils or soils contaminated in general



Leakage from petrol storage tanks



Industrial waters contaminated by hydrocarbons



Water quality in industrial leisure ports and aquiculture

Agriculture

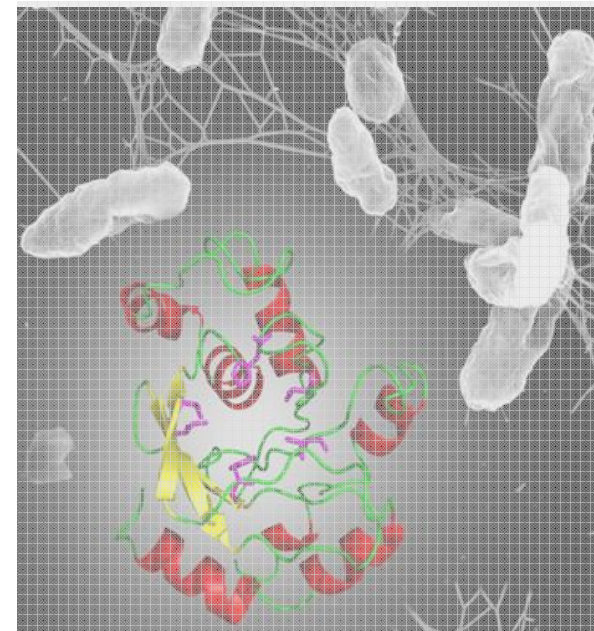
Modern agriculture is demanding the replacement of chemical fertilizers and pesticides by natural products, BIRD has developed microorganisms that enhance the germination of seeds and growth of roots.

We have developed new biocontrol strains against plant pathogens.



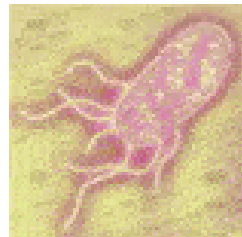
The Metagenome of the Iberian Peninsula

1. Generation of metagenomic libraries
2. Study biodiversity
3. Implement assays to allow the screening of genomic libraries for genes codifying enzymatic activities of interest.



Biotechnology and Health

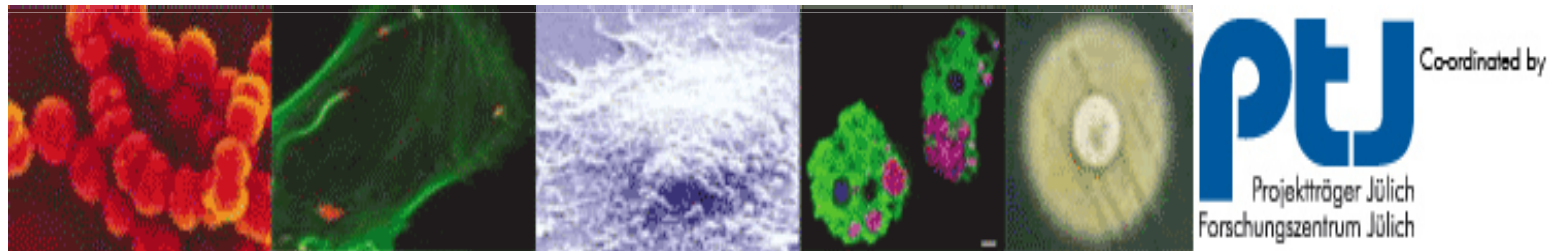
BIO-ILIBERIS R&D is taking profit of this knowledge to face a new challenge: start a new research line on human pathogenic microorganisms



ERA-NET
PathoGenoMics



The death toll caused by infections with pathogenic microorganisms is still highest among human diseases

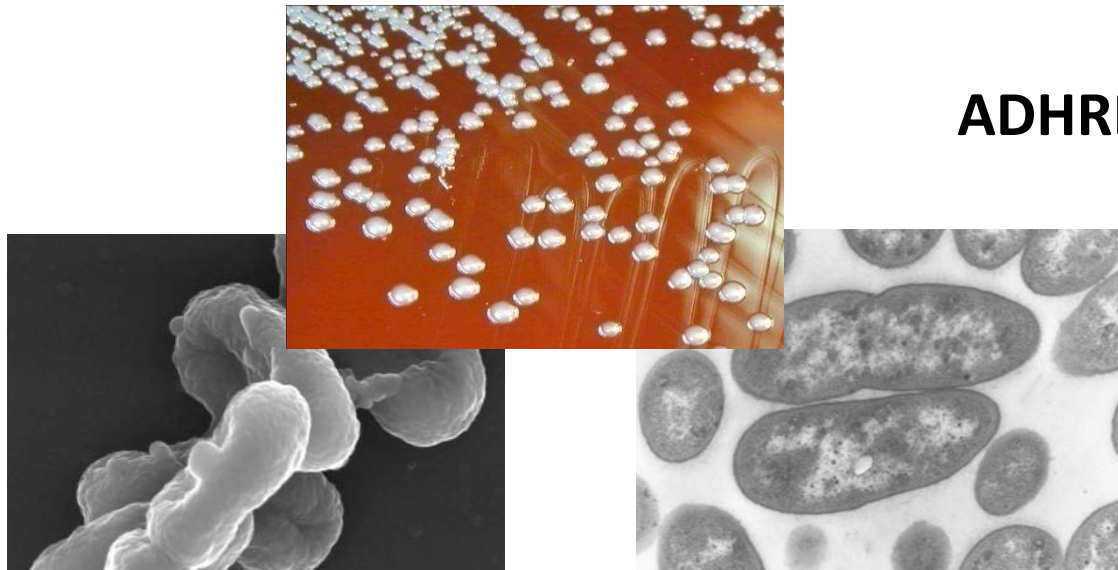


Trans-European cooperation and coordination of **genome** sequencing and functional genomics of human-**pathogenic microorganisms**



2nd joint call on PathoGenoMics

“Applied pathogenomics: Prevention, diagnosis, treatment and monitoring of infectious diseases in humans”

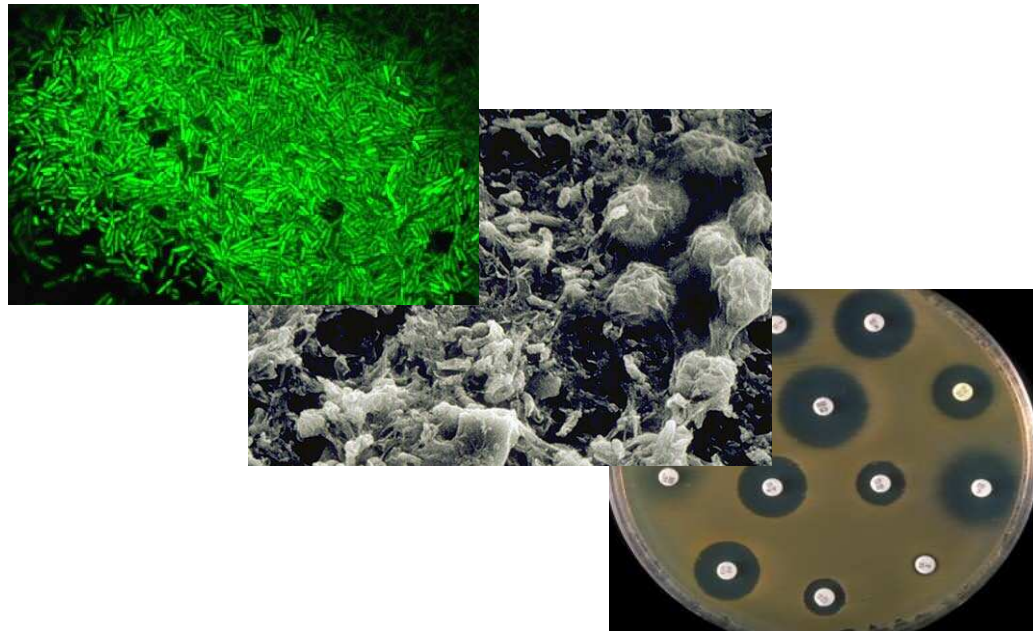


ADHRES-Signature Project



ADHRES-Signature project

P. aeruginosa, *P. putida* and *B. cepacia*



Virulence traits

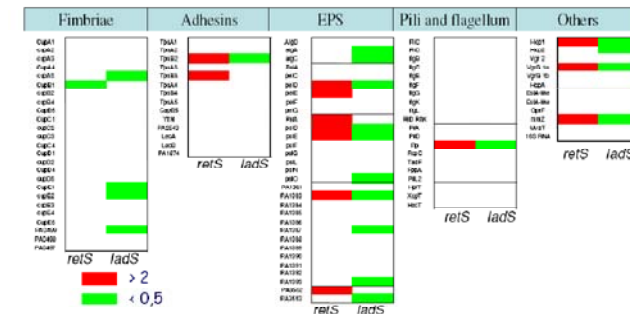
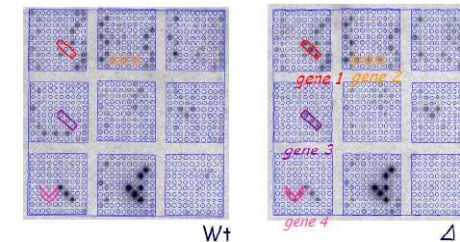
- Biofilm formation
- Antibiotic resistance



ADHRES-Signature project

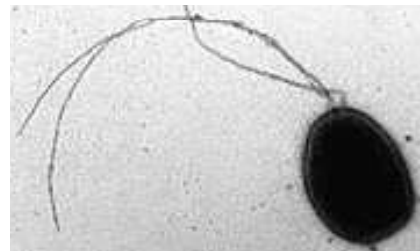
P. aeruginosa, *P. putida* and *B. cepacia*

Identify a core set of genes involved in biofilm and antimicrobial resistance importance



Why is Bio-Iliberis participating in this project?

BIRD has a long experience in bacterial resistance strategies



Bacterial resistance
mechanisms against
environmental pollutants

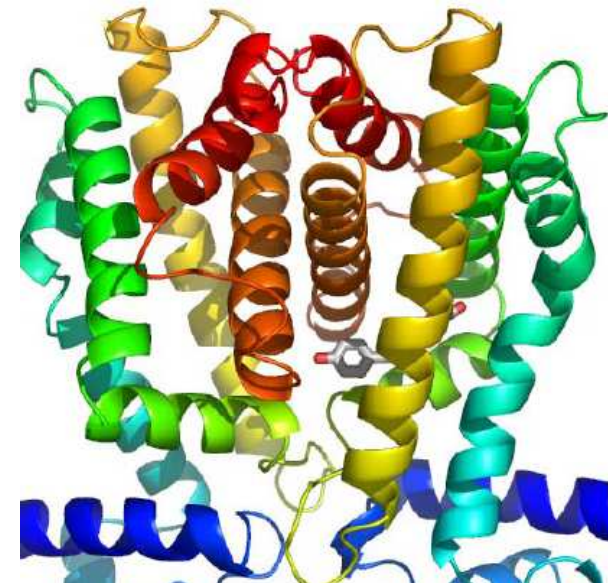


Bacterial resistance
mechanisms against
antibiotics



Research members of BIRD have elucidated the molecular basis for
solvent and antibiotic tolerance in *Pseudomonas putida*

- Physical barriers that increase membrane rigidity
- General responses to stress imposed toxic chemicals
- Biochemical barriers that involve the removal of toxic compounds by efflux pumps





Resistance mechanisms are determined by
chromosomal and plasmidic bacterial genes





Bio-Iliberis R&D in the ADHRES-Signature project

Construction of mutant banks and screening test to identify
clones with altered antibiotics resistance profiles.



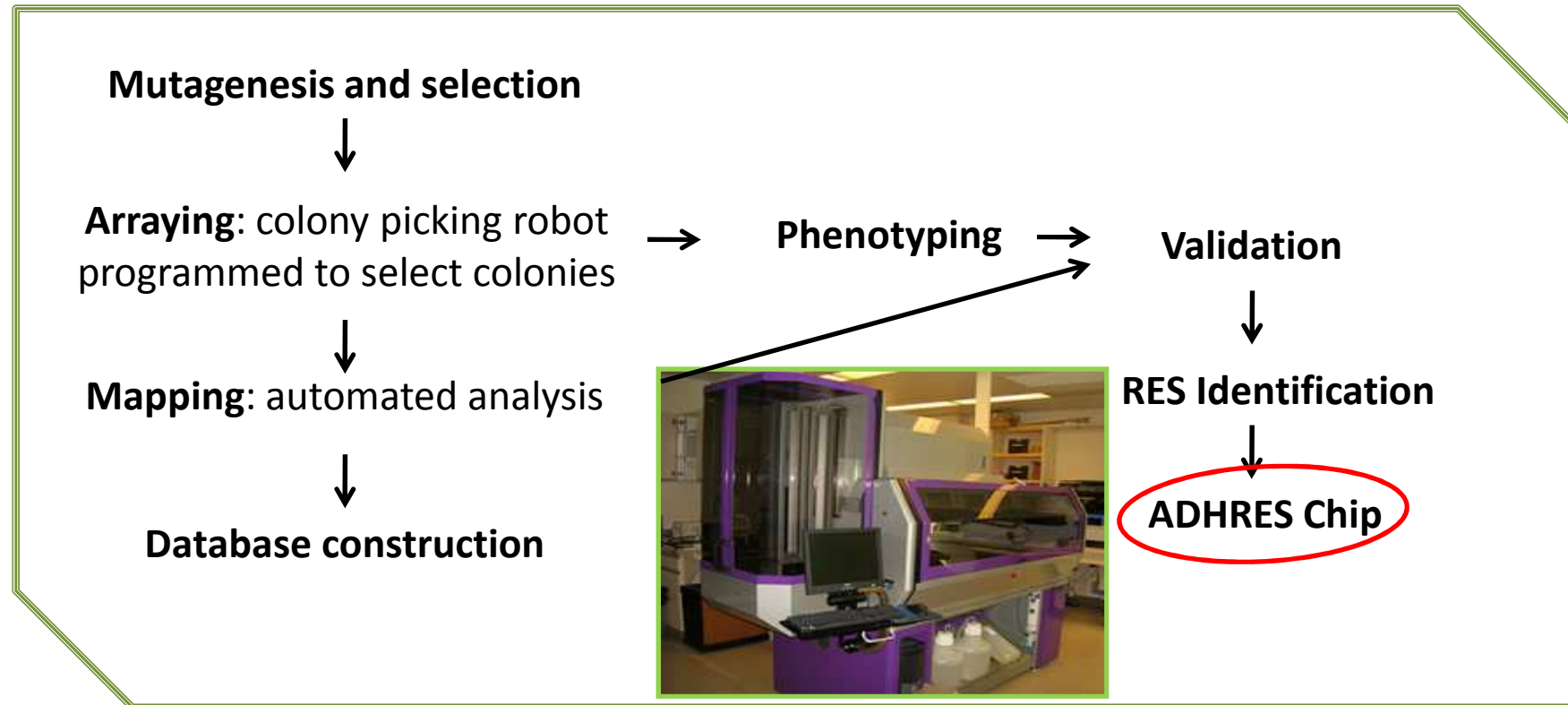


***P. putida* DOT-T1E and derivatives resistance to different drugs**

Strain	Ap	Cb	Cm	Tc	Que	Phi	Nar		Tcl	BrEt
DOT-T1E	128	256	64	4	500	250	250		>1000	2500
DOT-T1E18	8	8	8	0.2	20	8	8		16	125
DOT-T1E13	256	512	128	32	1000	500	500		>1000	5000



GENERAL STRATEGY





No.	Country	Institution and full affiliations	Name of the group leader
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Thank you very much!!!