

# Bioinformatics & Biostatistics Unit

Máster en Bioinformática Aplicada a Medicina Personalizada y Salud

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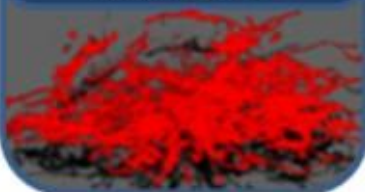


The UBB-CIPF is a technical and scientific unit that aims to **promote biomedical research** from the interaction with the groups and services of our center.

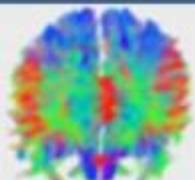


PRINCIPE FELIPE  
CENTRO DE INVESTIGACION

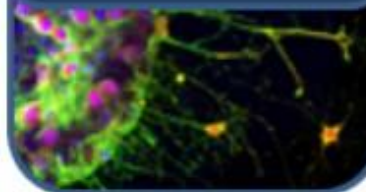
**Molecular Basis  
of Human  
Diseases**



**Neuroinflammation  
and neurological  
impairment**



**Advanced  
Therapies**



**New Technologies  
For Biomedical  
Research**





# UBB team



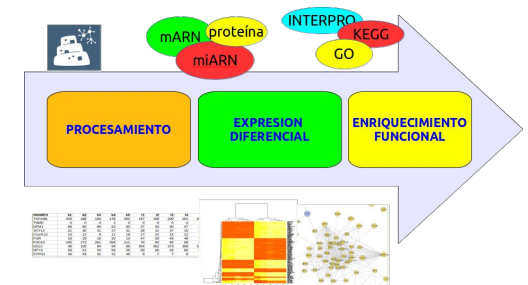
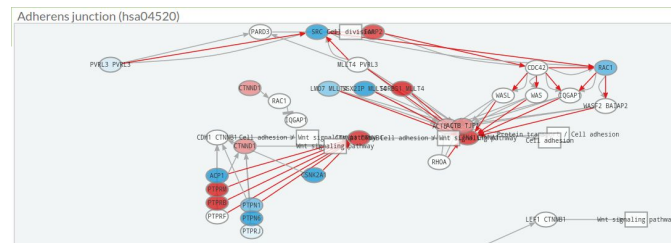
<http://bioinfo.cipf.es/ubb/>



**WODA**  
WEB-BASED  
OMICS  
DATA  
ANALYSIS

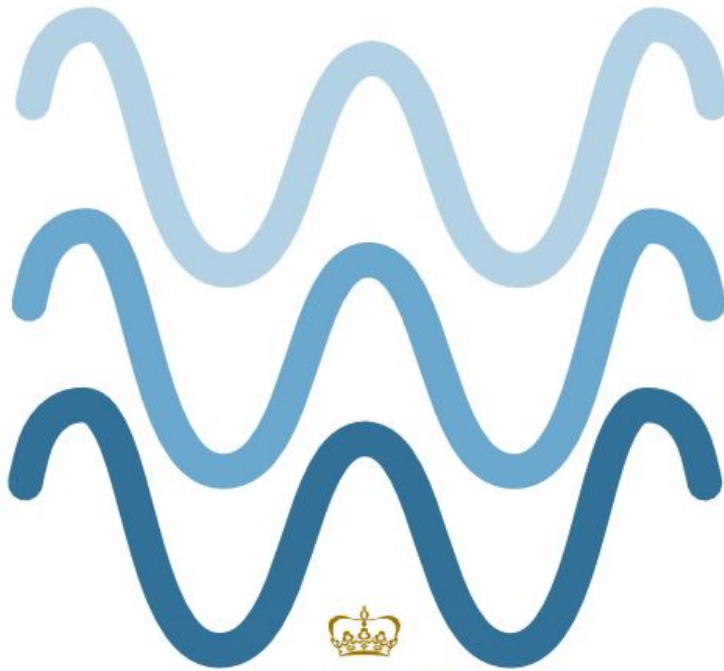
## 2. Teaching

## 4. Research





Próximo curso en CIPF: 16-18 Oct 2019



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# WODA

WEB-BASED  
OMICS  
DATA  
ANALYSIS



# Métodos y herramientas

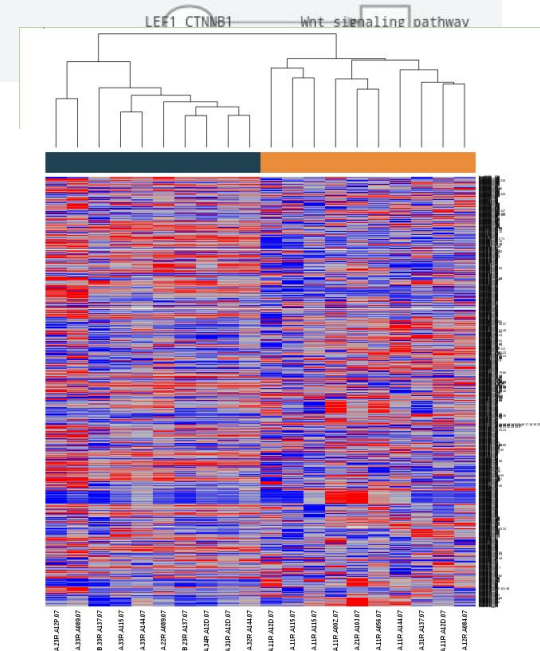
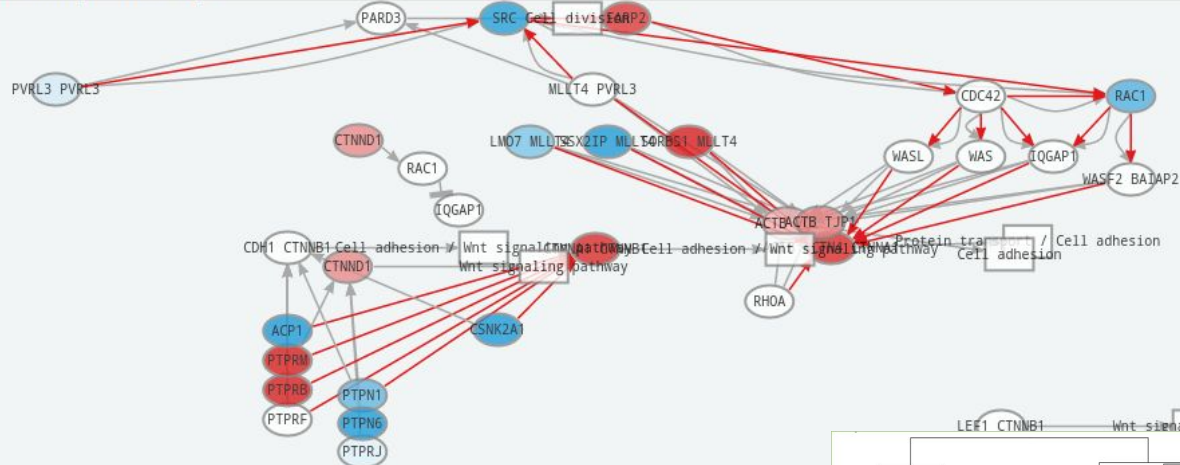
- Nuevos abordajes de estudios ómicos en el contexto de rutas de señalización.
- Métodos de metaanálisis funcional de estudios ómicos.

# Pathways de señalización



hiPathia

Adherens junction (hsa04520)



## Path significance

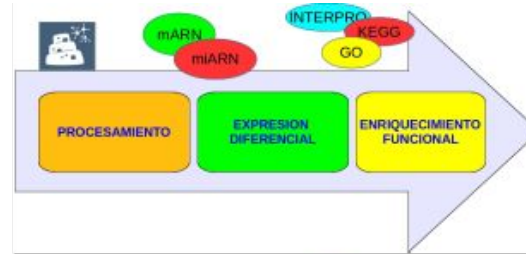
circuit/term	UP/DOWN	statistic	p.value	FDRp.value
AMPK signaling pathway: ADIPOR1	UP	3.704	0.000	0.000
p53 signaling pathway: GTSE1	DOWN	-3.704	0.000	0.000
Toll-like receptor signaling pathway: CXCL11	DOWN	-3.704	0.000	0.000
Fc gamma R-mediated phagocytosis: MYO10	DOWN	-3.704	0.000	0.000
Chemokine signaling pathway: PAK1	DOWN	-3.704	0.000	0.000
Insulin signaling pathway: FBP1	UP	3.704	0.000	0.000
Adipocytokine signaling pathway: C00162	UP	3.704	0.000	0.000
PPAR signaling pathway: PCK1	UP	3.704	0.000	0.000
PPAR signaling pathway: GK	UP	3.704	0.000	0.000
Progesterone-mediated oocyte maturation: CDK1	DOWN	-3.704	0.000	0.000

<http://hipathia.babelomics.org/>

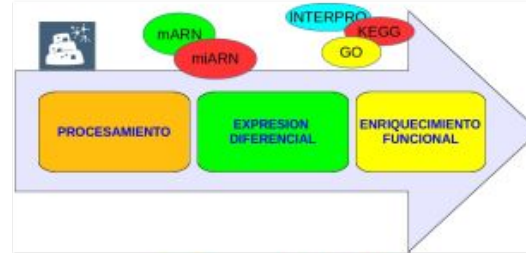


# Metaanálisis de estudios ómicos

Estudio 1



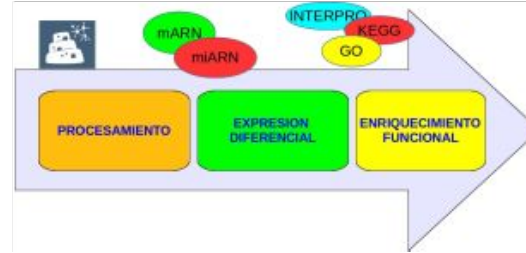
Estudio 2



Estudio 3

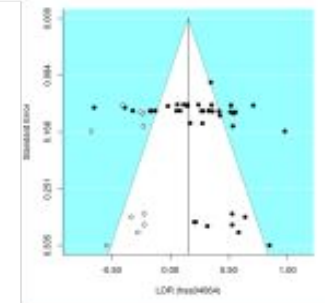
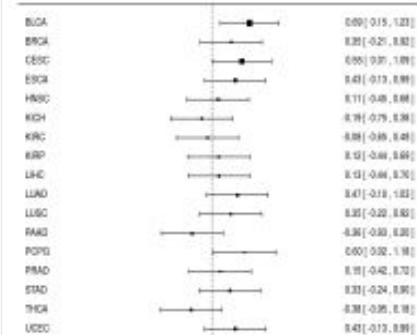


Estudio 4



## Metaanálisis

GO:0005227 (calcium activated cation channel activity)





# Projects

- A. Gender differences in Health, from big data approaches
- B. Understanding causative mechanisms in comorbidities



# Gender differences in Health



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Liver  
diseases



Instituto de Investigación  
Sanitaria La Fe

Lung  
cancer



Cardiovascular  
diseases



Fundación para el Fomento de la  
Investigación Sanitaria y Biomédica  
de la Comunitat Valenciana

Schizophrenia

Ethanol &  
development



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# Mechanisms in comorbidities

## Comorbidities

Colorectal  
cancer

Diabetes

## Multimorbidities

Disorder 1

Disorder 2

Disorder 3

Disorder 4

# Outline

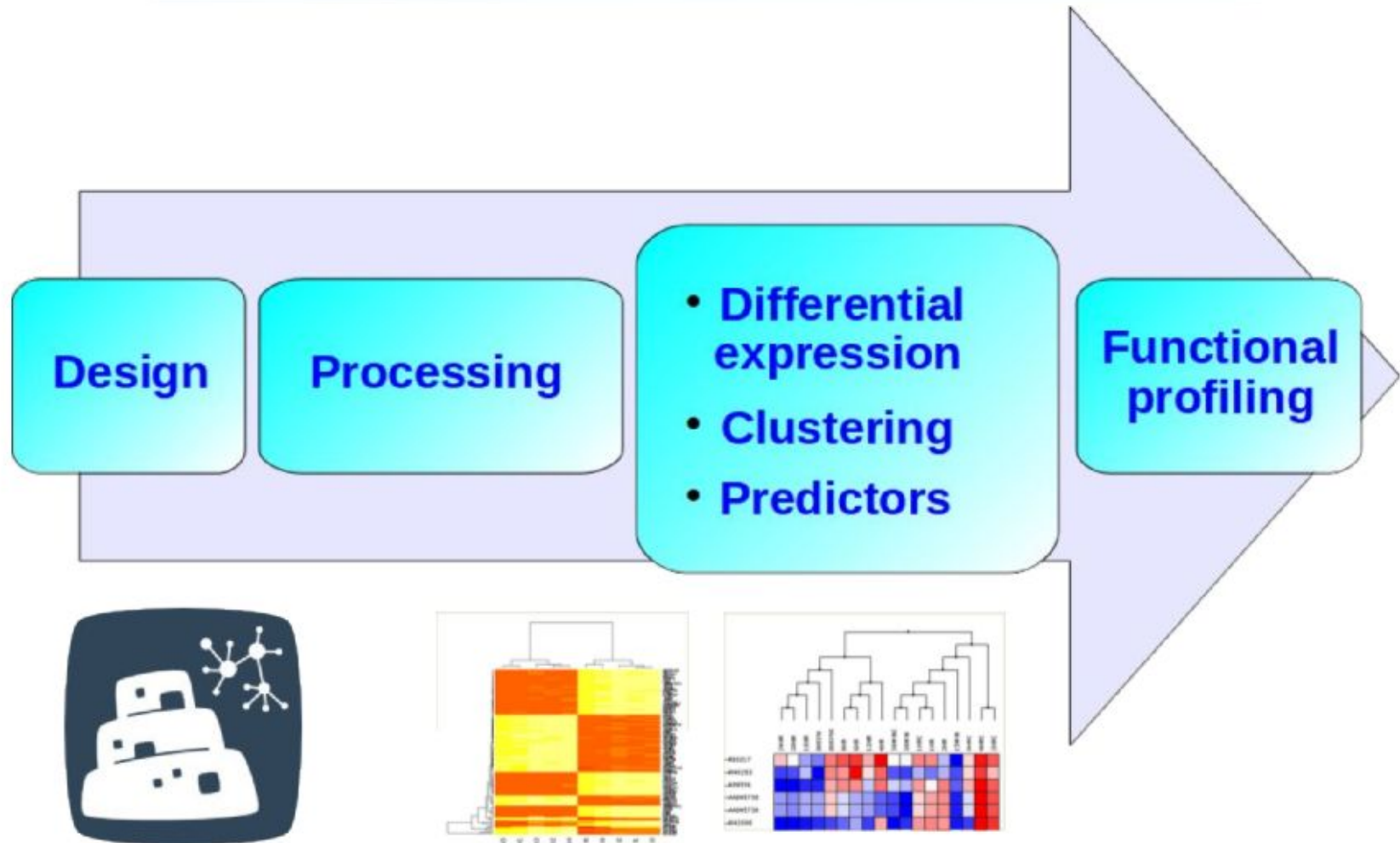
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1. Introduction to Babelomics
2. Functional Profiling: ORA
3. Unsupervised Classification: Clustering
4. Supervised Classification: Prediction

## **Exercises:**

<http://bioinfo.cipf.es/WODA/doku.php/program>

# Outline



Any questions?

