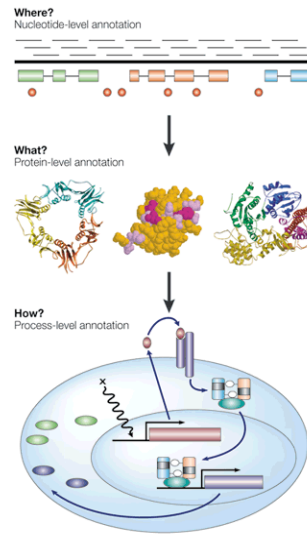


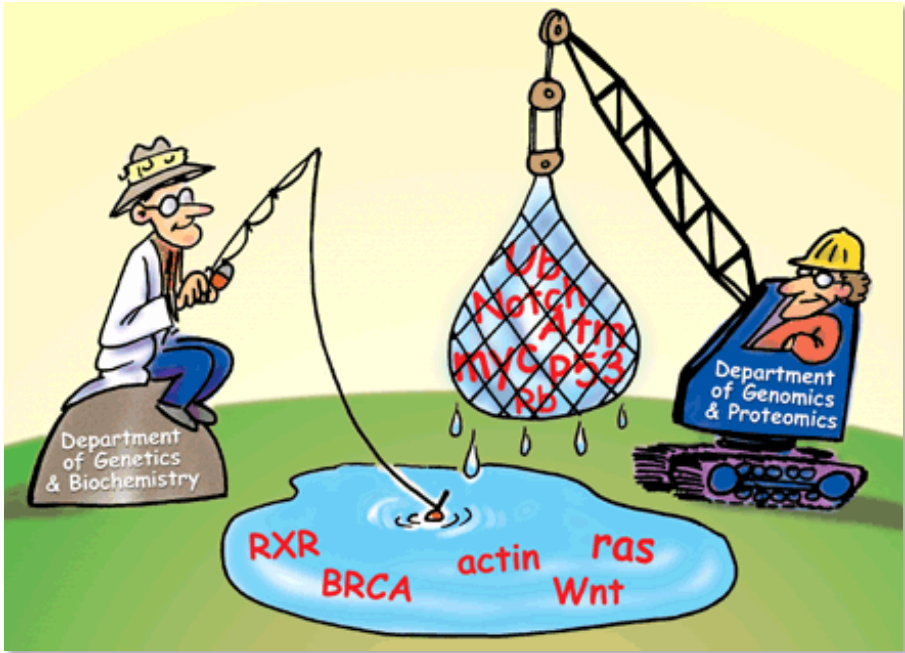


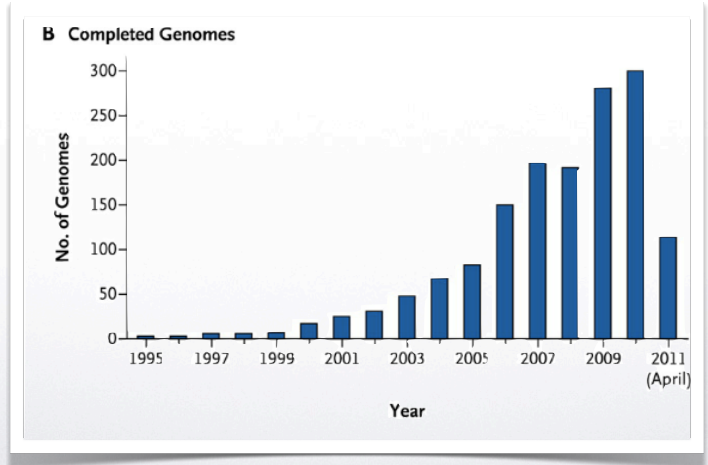
# Análisis Genómicos

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Dr. Francisco P. Chávez

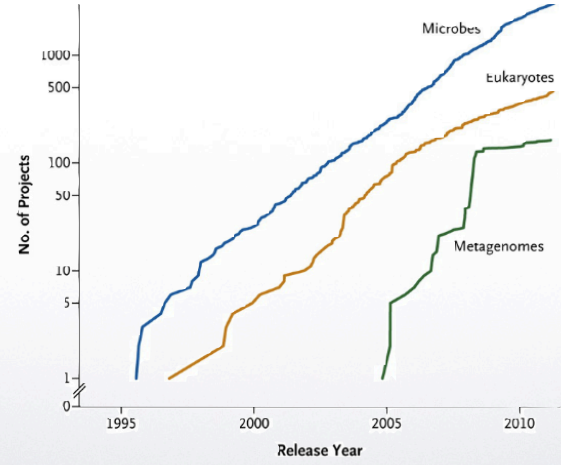


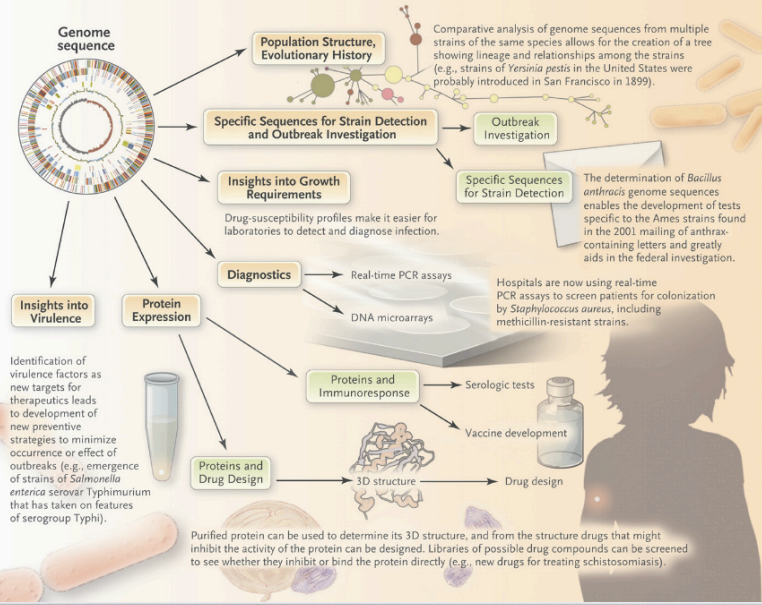






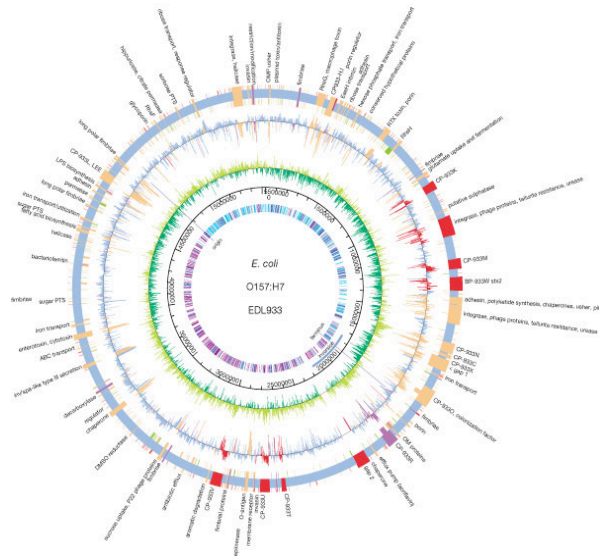
A Genome Projects





# Genómica comparativa

# Gastrogenomics

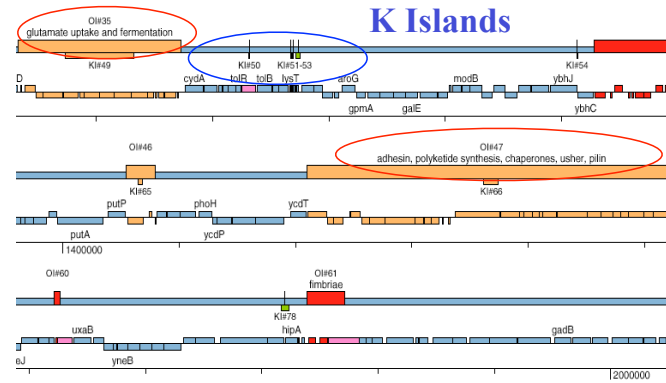


*Nature* (2001) **409**, 529-533

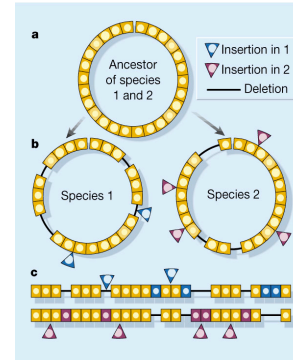


# Gastrogenomics

## O Islands



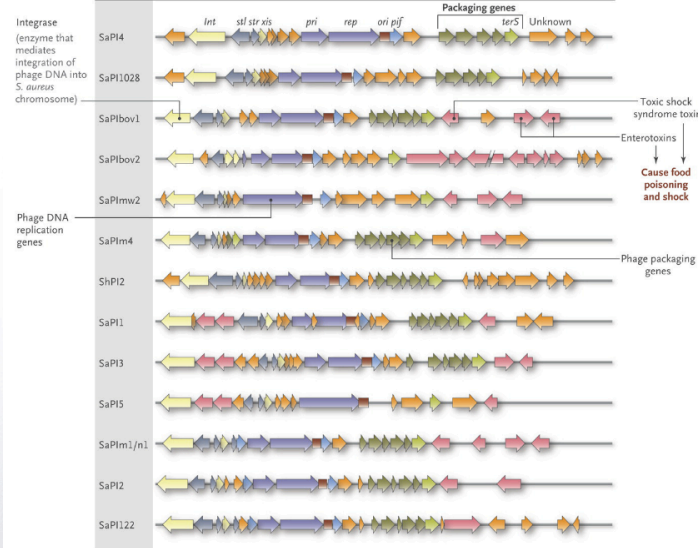
## K Islands



*Nature* (2001) **409**, 529-533

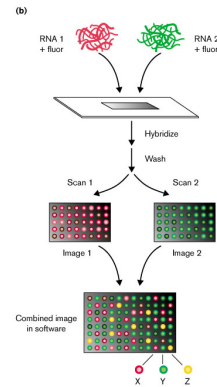
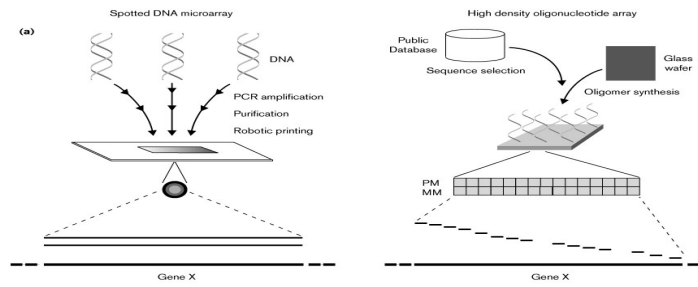


**S. aureus Pathogenicity Islands**



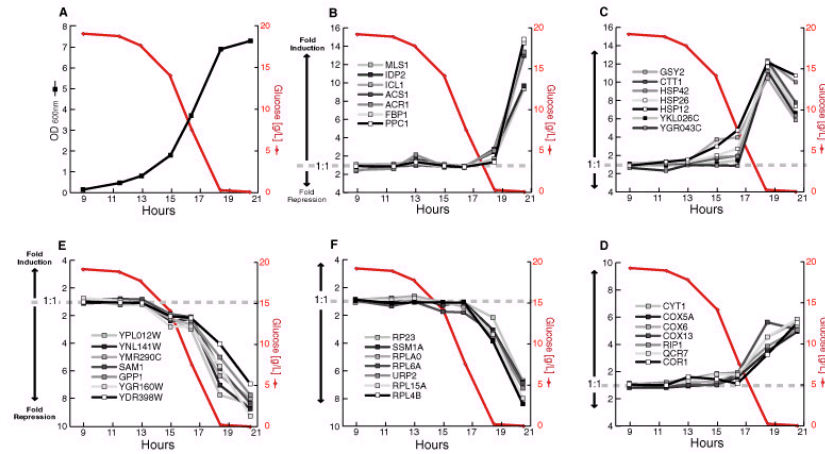
# Genómica funcional

# Principles of Microarray

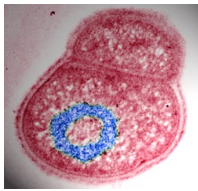


X-Pseudocolor Red: mRNA expressed in condition A  
Y-Pseudocolor Green: mRNA expressed in condition A  
Z-Pseudocolor Yellow: mRNA expressed in both conditions

# Metabolic pathway and Genetic Control

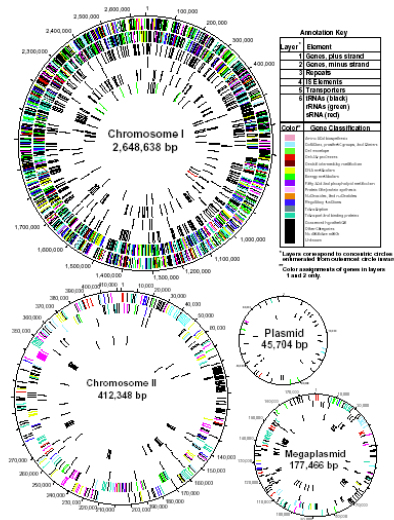


*Science* **278**: 680-686 (1997)



# Deinococcus radiodurans

## The World's Toughest Bacterium



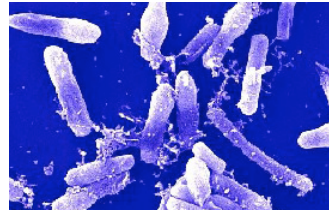
*Science* (1999) 286, 1571-1577

*PNAS* (2003) 100, 4191-4196



# *Bacillus anthracis* genome

Desde Pasteur hasta el bioterrorismo



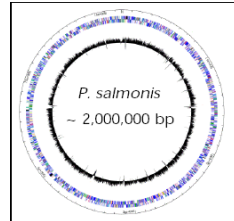
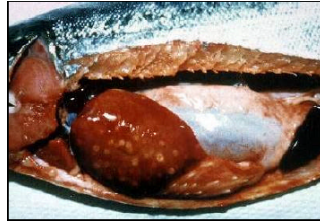
# Vacunas Genómicas





# First Chilean genome

## *Piscirickettsia salmonis*

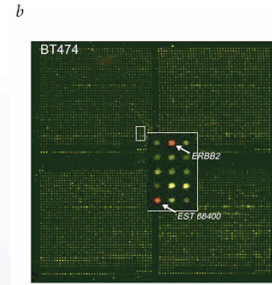
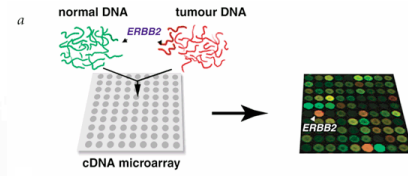


- *Piscirickettsia salmonis* is an obligated intracellular pathogen of salmon.
- Sequenced by a Chilean Consortium (Fundación Chile, Fundación Ciencia para la Vida y Novartis Animal Health).
- The draft (95% of the genome) comprises approximately 2,000,000 bp circular genome and 1500 ORFs.

# Otros Análisis Genómicos



# Human Breast Cáncer



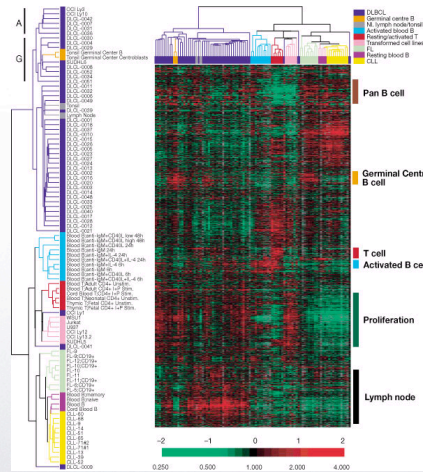
For each cDNA element on the array, the ratio of the intensity fluorescence measured for the two flours is represents the relative DNA copy number of that gene in the two samples.

- Pseudo Red: Increased DNA copy number**
- Pseudo Green: Decreased DNA copy number**
- Pseudo Yellow: No change**

*Nature Genetics* **23**, 41 - 46 (1999)



# B-Cell Lymphomas

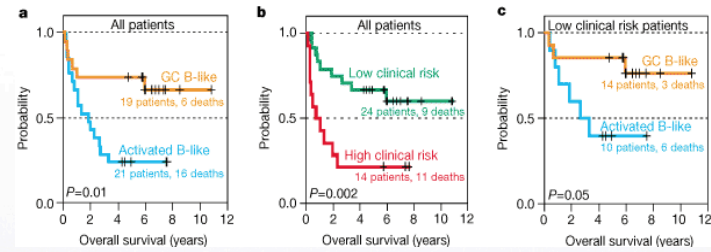


1.8 million measurements of gene expression from 128 microarray analyses of 96 samples of normal and malignant lymphocytes

*Nature* 403, 503 - 511 (2000)



# B-Cell Lymphomas

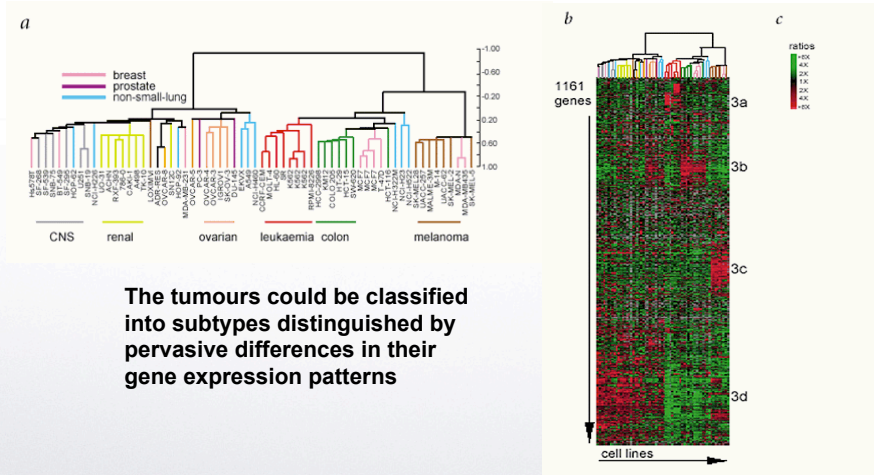


Clinically distinct DLBCL (diffuse large B-cell lymphoma) subgroups defined by gene expression profiling

*Nature* 403, 503 - 511 (2000)



# Other cancers

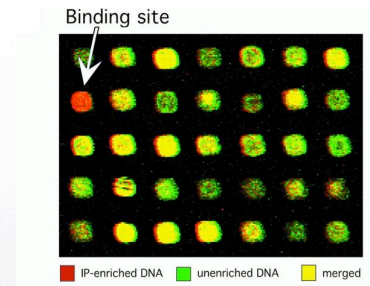
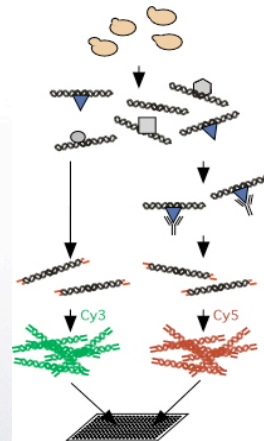


The tumours could be classified into subtypes distinguished by pervasive differences in their gene expression patterns

*Nature Genetics* 24, 227 – 235 (2000)



# Chip (Chromosome immunoprecipitation)

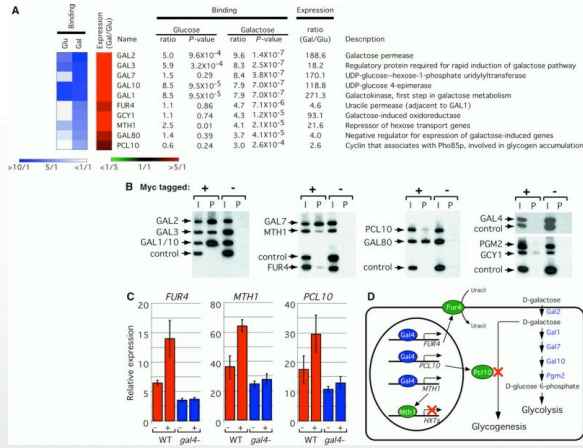


*Science* **290**, 2306-2309 (2000)



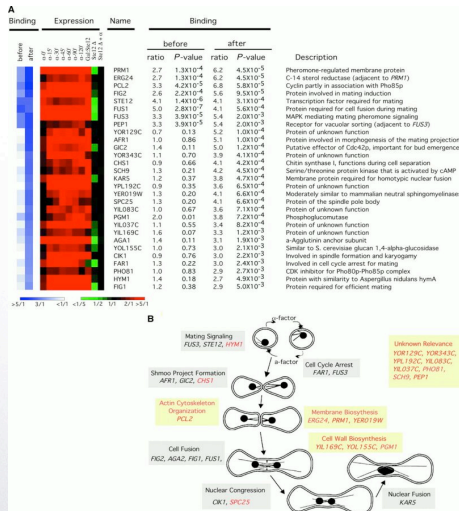


# Yeast Genome Gal4 binding site

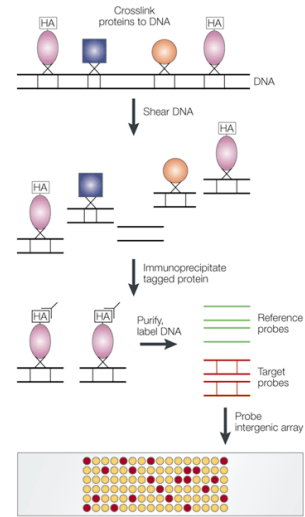


Science 290, 2306-2309 (2000)

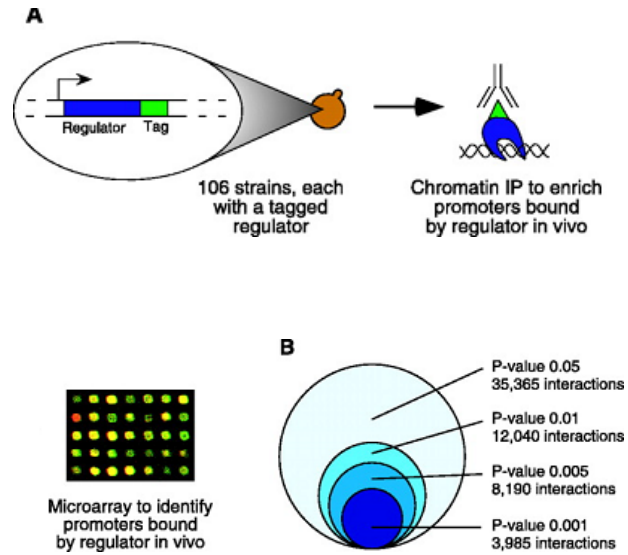
# Global Genome Yeast Ste12 binding site



Science 290, 2306-2309 (2000)



# Transcriptional regulatory Network



*Science* **298**, 799-804 (2002)

