



# ANNUAL REPORT 2013

## **20 YEARS COMMITTED TO YOUR HEALTH**

[annualreport2013.vhir.org](http://annualreport2013.vhir.org)



Vall d'Hebron  
Institut de Recerca

**20VHIR**

Trustees:



© Fundació Institut de Recerca Hospital  
Universitari Vall d'Hebron (VHIR), 2014  
Edifici Mediterrània, 2nd floor  
Passeig Vall d'Hebron, 119-129  
08035 Barcelona  
[www.vhir.org](http://www.vhir.org)

Design: Ondeuev.net

Legal Deposit B-14.283



The 2013 Annual Report of VHIR is online.  
The full document can be found  
on the webpage: [annualreport2013.vhir.org](http://annualreport2013.vhir.org)

## INTRODUCTION

|   |   |
|---|---|
| 20 years committed to your health ..... | 4 |
|---|---|

## ORGANIZATION AND STAFF

|                            |   |
|----------------------------|---|
| Organizational chart ..... | 8 |
|----------------------------|---|

## RESEARCH AREAS AND GROUPS

|  |    |
|--|----|
| Digestive and Liver diseases .....                                       | 11 |
| Endocrinology and Nephrology .....                                       | 13 |
| Gynecology, Pediatric Diseases<br>and Experimental Surgery .....         | 15 |
| Heart area .....   | 20 |
| Infectious Diseases .....  | 22 |
| Neurosciences .....  | 25 |
| Oncology .....   | 32 |
| Respiratory and Systemic Diseases .....                                  | 45 |
| Epidemiology, Pharmacology, New Therapies<br>and Clinical Research ..... | 48 |
| Nanomedicine CIBBIM .....  | 51 |

## FACTS AND FIGURES

|  |    |
|--|----|
| Publications .....                     | 56 |
| Research projects and networks .....   | 60 |
| Clinical trials .....                  | 64 |
| Thesis .....                           | 65 |
| Events and seminars .....              | 66 |
| WIDER .....                            | 66 |
| Innovation .....                       | 67 |
| Economic summary .....                 | 68 |
| Human resources .....                  | 69 |
| Scientific and Technical Support ..... | 72 |

## VHIR HIGHLIGHTS

|                                |    |
|--------------------------------|----|
| Scientific highlights .....    | 76 |
| Institutional highlights ..... | 78 |

# 20 years committed to your health

You can watch the full video at: [annualreport2013.vhir.org](http://annualreport2013.vhir.org)



**DR. JOSÉ JERÓNIMO NAVAS**  
General Manager of Vall d'Hebron University Hospital

In those 20 years of research at Vall d'Hebron University Hospital we have achieved our main goals: to be leaders in clinical research, both in Catalonia and Spain and to consolidate our financial system through competitive funds from national and international agencies.

A hospital that wants to be in the cutting edge of good health care programs needs a strong program in clinical research and a strong program in teaching, education. Because the mission of the hospital is not only to perform good clinical practice but create the knowledge and prepare the people to do that in the next 20 years. VHIR is now one of the main institutions in fostering the clinical excellence of the hospital.



**DR. JOAN COMELLA**  
VHIR's Director

This is a very important year at VHIR because we are celebrating the 20 years of the creation of the foundation as structured form to do the research, and we want to use that celebration to be closer to the society that we serve.

In May, a Faculty Retreat concentrated all our PIs, our leaders in research, in order to incorporate their opinions related to the present Strategic Plan and the new one, that will last from 2015 to the Horizon 2020.

This has been a year of reaccreditations. The Spanish one, by the Instituto de Salud Carlos III (ISCIII), the second one from the Catalan government through CERCA, and the third one, the visit of the Scientific Advisory Board evaluating our research groups.



**DR. RICARD PUJOL**

Research Adviser of the ICS

In a year full of reacreditations in the Catalan Research Institutes, VHIR has done particularly well because we have seen how the Scientific Advisory Board (SAB) has come to review in detail many aspects of the institute. They were really committed to the process, they have reviewed almost every group and they have given a number of very useful advices. To have a committed scientific advisory board is really a very strong point for the Institute and it was a positive point for VHIR this year.

During the meeting of ICS, this year concentrated in a particular area, cardiovascular, VHIR had an important role led by Dr. David García-Dorado. Dr. Morell won the ICS prize after a prominent career as researcher.



**RAMON COSIALLS**

VHIR's Manager

VHIR's last year budget was 37.5 million euros, there was an increase of 2.3 million euros from the previous year (close to the 7%). Only 4% of this budget is funded by the Catalan government and it goes to the operational cost. The 90% remaining is obtained through competition.

For every euro financed by the Catalan government, we obtain 20 euros in the market, when the average ratio of the Catalan research centers is 1 to 3.

VHIR is one of the few research centers to close the annual budget with a positive balance. We accomplished this diversifying the sources of our income through more internationalization and working closer to the private sector.



**DR. RAFAEL SIMÓ**

Vicepresident of the Internal Scientific Council

We have improved our participation in European Commission projects in the last year, but it's necessary to increase very much this visibility and participation in the European projects.

VHIR has promoted in recent years a very potent innovation department that will have a key role in the success of this type of projects in the future because innovation is essential in Horizon 2020. In the last year we have generated 11 patents and more than half million euros for total revenues for exploitation. It must be stressed because innovation will be essential, not only in the private setting, but also in public research institutes, as in the VHIR.



**DR. FÁTIMA NÚÑEZ**

Director of the Scientific and Technical Support Area



**DR. JOAN GENESCÀ**

Deputy Director of Clinical Research



**DR. ANNA MESEGUER**

Deputy Director of Basic and Translational Research

Our core facilities are devoted to support our researchers in labs of basic or translational research, support clinicians and, horizontally, through Statistics and Bioinformatics, to all kind of research. During 2013 we had to optimize our resources and rationalize our expenses. We devoted our efforts to, on the one hand, reducing our expenses, and on the other hand, trying to be more competitive in the market. It was a year of benchmarking and really thinking hard which were the best services we could provide and which services we were better off doing with third parties.

I think that it has improved tremendously the quality of the services we give our researchers at the moment.

The facility at the 13th floor of the mother and child hospital in our campus has started to work with more than 600 square feet dedicated to support our leadership in clinical research. We have units prepared to support the clinical research -USIC-, clinical studies for monitoring and coordinating studies -ARO- and a new one devoted specifically to support non commercial clinical trials -SCReN-. We have consulting rooms and nursing support for the patients.

This is going to be a major help for maintaining and increasing the level of quality and quantity of our clinical trials, both commercial and non commercial that are a major asset of our institution.

We are very proud to announce the beginning of the Master in Translational Biomedical Research at VHIR. We have all the professors, we have the laboratories, we have the space to do the practical work... all the elements that are needed to do our own master. Hopefully, in the next 2 years, we will have also our own PhD program associated to this Master.

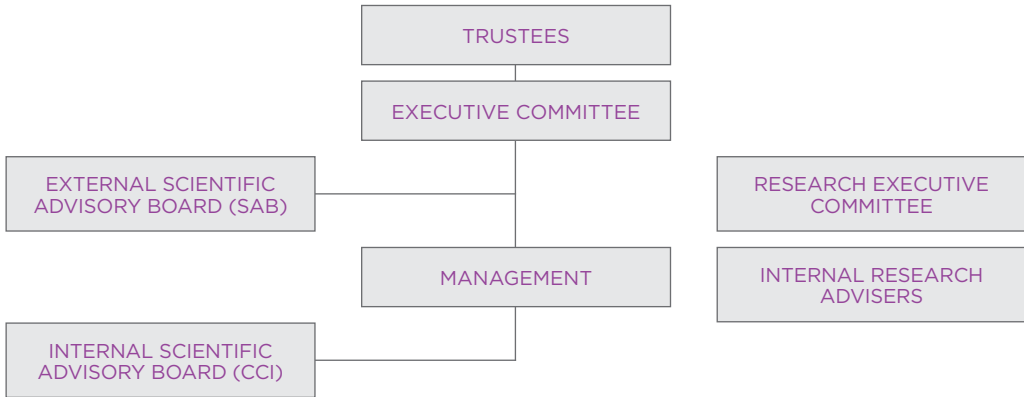
We believe there was a real need for that since there is no other Master like this in the market right now. There are some Masters oriented to biomedical research but not in the way this is addressing the problem, covering the gap between clinicians and basic researchers, which could be very useful in the future, especially in an environment like this.



[annualreport2013.vhir.org/organization-and-staff](http://annualreport2013.vhir.org/organization-and-staff)

## Organizational chart

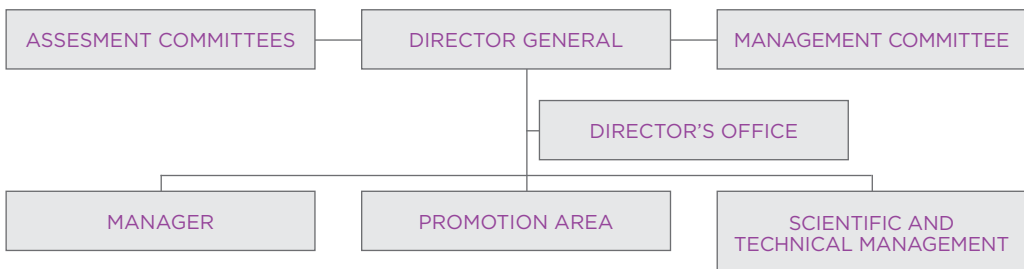
### Governing bodies



### Research



### Administrative structure



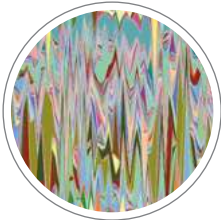




# RESEARCH AREAS AND GROUPS

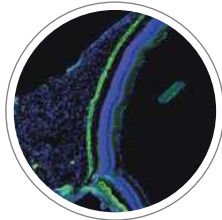
[annualreport2013.vhir.org/research-areas](http://annualreport2013.vhir.org/research-areas)

## Longitudinal areas



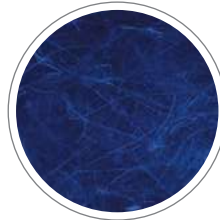
### DIGESTIVE AND LIVER DISEASES

Page 11



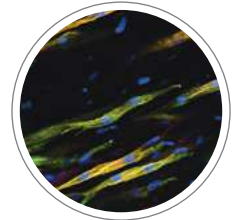
### ENDOCRINOLOGY AND NEPHROLOGY

Page 13



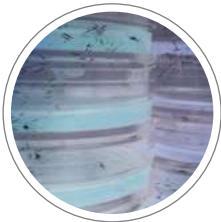
### GYNECOLOGY, PEDIATRIC DISEASES AND EXPERIMENTAL SURGERY

Page 15



### HEART AREA

Page 20



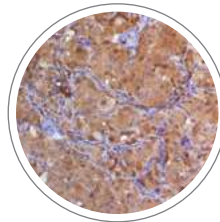
### INFECTIOUS DISEASES

Page 22



### NEUROSCIENCES

Page 25



### ONCOLOGY

Page 32



### RESPIRATORY AND SYSTEMIC DISEASES

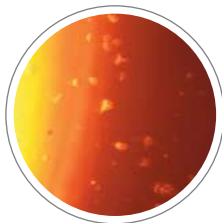
Page 45

## Transversal areas



### EPIDEMIOLOGY, PHARMACOLOGY, NEW THERAPIES AND CLINICAL RESEARCH

Page 48



### CIBBIM - NANOMEDICINE

Page 51



## DIGESTIVE AND LIVER DISEASES

PUBLICATIONS

66

IMPACT FACTOR

499.013

AVERAGE IMPACT FACTOR

7.561

### DIGESTIVE TRANSPLANTS

Ramon Charco



NUMBER OF PUBLICATIONS

5

IMPACT FACTOR

16.95

AVG. IMPACT FACTOR

3.39

Our group is mainly focused on immunosuppression in liver transplantation and treatment of hepatocarcinoma and cholangiocarcinoma on cirrhosis. The new research lines are Microbiota and liver transplantation and liver bioengineering.

#### MAIN RESEARCH LINES

- Optimization in the diagnosis and treatment of hepatocarcinoma / cholangiocarcinoma on cirrhosis. Clinical and experimental studies
- Immunosuppression in liver transplantation and long-term quality of life
- Usefulness of the clearance of the green of Indio-cianina (PDR) in paediatric liver transplantation
- Ischemia-reperfusion injury in liver transplantation
- Microbiota and liver transplantation
- Liver bioengineering

### LIVER DISEASES

Rafael Esteban



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 34                     | 298.99        | 8.79               |

Our group is interested in the clinical and basic aspects of liver diseases. We have two main research areas: viral hepatitis (etiology, virology, epidemiology, pathogenesis and therapy) and liver cirrhosis and its complications (portal hypertension, encephalopathy, hepatocellular carcinoma, liver failure), including liver transplantation.

#### MAIN RESEARCH LINES

- Liver failure and metabolic encephalopathies
- Liver transplantation and hepatocarcinoma
- Portal hypertension
- Hepatitis C, molecular biology, immune response and therapy
- Hepatitis B, Molecular biology and therapy

### PHYSIOLOGY AND PATHOPHYSIOLOGY OF THE DIGESTIVE TRACT

Fernando Aproz

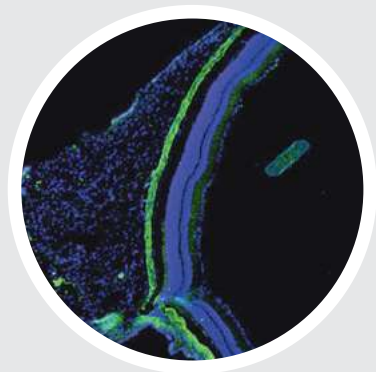


| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 28                     | 187.19        | 6.69               |

We are a multidisciplinary group composed by gastroenterologists and basic staff and personnel from diverse background scientific areas including, among others, pharmacology, genomics, bioinformatics and biology. Our common interest is to deal with digestive disorders integrating basic science into clinical protocols and viceversa.

#### MAIN RESEARCH LINES

- Hypersensitivity and dysmotility of the gastrointestinal tract
- Gut Microbita in health and Disease
- Pathophysiology and treatment of pancreatic disorders
- Neuro-Immuno-Gastroenterology



## ENDOCRINOLOGY AND NEPHROLOGY

PUBLICATIONS

43

IMPACT FACTOR

197.063

AVERAGE IMPACT FACTOR

4.583

## DIABETES AND METABOLISM

Rafael Simó



NUMBER OF  
PUBLICATIONS

25

IMPACT  
FACTOR

134.57

AVG. IMPACT  
FACTOR

5.38

Our research is addressed toward gaining new insights in the pathogenesis and treatment of prevalent diseases such as diabetes and obesity. Our combination of basic and clinical research is important not also in obtaining relevant results, but also in facilitating the rapid transference of these results to clinical practice.

### MAIN RESEARCH LINES

- Physiopathology of diabetic retinopathy
- Insulin resistance and obesity: new pathogenic candidates and the study of co-morbidities
- Endothelial dysfunction, dyslipidaemia and cardiovascular disease in type 2 diabetes
- Diabetes as a metabolic accelerator of Alzheimer's disease

## NEPHROLOGY

Daniel Serón



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 12                     | 45.46         | 3.79               |

Study of progression of renal insufficiency and cardiovascular disease in patients with chronic kidney disease, glomerulonephritis, kidney transplants and the evaluation of treatments to delay progression of renal insufficiency and to decrease cardiovascular risk in CKD patients.

### MAIN RESEARCH LINES

- The study of the alloimmune response in kidney transplants: progression of histological damage in surveillance and indication biopsies, characterization of peripheral immune cells with cytometry and characterization of the humoral response
- Recurrence of focal segmental glomerulosclerosis after kidney transplantation
- Characterization of systemic inflammation, endothelial activation and endothelial progenitors in the progression of atheromatosis in patients with CKD and transplants as well as hemodialysis patients
- Characterization of biomarkers of diabetic nephropathy in type 2 diabetes with microalbuminuria based on proteomic analysis
- Histological and soluble biomarkers in glomerular diseases and evaluation of treatments to halt progression of CKD in IgA nephropathy, lupus and vasculitis

## PEDIATRIC ENDOCRINOLOGY

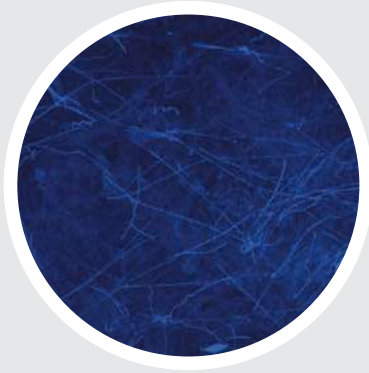
Antonio Carrascosa



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 7                      | 18.59         | 2.66               |

### MAIN RESEARCH LINES

- Normal growth and development patterns in children
- Growth delay in children: phenotype-genotype (GH1, GHRH, GHRHR, GHR, IGF-1, IGF1R, SHOX genes) associations. Anthropometric response to GH therapy according to clinical, biochemical and molecular data
- Familial isolated glucocorticoid deficiency (FGD) (MC2R, MRAP, StAR, CYP11A1 genes). Functional analysis of novel mutations
- Disorders of sex development (DSD): clinical and molecular diagnosis (AR, SRD5A2, HSD17B3, CYP17A1, NR5A1, MAMLD1). Phenotype-genotype analyses
- Childhood obesity: metabolic complications and therapeutic approaches



## GYNECOLOGY PEDIATRIC DISEASES AND EXPERIMENTAL SURGERY

PUBLICATIONS

69

IMPACT FACTOR

204.799

AVERAGE IMPACT FACTOR

2.968

## BIOENGINEERING, ORTHOPEDICS AND SURGERY IN PEDIATRICS

César Galo García Fontecha



NUMBER OF  
PUBLICATIONS

12

IMPACT  
FACTOR

26.87

AVG. IMPACT  
FACTOR

2.24

The group researches in all areas of paediatric surgery and pediatric orthopaedics, supported by bioengineering and cell therapy. We innovate in experimental surgery through developing animal models of disease.

### MAIN RESEARCH LINES

- Pediatric neuromuscular pathology
- Pediatric skeletal pathology
- Fetal malformation pathology
- Fetal surgery

## GENERAL SURGERY

Manuel Armengol



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 27                     | 70.62         | 2.62               |

The General Surgery Group is organized across the department's sub-speciality programs and works to advance in the understanding of the causes and mechanisms underlying surgical pathologies, to deliver new knowledge and better integrated patient-centred solutions that improve surgical care and outcomes. The approach includes in vivo, ex vivo and in vitro human and animal studies.

### MAIN RESEARCH LINES

- Abdominal wall surgery
- Colorectal surgery
- Endocrine and bariatric/metabolic surgery
- Thoracic surgery
- Extracellular matrix and inflammation
- Biomaterials integration and performance

## GENETICS

Alberto Plaja



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 4                      | 43.65         | 10.91              |

The Genetics research group of VH Hospital combines genetic diagnosis and research. Pioneer in Spain (the laboratory was founded in 1967), has a strong clinical and laboratory structure devoted to genetic rare diseases. We are the first group in the use of the technique of array CGH as a diagnostic first line, and are reference center (in coordination with other hospital groups) in several diseases such as fetal alcohol, velocardiofacial syndrome / DiGeorge and several genetic rare diseases.

### MAIN RESEARCH LINES

- Segmental duplications, genomic rearrangements and their phenotypic consequences using molecular cytogenetic techniques (array CGH, MLPA, FISH, molecular cytogenetics)
- Genetic basis of mental retardation, malformations and autism spectrum disorders (ASD)
- Fetal Alcohol Syndrome
- Role of genomic rearrangements in congenital heart disease
- Role of genomic rearrangements in short stature



## MATERNAL FETAL MEDICINE

Lluís Cabero and Elena Carreras



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 13                     | 37.35         | 2.87               |

The Research Group Maternal and Fetal Medicine, Department of Obstetrics, University Hospital Vall d'Hebron is one of the largest maternity units in Catalonia and Spain. It is a tertiary referral center accredited by the European Council and the College of Obstetrics and Gynecology (EBCOG) and the European Association of Perinatal Medicine (EAPM) as a training center with 14 residents. The Fetal Medicine Research Group works closely with the Research Institute Vall d'Hebron (IR-HUVH), which promotes basic and applied research in the laboratories of HUVH.

### MAIN RESEARCH LINES

- Prevention of preterm birth
- Prevention of Preeclampsia and growth restriction
- Etiology, diagnosis and prognosis of congenital heart disease
- Etiology, diagnosis and prognosis of recurrent miscarriage
- Prenatal mielomeningocele repair

## SPINE RESEARCH UNIT

Ferran Pellisé



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 10                     | 21.42         | 2.14               |

The Vall Hebron Spine Research Unit is a multidisciplinary team. The main objectives of the group are to improve the health related quality of life (HRQL) of patients with spinal disorders. These include the identification of major parameters influencing HRQL and improve the clinical outcomes after surgical treatment (refining the surgical technique and reducing post-operative complications).

### MAIN RESEARCH LINES

- Adolescent Idiopathic Scoliosis
- Thoracolumbar Degenerative and Adult Spinal Deformity
- Spinal Tumours and fractures
- Anaesthesia management and perioperative complications in complex spinal surgery
- New therapies to achieve bone fusion. Advanced cellular therapy with mesenchymal cells

## MUSCULOSKELETAL TISSUE ENGINEERING

Màrius Aguirre



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 3                      | 4.92          | 1.64               |

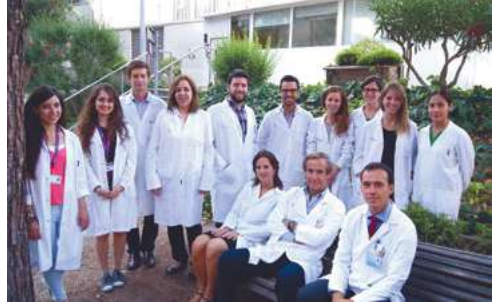
The Musculoskeletal Tissue Engineering research group is a team of clinical researchers dedicated to preclinical translational research working in collaboration with biologists, engineers, veterinarians and leading multinational companies in the development of orthopedic products, oriented in a multidisciplinary approach. The group emphasizes on the development of cell therapies and advanced technology of biological constructs for optimal integration into clinical regenerative treatments, aiming to consolidate a competitive program in tissue engineering with international positioning.

### MAIN RESEARCH LINES

- Bone Regeneration
- Tumors
- Soft Tissue Regeneration

## OPHTHALMOLOGY

José García-Arumí



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 4                      | 10.65         | 2.66               |

The clinical and basic research activity of the ophthalmology research group is mainly centered on retinal vascular disease, including the physiopathology of diabetic retinopathy; physiopathology and treatment of retinal vein occlusion and new treatments for retinal artery occlusions.

### MAIN RESEARCH LINES

- Diabetic retinopathy
- Retinal artery occlusion
- Retinal vascular diseases
- Age related macular degeneration
- Ocular inflammation and uveitis
- Glaucoma

## NEW TECHNOLOGIES AND MICROSURGERY IN CRANIOFACIAL SURGERY

Coro Bescós

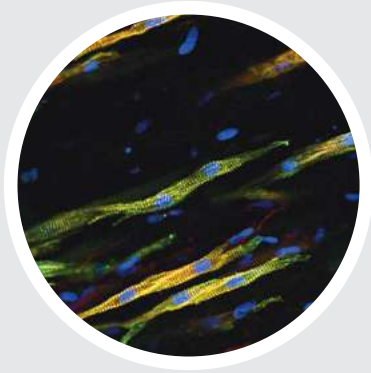


The purpose of this group is aimed at research and development of new image technologies, virtual planning, navigation and robotics surgery, together with the development of microsurgery as a reconstructive technique in Cranio-Maxillofacial Surgery.

### MAIN RESEARCH LINES

- Computer-assisted surgery (CAS)
- New techniques and devices
- Microsurgical Reconstruction in Maxillofacial Surgery and Quality of Live (QOL)
- Oncology





### HEART AREA

PUBLICATIONS

62

IMPACT FACTOR

275.545

AVERAGE IMPACT FACTOR

4.444

### CARDIOCIRCULATORY PATHOLOGY

David García-Dorado



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 61                     | 270.53        | 4.43               |

The research group of cardiovascular pathology uses a tridimensional approach to generate knowledge on the mechanisms of heart diseases and to generate new diagnostic and therapeutic tools and better ways to apply available tools to the prevention and treatment of patients with cardiomyopathies. The group includes a Laboratory of Experimental Cardiology, a clinical research unit and unit of cardiovascular Epidemiology.

#### MAIN RESEARCH LINES

- Acute coronary syndrome and myocardial ischemia-reperfusion injury. Pathophysiology, biomarkers, imaging, risk stratification, treatment. Outcome research
- Diseases of the aorta. Aneurism and acute aortic syndrome. Biomechanics, genetics, risks stratification. Imaging Treatment
- Valvular heart disease and endocarditis. Epidemiology, evaluation of new treatments, outcome research
- Myocardial, pericardial disease and arrhythmias. Pericarditis, Cardiomyopathy, prevention of lethal arrhythmias, atrial fibrillation, syncope
- Familial and congenital heart disease. Genotype-phenotype correlation, non-syndromic diseases, risk stratification, personalized medicine

## REPARATIVE AND THERAPY OF THE HEART

Manuel Galiñanes

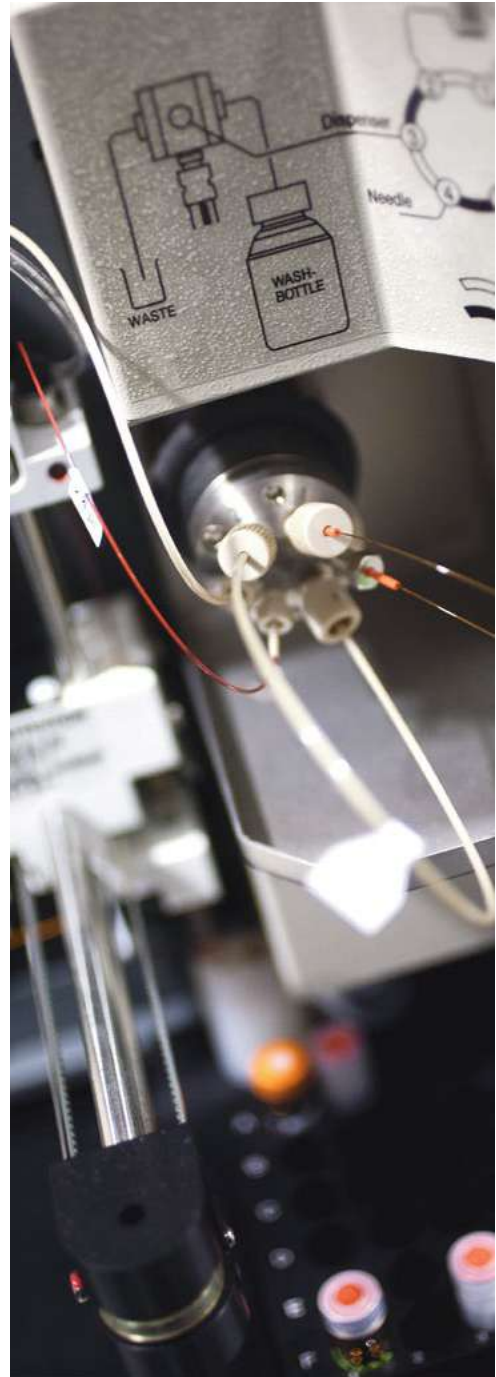


| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 1                      | 5.01          | 5.01               |

The Laboratory of Reparative and Therapy of Heart aims to design new therapeutic approaches to reduce myocardial injury induced by ischemia and reperfusion and to repair the damaged myocardium through mechanisms of stem cells homing, proliferation and differentiation. In addition, we aim to understand the mechanism of deterioration of biological prosthetic valves.

### MAIN RESEARCH LINES

- Characterization of the susceptibility of the human myocardium to ischemic/reperfusion-induced injury and its response to protective interventions
- The utility of stem cells and growth factors to promote repair of the myocardium
- The role of nitrosative and oxidative stress in the deterioration of biological prosthetic valves





## INFECTIOUS DISEASES

PUBLICATIONS

104

IMPACT FACTOR

397.425

AVERAGE IMPACT FACTOR

3.821

## CLINICAL RESEARCH/INNOVATION IN PNEUMONIA & SEPSIS (CRIPS)

Jordi Rello



NUMBER OF PUBLICATIONS

42

IMPACT FACTOR

175.27

AVG. IMPACT FACTOR

4.17

The aim of this group is to develop translational and clinical research in critical care. This group focuses on the most prevalent aspects of infections in the ICU (Ventilator-associated pneumonia, Severe Community-acquired pneumonia -and HCAP-, and opportunistic respiratory infections in severe immunocompromised patients), which represent the Research Lines of CIBERES, where Jordi Rello is head of cooperative research on Hospital-acquired pneumonia.

### MAIN RESEARCH LINES

- Severe Acute Respiratory Infection (SARI)
- Lung transplantation at ICU
- Acute respiratory failure and mechanical ventilation
- Translational and transference technology
- Safety, quality of life and nursing critical care

## INFECTION IN IMMUNOCOMPROMISED PEDIATRIC PATIENT

Concepción Figueras



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 15                     | 56.25         | 3.75               |

The Infection in immunocompromised pediatric patient research group is composed mainly by pediatricians from the Pediatric Infectious Diseases and Immunodeficiencies Unit (<http://www.upiip.com>) created in 1996 as Pediatric Infectious Diseases Unit and consolidated in 2005 like a consulting unit in nosocomial and opportunistic infections in immunocompromised pediatric patients. Actually is pioneering in this field and its Master in Pediatric Infectious Diseases is the first in Europe in this discipline. Its research is principally focused on severe bacterial, fungal and viral infections in immunocompromised pediatric patients.

### MAIN RESEARCH LINES

- Functional assays in patients with Combined Immunodeficiencies
- Safety, efficacy and tolerability of anti-infective drugs and IVIG and SCIG therapy
- Occult HBV and seronegative HCV Infection in immunocompromised patients
- Vertical transmission of HIV, Chagas disease and HTLV
- Invasive fungal infection

## INFECTIOUS DISEASES

Albert Pahissa



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 39                     | 153.45        | 3.93               |

Research in the Department of Infectious Diseases aims to try to give answers or try to improve strategies of the clinical problems observed in clinical practice, therefore, we work in clinical research. The research is mainly developed within the Network program of the Institute of Health Carlos III, specifically as part of the Network for Infectious Diseases (REIPI), HIV Network (RIS) and the International Health Network (RICET). The group consists of 13 staff members and a total of 15 contracted.

### MAIN RESEARCH LINES

- HIV infection, especially antiretroviral medication, pharmacokinetic interactions and opportunistic infections
- The infectious pathology observed in the cancer population, especially bacterial and fungal infection
- The transplant-associated infectious pathology, both solid organ and hematopoietic stem cells, with special emphasis on viral and fungal infection
- The nosocomial infection, especially bacterial infection
- Research problems associated with international health, particularly tuberculosis and Chagas disease

## MICROBIOLOGY

Tomàs Pumarola



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 15                     | 47.53         | 3.17               |

VHIR Research Group of Microbiology focuses on the study of the microbiology aspects involved in the infectious diseases aimed at improving developing basic, translational and clinical research that could improve the outcomes of patients with infectious diseases. We work with special interest in studying the mechanisms involved in antimicrobial resistance, the sexually transmitted infectious diseases, the study of viral and fungal infection in immunocompromised patients, the microbial mechanisms involved in pathogenicity as well as microbial epidemiology.

### MAIN RESEARCH LINES

- Epidemiology and antimicrobial resistance
- Bacterial pathogenicity
- Molecular epidemiology of influenza and other respiratory viruses
- Viral infection in the immunocompromised patient
- International Health

## SHOCK, ORGAN DYSFUNCTION AND RESUSCITATION (SODIR)

Joaquim Serra



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 7                      | 21.44         | 3.06               |

The objective of the group is the integrated and innovative research in the areas of shock, organ dysfunction, resuscitation and the critical ill patient monitoring. In these areas, the group has a particular interest in the application of artificial intelligence for to obtain innovatives solutions to critical ill patients.

### MAIN RESEARCH LINES

- Sepsis, severe sepsis and septic shock
- Cardiopulmonary resuscitation
- Monitoring the critically ill
- Informatics Infrastructure for syndromic surveillance, decision support systems and clinical research





## NEUROSCIENCES

PUBLICATIONS

199

IMPACT FACTOR

1,003.326

AVERAGE IMPACT FACTOR

5.042

## ALZHEIMER

Mercè Boada



NUMBER OF  
PUBLICATIONS

9

IMPACT  
FACTOR

67.87

AVG. IMPACT  
FACTOR

7.54

The main objectives of the group are:

- To correlate the specific biomarkers in CSF (beta-amyloid 42 protein, total and phosphorylated Tau) in the extracerebral compartment (plasma).
- Determine, in a molecular level, a risk profile associated to other biomarkers to complete the basic range that gathers different Alzheimer's clinic phenotypes and therapeutic strategies on specific targets.
- To know the preventive value of nutritional factors related with oxidative stress, antiinflammatory and neurovascular risk.
- Design and experimental development of new pharmacologic treatments in Alzheimer's disease.
- Research in genetics to identify new genes associated with Alzheimer's disease.

### MAIN RESEARCH LINES

- Genetic risk factors for the development of Alzheimer's disease
- Biomarkers and neuroimage in the diagnostic of the prodromic Alzheimer's disease
- Design of the studies of new treatments for Alzheimer's disease

### CELL SIGNALING AND APOPTOSIS

Joan Comella



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 9                      | 45.63         | 5.07               |

The main goal of the group is the study of proteins with capability of antagonizing death receptor-mediated cell death, mainly that promoted by TNFR1 and Fas signaling, and their relationship with survival, differentiation, and signaling pathways. This approach may contribute to a better understanding of the physiopathology of neurodegenerative illnesses, such as Alzheimer or Parkinson, or the role of death receptor antagonists in the development of some cancers. We are particularly interested in the antagonists FAIM-L and Lifeguard.

#### MAIN RESEARCH LINES

- Role of the death receptor antagonist FAIM-L in neuroinflammation associated to Alzheimer's disease
- Characterization of the death receptor Lifeguard/FAIM2
- Lifeguard/FAIM2 as a MycN target in neuroblastoma
- Interactions among death receptor agonists in nervous system
- Characterization of functional partners of death receptor antagonists

### CLINICAL NEUROIMMUNOLOGY

Xavier Montalban



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 51                     | 269.6         | 5.29               |

The main objectives of the Clinical Neuroimmunology group through research are to improve the quality of life of multiple sclerosis (MS) patients and attain a greater understanding of the pathogenic mechanisms, aiming to develop new and more effective therapeutic means. Other interests in research are: therapeutic tools in MS; disease susceptibility, diagnostic and prognostic markers in MS; study of the response to treatment in MS patients; clinical and radiological study of primary-progressive MS; epidemiology of MS; and patient-oriented outcomes.

#### MAIN RESEARCH LINES

- Susceptibility, diagnostic and prognostic markers in MS
- Therapeutic Research in multiple sclerosis
- Clinical, radiological and biological prognostic factors of response to treatment with disease-modifying drugs (DMDs)
- Clinico-radiological investigation of Primary Progressive MS
- Clinical practice guideline on MS

## HEADACHE & NEUROLOGICAL PAIN

Patricia Pozo



Our research group has the focus on studying the pathophysiology of migraine and other primary headaches using preclinical, translational and clinical research.

### MAIN RESEARCH LINES

- Genetics of migraine and other primary headaches
- Neurophysiological research of migraine and other primary headaches
- Neuroimaging research of migraine and other primary headaches

## MAGNETIC RESONANCE AND NEURORADIOLOGY

Alex Rovira



NUMBER OF PUBLICATIONS

22

IMPACT FACTOR

90.3

AVG. IMPACT FACTOR

4.1

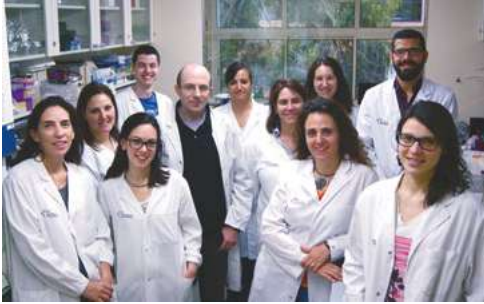
The multidisciplinary nature of our group (neuroradiologists, physicist, biochemist, engineer, and MR technologists) allows us to apply MR techniques to obtain qualitative and quantitative information to study the pathophysiologic mechanisms implicated in pathologies such as multiple sclerosis, hepatic encephalopathy, dementia epilepsy, and stroke. Furthermore, we can act as a platform to design research projects and perform the MR acquisition, processing and analysis.

### MAIN RESEARCH LINES

- Application of MR imaging and spectroscopy techniques to the study of multiple sclerosis
- Application of MR imaging and spectroscopy techniques to the study of hepatic encephalopathy
- Functional MR imaging: protocol development and image analysis
- Quantitative analysis of MR images: image analysis and software development

## NEURODEGENERATIVE DISEASES

Miquel Vila



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 6                      | 38.17         | 6.36               |

The general goal of our research is the elucidation of the molecular mechanisms of neurodegeneration in Parkinson's disease in order to: (i) identify new molecular targets for potential therapeutic intervention, (ii) develop novel therapeutic strategies for this disabling and currently incurable neurological disorder, and (iii) unravel molecular pathways common to other neurodegenerative diseases.

### MAIN RESEARCH LINES

- Role of  $\alpha$ -synuclein in Parkinson's disease
- Autophagy and neurodegeneration
- Mitochondrial dynamics alterations in Parkinson's disease
- Biomarkers of preasymptomatic and prodromal PD
- Regeneration of dopaminergic neurons in Parkinson's disease via cell fusion-mediated reprogramming

## NEUROMUSCULAR AND MITOCHONDRIAL PATHOLOGY

Ramon Martí



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 11                     | 57.16         | 5.2                |

The group focuses on the study of pathogenic mechanisms of mitochondrial DNA mutations (mtDNA) associated with diverse neuromuscular syndromes. It is especially interested in understanding the pathogenic mechanisms involved in mutations of structural genes of mtDNA, as well as the adaptative mechanisms of the cell in the mtDNA depletion syndrome. In addition, it performs the genetic and molecular study of diverse neurological syndromes and glycogenosis type V.

### MAIN RESEARCH LINES

- Study of pathogenic mechanisms of mutations in mitochondrial DNA ( mtDNA) structural genes
- Genetic and biochemical study of mitochondrial DNA depletion syndromes. Implications on the control of nucleotide pool
- Study of possible therapeutic approaches for mitochondrial DNA depletion syndromes.
- Characterization of genotype-phenotype association in McArdle's disease
- Therapy approaches in McArdle's disease

## NEUROTRAUMATOLOGY AND NEUROSURGERY RESEARCH GROUP (UNINN)

Juan Sahuquillo



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 12                     | 26.45         | 2.2                |

The UNINN, established in late 1990 and fully integrated into the European research community, has been accredited as a Consolidated Research Group since 2005. Our research projects, traditionally clinically oriented, have incorporated basic research while maintaining a patient-centered approach. One of the main objectives of the UNINN is to increase the amount of translational research to improve prognosis and quality of life in patients.

### MAIN RESEARCH LINES

#### A. Consolidated

- Neurotraumatology
- Hydrocephalus and alterations in the dynamics of cerebrospinal fluid (CSF)
- Malignant Middle Cerebral Artery Infarction (MMCAI)

#### B. Emerging

- Congenital malformations of the crano-vertebral junction
- Neuro-oncology

## NEUROVASCULAR DISEASES

Joan Montaner



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 47                     | 260.08        | 5.53               |

The Neurovascular Research Lab was created in 2001 focused in stroke research from a basic and translational point of view and it covers all the stages of the disease: prevention, treatment, repair.

Dr. Joan Montaner directed the creation of the laboratory and nowadays is composed by a young and highly motivated group of researchers: neurologists, biologists, technicians, veterinarians, graduates in statistics, psychologists and nurses.

### MAIN RESEARCH LINES

- Biomarkers and Neuroprotection
- Neurorepair
- Amyloid
- Prevention

## PEDIATRIC NEUROLOGY

Alfons Macaya



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 11                     | 59.88         | 5.44               |

The Pediatric Neurology Research group is mainly involved in the study of genetic diseases of the developing nervous system. The main emphasis is on paroxysmal neurological disorders and neuromuscular disorders. A common theme across the different projects, besides the identification of the molecular basis of several of these rare disorders, is the investigation of molecules involved in their pathophysiological mechanisms and the effective translation of these findings into the fields of molecular diagnosis, genetic counselling and newly developed gene or drug therapies.

### MAIN RESEARCH LINES

- Pediatric Neurogenetics
- Pediatric Neuromuscular Disorders

## PERIPHERAL NERVOUS SYSTEM

Josep Gámez



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 11                     | 58.38         | 5.31               |

Our laboratory, in the Neuromuscular Disorders Unit of the Neurology Department, has a twenty-year history of providing clinical care and research in amyotrophic lateral sclerosis (ALS) and other motor neuron diseases (hereditary spastic paraplegias, postpolio syndrome, Hirayama's disease, spinal muscular atrophies), myasthenia gravis, genetically determined myopathies, and peripheral neuropathies.

### MAIN RESEARCH LINES

- Molecular Mechanisms of ALS:  
In 2011, our group investigated the prevalence of FUS/TLS mutations in a Catalan familial ALS cohort previously studied for SOD1 in 2006. We identified the first two FUS/TLS families in Spain. One of the main conclusions is that FUS/TLS mutations are the second most common cause of FALS in our population
- Genetic Mutations in Familial ALS:  
In our main research line, clinical/genetic characterization of familial forms of ALS, a Spanish/Italian collaboration evaluated a possible phenotype/genotype correlation and sought a founder effect in four Mediterranean families (3 Spanish and 1 Italian) carrying the p.I112M SOD1 mutation
- Network of clinical experts in ALS (ALSUntangled):  
Our group joined ALSUntangled, a network of clinical experts in ALS providing an informed opinion about alternative and off-label treatments, about which they are frequently asked by patients attending their clinics

## PSYCHIATRY, MENTAL HEALTH AND ADDICTIONS

Miquel Casas



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 40                     | 151.34        | 3.78               |

The Psychiatry, Mental Health and Addictions Group is a multidisciplinary team composed of clinicians and basic researchers that develops its scientific activity focused on the study of Impulse Disorders, Disruptive Behaviors and Addictions affecting children, adolescents and adult populations.

### MAIN RESEARCH LINES

- Neurodevelopmental Disorders
- Impulsive and Disruptive behaviors
- Addictive behaviors and Dual Disorders
- Transcultural Psychiatry
- Genetic basis of the different psychiatric disorders

## TRANSLATIONAL BIOINFORMATICS

Xavier de la Cruz

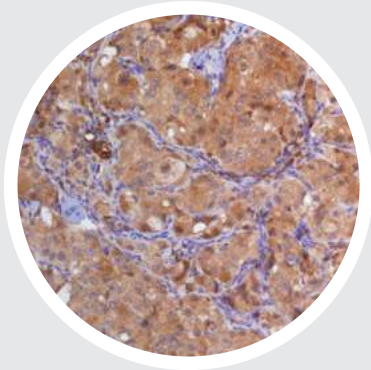


| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 2                      | 9.47          | 4.73               |

Our group is focused on the understanding of the molecular basis of disease using bioinformatics tools. In particular, we are developing computational models to process and annotate large datasets of mutations from high-throughput sequencing projects.

### MAIN RESEARCH LINES

- Prediction of pathological mutations
- The impact of alternative splicing in disease
- Biomarker development



## ONCOLOGY

PUBLICATIONS

159

IMPACT FACTOR

1,017.577

AVERAGE IMPACT FACTOR

6.400

## EXPERIMENTAL HEMATOLOGY

Francesc Bosch



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 21                     | 118.52        | 5.64               |

Focused on the study of the mechanisms of pathogenesis and progression of hematological malignancies. Our main purpose is to translate the knowledge generated in the laboratory into the development of early-phase clinical trials for patients with hematologic malignancies.

### MAIN RESEARCH LINES

- To decipher the mechanisms involved in the progression of Chronic Lymphocytic Leukemia by studying the molecular and microenvironmental factors related to clinical and biological progression of the disease
- To explore the mechanisms of pathogenesis in CLL with two objectives: identifying the cell of origin of the disease and the genetic or epigenetic mechanisms which cause the deregulated cellular growth and proliferation
- To propose new therapeutic options for primary central nervous system lymphoma by targeting deregulated signaling pathways using in vivo models
- To study new therapeutic proposals for patients with lymphoproliferative syndromes by the ex vivo assessment of response to new treatments taking into account the microenvironmental protection that neoplastic cells find at lymphoid tissues and bone marrow
- To foster the development of new therapies for patients with hematological malignancies by conducting and promoting clinical trials



## MOLECULAR PATHOLOGY

Santiago Ramon y Cajal



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 44                     | 209.63        | 4.76               |

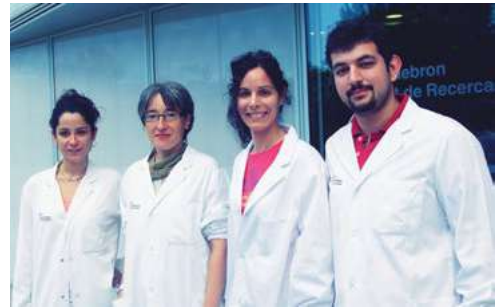
The fundamental objectives are the study of molecular tumour pathology related to the identification of new diagnostic, prognostic and therapeutic targets. The main focus relates to models of cellular stress in order to identify mechanisms by which tumor cells are more resistant to factors such as hypoxia, lack of nutrients or genomic damage. Other areas of research in the group includes studies of senescence, gap junctions and Her3 expression in relation to tumour progression. In addition the group participates extensively in many collaborative studies related to all aspects of their respective histopathological research projects.

### MAIN RESEARCH LINES

- Study of CAP-dependent and CAP-independent signalling pathways in human breast carcinomas
- Study of senescence in human tumors after radiation
- Expression analysis and functional elucidation of connexins and pannexins in relation to human cancer progression and malignancy
- Role of HER3 expression in human breast and sarcomas
- Identification of molecular targets associated with tumor progression and therapy resistance in colorectal, prostate and renal carcinomas

## ONCOLOGY AND MOLECULAR PATHOLOGY

Matilde Leonart



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 5                      | 27.25         | 5.45               |

### MAIN RESEARCH LINES

- Molecular Oncology: Identification of novel oncogenes and tumor suppressor genes in vitro
- Epigenetic mechanisms in senescence and immortalization
- Molecular Pathology characterization of genes discovered in gene searches, including those identified in our own laboratory, in human tumors as potential prognostic and diagnostic factors

### RESEARCH UNIT IN BIOMEDICINE AND TRANSLATIONAL ONCOLOGY

Jaume Reventós



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 28                     | 117.96        | 4.21               |

Our group is focused on the molecular and translational research of several cancers including those of the prostate, the endometrium, and the ovary. We aim to identify and characterize new molecules which might play relevant roles in the neoplastic cell transformation, and/or growth, progression or dissemination of those tumours. All of our projects are based on unresolved clinical needs. Using experimental models, we develop new research strategies that could lead to preclinical validation. Our final aim is to identify new and valuable molecules and biomarkers to improve diagnosis, prognosis and therapy.

#### MAIN RESEARCH LINES

- Laboratory of Translational Urological Research
- Laboratory of Gynaecological Oncology
- Laboratory of Cell Signalling and Cancer Progression
- Laboratory of Stem Cells and Cancer

### TRANSLATIONAL RESEARCH IN CHILD CANCER

Josep Sánchez de Toledo



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 7                      | 24.76         | 3.54               |

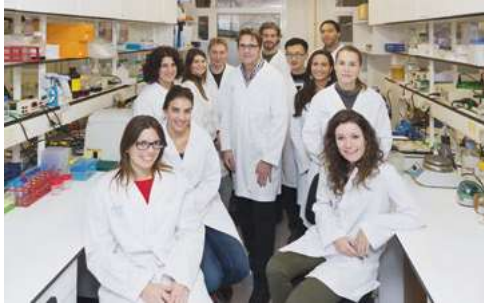
The survival of high-risk pediatric tumors such as Rhabdomyosarcoma or Neuroblastoma is below 30%, and those who do survive suffer multiple side effects related to the aggressive treatments. Therefore, new alternative therapies are needed to improve the safety and success of treatments. Our group is composed of clinical and basic researchers and we are aimed to discover new therapeutic targets and develop new treatments and test their efficacy in preclinical mouse models.

#### MAIN RESEARCH LINES

- Analysis of the prognostic impact of minimal disseminated disease in soft tissue sarcomas
- Search for new therapeutic targets in embryonal pathways (Notch, Hedgehog and Wnt) in children with cancer
- Minimal residual disease in acute leukemia (MRD) and search for new therapeutic approaches for Fanconi's Anemia
- Use of microRNAs as therapeutic targets against pediatric tumors of the nervous system
- Analysis of the functional role of epigenetic genes in pediatric tumors of the nervous system

## GROWTH FACTORS GROUP

Joaquín Arribas



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 5                      | 46.319        | 9.263              |

Continuing our focus on breast cancer and receptor tyrosine kinases, during 2013 we completed the characterization of the role of fragments of the HER2 receptor that modulate its activity and, hence, its oncogenic activity. One of these fragments, known as HER2 NTF, acts as a weak dominant negative and is present in a high percentage of breast cancers of the HER2-positive subtype. In addition, we have identified PELO as a negative regulator of the signaling pathways initiated by HER2. Importantly, the knock down of PELO increases the metastatic ability of breast cancer cells. Finally, we have shown that constitutively activated HER2 leads to premature senescence. These senescent cells remain metabolically active and display a remarkable secretory phenotype enriched in prometastatic and protumorigenic factors. As a result, we have established the prometastatic effect of the secretome of HER2-induced senescent cells.

### MAIN RESEARCH LINES

- Characterization of the role of premature senescence in breast cancer progression
- Develop novel therapeutic strategies to treat HER2-positive tumors and identify mechanisms of resistance to current therapies
- Initiate research into pancreatic cancer in close collaboration with VHIO's Clinical Research Program, directed by Josep Taberero

## EXPERIMENTAL THERAPEUTICS GROUP

Violeta Serra



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 5                      | 56.58         | 11.316             |

During 2013 our research has advanced insight into the mechanisms of sensitivity and resistance to targeted therapy in breast cancer, focusing on two main areas: the blockade of the HER2/PI3K-pathway as well as therapies targeting homologous recombination deficiency. Our ultimate goal is to provide hypothesis-based strategies to combine targeted therapy and, in so doing, improve outcomes for patients.

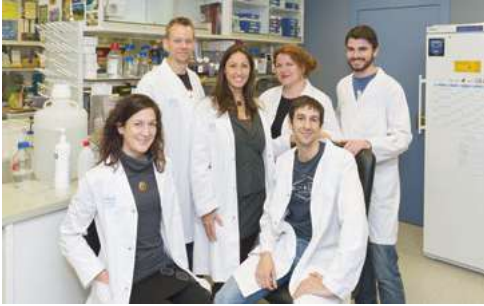
### MAIN RESEARCH LINES

- Studying early molecular responses following PI3K inhibition to rationally design novel combination therapy for breast cancer
- Developing predictive and pharmacodynamic biomarkers of PI3K-pathway inhibitors
- Unveiling novel mechanisms of resistance against targeted therapies in germline BRCA1/2 breast cancer
- Establishing a patient tumor-derived breast cancer preclinical model to explore hypothesis-based combinatorial therapies

### MOUSE MODELS OF CANCER THERAPIES GROUP



Laura Soucek



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 4                      | 21.068        | 5.267              |

The Mouse Models of Cancer Therapy Group provides VHIO with mouse models that have been developed to reproduce as faithfully as possible human cancer and its response to therapy. Our group seeks to establish the therapeutic utility of targeting essential common signaling conduits that are shared by some or all cancers. The main focus of the lab is the pleiotropic and ubiquitous Myc oncoprotein, whose deregulation is implicated in almost all human cancer types. Over the past few years, we have shown that Myc inhibition can have dramatic therapeutic impact in cancer. Our lab is currently interested in developing the best Myc inhibitor for clinical use as well as in Myc's role in coordinating the cross-talk between tumor and microenvironment, which could present some non redundant and tractable targets for cancer therapy.

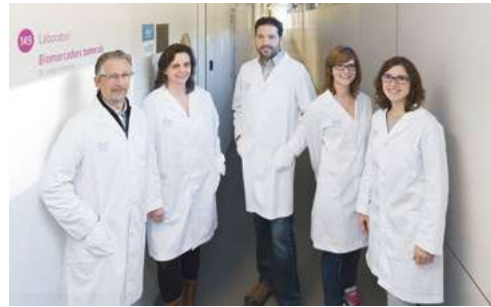
#### MAIN RESEARCH LINES

- Validation of Myc inhibition by small molecules as therapeutic strategy in lung cancer
- Pre-clinical validation of new therapeutic approaches against pancreatic, brain, and lung cancer
- Defining the role of Myc inflammatory effectors in pancreatic tumorigenesis and tumor maintenance.
- Design and characterization of new cell penetrating peptides for cancer therapy

### TUMOR BIOMARKERS GROUP



Josep Villanueva



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 3                      | 21.572        | 7.19               |

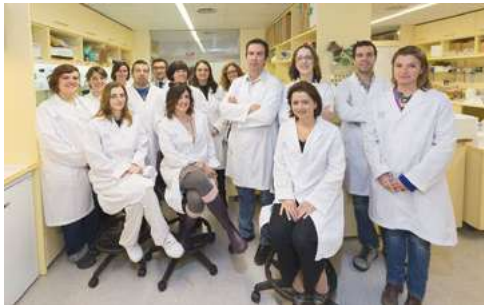
The main goal of our laboratory is to characterize the mechanisms used by tumor cells to communicate amongst themselves as well as with their microenvironment during tumorigenesis, and exploit this for biomarker discovery. The methodological focus of our group is based on the quantitative profiling of the cancer secretome. The cancer secretome contains secreted proteins that tumor cells use as molecular SMS and have a high probability of being present in biological fluids.

#### MAIN RESEARCH LINES

- The characterization of mechanisms adopted by tumor cells to communicate with their microenvironment during tumorigenesis. We then use this data for biomarker discovery
- Discovery of secreted signaling pathway-based tumor biomarkers and therapeutic targets using quantitative proteomics
- To establish secreted response/resistance biomarkers to targeted drug therapy, measurable through non-invasive methods

## GENE EXPRESSION & CANCER GROUP

Joan Seoane



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 4                      | 185.334       | 46.334             |

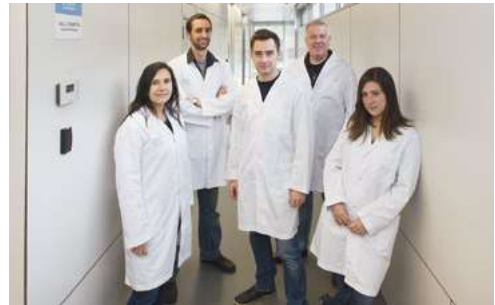
Our group's research focuses on the study of brain tumors, glioblastoma and brain metastasis in particular. These are some of the most aggressive cancers and advancing progress within the field is consequently critical. Our studies are largely based on research into patient-derived tumors. We generate animal models that recapitulate the tumor of the patient at genomic and gene expression levels. We inoculate the patient-derived tumor cells into the brain of immunocompromised mice and they generate tumors with the same characteristics as the original human tumor, which we can then monitor by MRI. This mouse model for human glioma is of major interest in the study of the molecular mechanisms involved in cancer as well as the evaluation of the efficacy of pharmacological compounds.

### MAIN RESEARCH LINES

- Generation of patient-derived mouse models of brain tumors
- The study of intratumoral heterogeneity
- Identification of novel biomarkers to develop precision onco-medicine based on the particularities and characteristics of each tumor.
- To better understand the molecular mechanisms implicated in cancer stem cells
- Develop methods for non-invasive molecular diagnosis through the study of circulating biomarkers

## STEM CELLS & CANCER GROUP

Héctor G. Palmer



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 4                      | 43.436        | 10.859             |

Studying the molecular mechanisms responsible for creating and sustaining the intra-tumoral cell diversity innate of growing carcinomas and metastasis. We use patient derived cells to recreate in vivo models of colorectal cancer in mice. We are also testing the efficacy of new drugs directed to target specific oncogenic pathways. We are revealing new prognostic or predictive biomarkers and identifying novel molecular target for therapeutic intervention.

### MAIN RESEARCH LINES

- Describe the key molecular mechanisms that confer CoCSC their capacity to self-renew and resist conventional or target directed therapies
- Unmask the molecular drivers of CSC quiescence, clinical relevance in cancer progression and evaluate their potential inhibition to eradicate CoCSC
- Study the efficacy and mechanism of action of new Wnt/beta-catenin inhibitory drugs for the treatment of CRC patients
- Identify the genetic determinants of sensitivity or resistance to the novel generation of Wnt/betacatenin inhibitors
- Implement predictive biomarkers of response to therapeutic Wnt/beta-catenin inhibitors and other targeted therapies

### BREAST CANCER & MELANOMA GROUP

Javier Cortés



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 32                     | 366.341       | 11.448             |

#### MAIN RESEARCH LINES

- Optimize treatment options in patients with resistant HER2- positive tumors and triple negative breast cancer, with particular focus on new targeted agents which overcome resistance to standard anti-HER2 agents, or better therapeutic strategies to be explored in preclinical models prior to using them in patients
- To continue to lead Phase I-based- Phase II trials, and closely collaborate with VHIO's Experimental Therapeutics Group, transitioning to more advance studies with data obtained from early drug development
- Implement "omic" tools to better design clinical trials
- To continue working with VHIO's Preclinical Groups to ultimately provide "smarter" treatments to our patients as rapidly as possible
- Advance onco-immunology towards improved management of patients with breast cancer, specifically HER2 and triple negative
- Establish our group as a leader in the field of melanoma. In 2013, we have offered more than 10 different new molecules in close collaboration with VHIO's Experimental Therapeutics Group. More than 50% of our patients with metastatic melanoma have entered clinical trials

### EARLY CLINICAL DRUG DEVELOPMENT GROUP

Jordi Rodón



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 16                     | 138.627       | 8.664              |

Our main interest surrounds proof-of-concept and proof-of-mechanism trials with targeted therapies, especially targeted therapies aimed at cell signaling and cancer stem cells. These include first-in-human studies of targeted therapies, rational combinations of targeted therapies, biomarker-driven trials and trials in molecularly selected populations.

We link clinical research at the Research Unit for Molecular Therapy of Cancer (UITM) - "la Caixa", with the different areas of research carried out by VHIO's research groups: linking molecular biology and the best tumor models with pharmacology and innovative clinical research. We are therefore dedicated to involving VHIO scientists in the trials (biomarker development, profound understanding of the mechanism of action, research in mechanisms of resistance) for selected projects. In addition, we have collaborated with VHIO's Molecular Oncology Group as well as the Cancer Genomics Group to perform molecular analysis of patients' tumors in order to select the best possible treatment for our patients with the experimental treatments available in our portfolio of clinical trials - one step closer to realizing the true promise of precision medicine.

## GASTROINTESTINAL & ENDOCRINE TUMORS GROUP



Josep Tabernero



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 38                     | 433.691       | 11.413             |

We have led and participated in numerous cooperative and singular research projects related to Gastrointestinal Malignancies. In addition to our key participation in international consortia of excellence including the WIN (Worldwide Innovative Networking in personalized cancer medicine) Consortium and other initiatives funded by the European Commission's 7th Framework Program, at both preclinical and clinical levels, we have continued to further strengthen our purely multidisciplinary and translational approach to research. We have reported several studies with important clinical impact, e.g. the first-in-human trial of an RNA interference (RNAi) therapeutic targeting VEGF and KSP in cancer patients with liver involvement.

### MAIN RESEARCH LINES

- Discovery of new biomarkers in gastrointestinal tumorigenesis
- Validation of new prognostic biomarkers
- Development of relevant preclinical models *in vitro* and *in vivo* with a special emphasis on the identification of predictive markers
- Early clinical research with innovative targets.
- Clinical research in late stage with more translational endpoints, focusing on the identification of prognostic/predictive biomarkers

## GENITOURINARY, CNS TUMORS, SARCOMA & CANCER OF UNKNOWN PRIMARY SITE GROUP



Joan Carles



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 20                     | 229.921       | 11.496             |

We focus on the design and development of clinical trials for genitourinary malignancies at different stages of the disease with the active participation of urologists, radiation therapists and medical oncologists. Over recent years, many developments have been reported in GU tumors; particularly in prostate and kidney cancer.

### MAIN RESEARCH LINES

- Design and develop clinical trials for all the malignancies covered by our group. We strive to provide our patients with the newest and optimal treatments for their respective disease, including immunotherapeutics, targeted therapies or new chemotherapeutics
- Conduct clinical trials at different stages of the disease with emphasis on a histology-tailored design
- Develop new tools such as liquid biopsy for our patients for tailored treatment in CRPC
- Expand our translational research platform for glioblastoma in collaboration with VHIO's Gene Expression and Cancer Group led by Joan Seoane
- Creation of a translational platform for sarcomas and basic research in partnership with the Biomedical Research Institute of Bellvitge (IDIBELL) and the Cancer Research Centre of Salamanca (CIC)

### HEAD AND NECK & GYNECOLOGICAL TUMORS GROUP

Josep Maria del Campo



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 7                      | 34.867        | 4.981              |

Our group focuses on standard patient care as well as clinical research. Continuous development and research into new anticancer drugs represent a major area of our activity. Notably, based on our expertise, we have also actively participated in the revision of all Spanish guidelines in gynecological cancer.

We are either members or affiliate members of some of the most relevant societies in oncology including the Gynecologic Cancer Inter Group (GCIg), European Network of Gynaecological Oncology Trial Groups (ENGOT), Grupo Español de Investigación en Cáncer de Ovario (Spanish Gynecological Group - GEICO), Gynecologic Oncology Group (GOG). In addition, our group is involved in developing new strategies, approaches, and optimal trial design for research.

#### MAIN RESEARCH LINES

- We are focused on clinical and translational research and are members of the most relevant international cooperative groups in Gynecological and Head & Neck Tumors. Such collaboration allows us to participate in the initial development of new drugs, from Phase I to Phase III trials
- Further expand our recognized expertise in clinical research within our field and continue to lead an increasing number of international projects

### HIGH RISK AND CANCER PREVENTION

Judith Balmaña



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 14                     | 65.116        | 4.651              |

We are committed to developing new targeted therapies for patients with hereditary breast cancer. Patients with advanced breast cancer and a BRCA mutation could participate in a Phase II trial with a specific DNA binding agent, or enrol in a randomized Phase II trial with a PARP inhibitor in combination with chemotherapy. In addition, our collaboration with other groups of VHIO has already resulted in a collection of BRCA-associated patient-derived xenografts implanted in athymic mice. These murine models will be used to study genetic mechanisms of resistance to targeted therapies and test new combinatorial treatments at progression.

#### MAIN RESEARCH LINES

- Clinical development of specific therapeutic strategies for tumors associated with hereditary genetic alterations
- Identification of genetic mechanisms of resistance to targeted therapies in BRCA-associated breast cancer
- Testing new combination therapies for BRCA-associated PDX's that have progressed to PARP inhibitors
- Early detection of prostate cancer in BRCA mutation carriers
- Identification of new genes involved in hereditary breast cancer through the application of next generation sequencing



## ONCOGENETICS GROUP

Orland Díez



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 11                     | 57.286        | 5.208              |

Inherited predisposition to breast and ovarian cancer is caused by the *BRCA1* and *BRCA2* genes, but only about one fourth of families carry mutations in these genes. We search for other alleles which might predispose to these types of cancer and use massive sequencing technologies to study panels of potentially predisposing genes in families tested negative for *BRCA1* and *BRCA2*. Moreover, we are sequencing whole coding regions (exome) to discover new genes that might explain the presence of multiple cases of cancer in families and individual patients.

### MAIN RESEARCH LINES

- Application of massive sequencing to the diagnosis of hereditary cancer
- Establish the prevalence in Spanish population of genetic variants of known breast/ovarian cancer genes conferring high to moderate penetrance
- Molecular analysis of new candidate breast/ovarian cancer genes
- Characterization of large rearrangements and transcriptional or functional effects of variants with unknown biological significance in breast cancer predisposition genes
- Identification of common low-penetrance alleles that modify the breast cancer risk for *BRCA1* and *BRCA2* mutation carriers

## RADIATION ONCOLOGY GROUP

Jordi Giralt



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 4                      | 22.225        | 5.556              |

Our group is integrated within the Radiation Oncology Department of the University Hospital Vall d'Hebron and is actively involved in the multidisciplinary treatment of patients with malignant tumors. We also participate as principal investigators or research collaborators in a number important clinical trials, translational research projects, as well as technology development programs.

### MAIN RESEARCH LINES

- Technology development. Acquisition of new equipment to implement clinically the most modern treatment techniques such as rotational radiotherapy - with intensity modulated arc therapy (IMAT), adaptive radiotherapy and image-guided radiotherapy
- Translational research. Application of biological knowledge of both cancer and healthy tissue in order to individualize treatment to the characteristics of each patient and each tumor

### THORACIC TUMORS GROUP

Enriqueta Felip



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 17                     | 84.126        | 4.949              |

The main focus of the Thoracic Tumors Group is to tackle various aspects of lung cancer, one of the most frequently diagnosed tumors to-date. Our group concentrates on a number of areas ranging from disease prevention, early detection, more accurate techniques in diagnosis and staging, to advancing precision medicine and treatment of lung cancer. We are also highly dedicated to our program which centers on the rapid diagnosis of this tumor type.

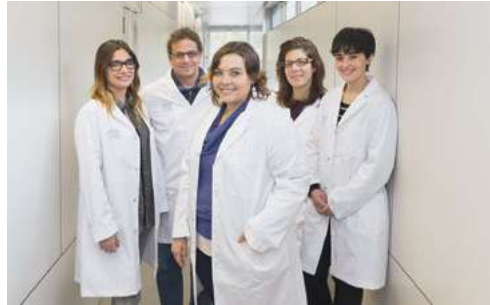
We actively contribute to VHIO's efforts aimed at early clinical drug development, and also deal with other less common thoracic malignancies such as small-cell lung cancer, mesotheliomas, thymomas, and neuroendocrine tumors.

#### MAIN RESEARCH LINES

- Close multidisciplinary collaboration with the different professionals involved in thoracic malignancies diagnosis, management, and research
- Optimization of different treatment approaches to the management of early-stage lung cancer patients
- Implementation of precision medicine using pharmacogenomic tools
- Consolidation of our translational research program
- Contribution to early-drug development in lung cancer

### CANCER GENOMICS GROUP

Ana Vivancos



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 6                      | 193.797       | 32.30              |

VHIO's Cancer Genomics Group serves as a Core Technology Lab as part of its Translational Research Program. Our activities bridge the preclinical and clinical fields of cancer research.

We provide services to preclinical and clinical researchers as well as develop our own research projects in technology development and translational research. The lab is equipped with a genotyping platform (MassARRAY, Sequenom) and two Next-Gen sequencers (MiSeq and HiSeq2500, Illumina).

#### MAIN RESEARCH LINES

- We develop and implement improved strategies for routine patient pre-screening. We are actively developing NGS techniques to be used in our pre-screening program that facilitate increasingly cost-efficient mutation detection
- We provide cutting-edge applications in cancer genomics through the use of new technologies and protocol development

## MOLECULAR ONCOLOGY GROUP

Paolo Nuciforo



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 13                     | 84.026        | 6.464              |

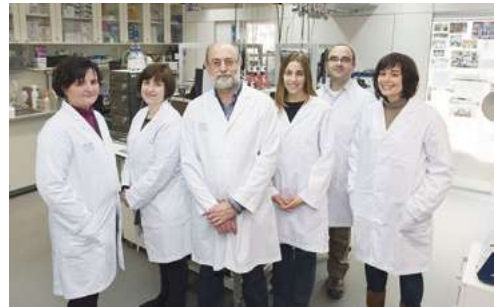
The Molecular Oncology Group's mission is to apply state-of-the-art tissue-based technologies to basic, translational, and clinical research with a clear focus on developing and validating novel tumor biomarkers for precision cancer medicine. Our group is one of VHIO's Core Technology Platforms and is therefore central to VHIO's research activities. We actively participate in all research projects involving the use of human tissue collected from patients including tissue banking, the development of primary xenograft models, and circulating tumor cells (CTC) analyses.

### MAIN RESEARCH LINES

- Discovery and validation of novel biomarkers using tissue-based technologies
- Translate basic research findings into clinical application
- Apply molecular pathology strategies to clinical oncology
- Serve as a core facility for VHIO research programs
- Act as a central and local laboratory in clinical trials

## PROTEOMICS GROUP

Francesc Canals



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 9                      | 49.026        | 5.447              |

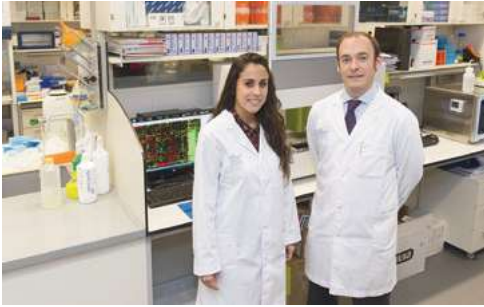
The main goal of the Proteomics Laboratory is to provide services to other research groups in proteomic methodologies. Our laboratory is a member of the Instituto de Salud Carlos III network of proteomic facilities, ProteoRed. In parallel, the laboratory develops its research focusing on the application of proteomic techniques to the identification and characterization of substrates of metalloproteases of the ADAM and ADAMTS families, involved in tumor progression. We also pursue proteomic techniques for screening and validation of biomarkers for cancer diagnostic, treatment personalization and monitoring.

### MAIN RESEARCH LINES

- Provide services in proteomic techniques to other research groups as a core facility
- Explore the role of ADAM and ADAMTS metalloproteases in cancer through proteomic analysis
- Proteomic screening for new biomarkers to help develop cancer therapeutics
- Contribute to mapping the Chromosome 16 proteome as part of the Human Proteome Project

### TRANSLATIONAL GENOMICS GROUP

Aleix Prat



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 24                     | 186.602       | 7.775              |

2013 has witnessed the arrival and establishment of VHIO's Translational Genomics Group. In almost record time, we have successfully implemented the necessary technology, equipment and the various protocols to facilitate production of gene expression data in two different platforms (nCounter and RNAseq). In addition, we have completed two breast cancer gene expression-based datasets of ~400 and ~50 breast samples using the nCounter Nanostring and RNA-seq Illumina platforms, respectively. These two datasets will allow the correct identification and characterization of future breast samples. We have already started analyzing samples and providing scientific guidance and advice to several collaborators both at VHIO and overseas.

#### MAIN RESEARCH LINES

- Use genomic data to guide clinical trial design and biomarker development in order to identify more optimal treatment regimens for cancer patients
- Use gene expression data to better characterize different cancer types and better understand cancer biology
- Help implement gene expression-based tests in the clinical setting





## RESPIRATORY AND SYSTEMIC DISEASES

PUBLICATIONS

110

IMPACT FACTOR

558.674

AVERAGE IMPACT FACTOR

5.079

### CHRONIC FATIGUE UNIT

José Alegre



NUMBER OF  
PUBLICATIONS

7

IMPACT  
FACTOR

22.9

AVG. IMPACT  
FACTOR

3.27

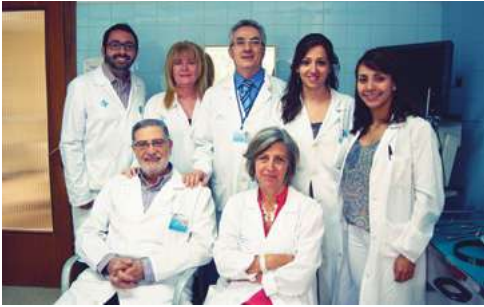
The CFS Working Group is focused on the study of the neuroinflammatory pathways and cell-mediated immune response, cellular bioenergetic metabolism and oxidative stress, as well as neuropsychological impairment and neurocognitive functioning in CFS patients by appropriately qualified healthcare professionals. Our main research interest is the search for both clinical and laboratory markers and treatments through the development of clinical trials besides participating in international clinical trials to improve the prognosis and quality of life of CFS patients.

#### MAIN RESEARCH LINES

- Population-based registry and Spanish DNA Biobank in the clinical validation of genetic and environmental factors and potential therapeutics targets in CFS patients
- Cellular bioenergetics metabolism, mitochondrial impairment, neuroimmune-inflammatory pathways and cell-mediated immune biomarkers in CFS
- Emergent pattern of neuropsychological impairment and neurocognitive functioning in CFS
- Neuroimaging-based approaches in brain: SPET and fMRI scanning quantification in CFS
- Predictors, clinical course and progression of chronic fatigue in breast cancer survivors and Parkinson's disease

## EAR, NOSE AND THROAT DISORDERS

Juan Lorente



Consolidate the clinical research unit and enhance translational research in collaboration with other basic research centers like the Autonomous University of Barcelona and the Institute of Biomedical Research of Barcelona (CSIC).

Intensify the collaboration with external centers of the ENT Unit. Autonomous University of Barcelona (Veterinary School), the Institute of Biomedical Research of Barcelona (CSIC) etc. With the goal of enhancing basic research in otorhinolaryngology. Studies will be made in vitro, about the effect of mediators of inflammation (TNFalpha, TGFbeta, PGE2 and a donor of nitric oxide) on rat and human fibroblasts in the nasal mucosa.

### MAIN RESEARCH LINES

- Sentinel lymph node in carcinoma of pharynx and larynx
- Research on obstructive sleep apnea syndrome (OSAS), using canine brachycephalic breeds as an animal model
- Retrospective study of signaling routes in samples of laryngopharyngeal carcinoma. Analysis of prognostic and/or predictive biomarkers of response
- Characterization of molecular mechanisms implicated in laryngeal carcinoma

## IMMUNOLOGY

Ricardo Pujol



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 6                      | 25.18         | 4.2                |

Our research line on autoimmunity aims at understanding how the failure of immunological tolerance leads to organ specific autoimmune diseases. We are now trying to demonstrate that a vicious circle of stimulation of thymocytes by THSR stimulating immunoglobulins leads to further amplification of the antibody response to TSHR. This constitutes a new approach in trying to understand the mechanisms underlying this unique but prevalent endocrine autoimmune disease.

The main aim of the research on primary immunodeficiencies is to improve the diagnostic tools for primary immunodeficiencies by using combinations of molecular and functional tests. Another aim is to identify the molecular basis in patients cases of less severe combined immunodeficiencies not yet characterized by applying exome analysis and next generation sequencing.

The group also works in connection with other research groups and with the industry in identifying better biomarkers for a variety of immune mediated disease to assess the activity and therapeutic response in autoimmune diseases.

## PNEUMOLOGY

Ferran Morell



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 69                     | 349.33        | 5.06               |

The clinical and basic research activity of the group is mainly focused on areas of inflammation and repair, respiratory failure and tissue hypoxia, and there is complementarity and interrelatedness of these areas for the study of diseases such as asthma, COPD, pulmonary fibrosis, infections, transplant, pulmonary hypertension and sleep-disordered breathing.

### MAIN RESEARCH LINES

- Work-related diseases, asthma, fibrosis and interstitial lung diseases
- Cystic fibrosis and primary immunodeficiencies
- COPD and pleural diseases
- Lung transplantation and pulmonary hypertension
- Sleep disorders
- Paediatric respiratory diseases

## SYSTEMIC DISEASES

Miquel Vilardell



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 29                     | 163.3         | 5.63               |

Our research is focused on the study of systemic autoimmune diseases. By using different approaches, we try to find out the etiopathogenesis of these illnesses. Furthermore, we aim at finding new biomarkers to better diagnose our patients. Finally, we also carry out clinical studies to seek for the evolution and the clinical response towards different drugs.

### MAIN RESEARCH LINES

- DNA methylation study in Systemic Lupus Erythematosus (SLE) patients
- Urinary biomarkers detection in lupus nephritis
- Serological markers study in anaphylaxis
- Cancer and myositis. Relevance of the anti-p155 antibodies and importance of the screening for cancer by Positron Emission Tomography and Computed Tomography (PET/CT)
- Genetic basis of scleroderma



## EPIDEMIOLOGY, PHARMACOLOGY, NEW THERAPIES AND CLINICAL RESEARCH

PUBLICATIONS

22

IMPACT FACTOR

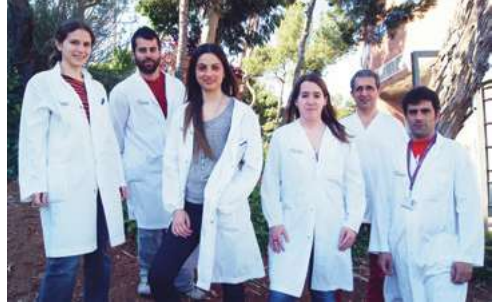
104.560

AVERAGE IMPACT FACTOR

4.753

## CELL AND GENE THERAPY

Jordi Barquinero



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 3                      | 45.82         | 15.27              |

The research group is formed by individuals with diverse and complementary backgrounds, and includes researchers at different stages of their scientific careers, from graduate students, technicians, Ph.D. students, postdoctoral fellows and more senior researchers.

### MAIN RESEARCH LINES

- Preclinical gene therapy:
  - immune response towards the transgene product
  - how gene therapy tools can be used to induce immune tolerance, using relevant preclinical models
- To explore the usefulness of myeloid-derived suppressor cells transduced with autoantigens in inducing tolerance in a murine model of multiple sclerosis
- Developing clinically applicable gene therapy approach using liver-targeted adenoassociated vectors (AAVs) to treat patients a rare mitochondrial disease
- To explore the iPSC paradigm to model different diagnostic and therapeutic aspects of haemophilia and other hereditary diseases



## CLINICAL PHARMACOLOGY (FICF)

Joan-Ramon Laporte



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 6                      | 25.08         | 4.18               |

The main research field of the Foundation Catalan Institute of Pharmacology is pharmacoepidemiology, with a special focus on the patterns of medicines utilization and effectiveness and adverse effects in usual clinical practice. FICF is part of the ENCePP (European Network of Centres for Pharmacoepidemiology and Pharmacovigilance) research network, which is coordinated by the European Medicines Agency and of the PROTECT Group, a public-private consortium funded by the European Commission's IMI Initiative. It is also part of the Autonomous University of Barcelona Research Park. FICF is a WHO Collaborating Centre for Research & Training in Pharmacoepidemiology.

### MAIN RESEARCH LINES

- Risk of blood dyscrasias associated with the use of medicines
- Study of drug-induced liver disease
- Acute renal failure and use of medicines
- PROTECT (Pharmacoepidemiological Research on Outcomes of Therapeutics by a European Consortium)
- Study of pain and its treatment

## EPIDEMIOLOGY AND PUBLIC HEALTH

Magda Campins



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 9                      | 20.80         | 2.31               |

The main objective of the group is to contribute to increase the available scientific evidence regarding preventive interventions for major diseases. We are primarily focused on communicable diseases in both individual and population levels.

### MAIN RESEARCH LINES

- Epidemiology and prevention of infectious diseases
- Epidemiology and prevention of hospital-acquired infections
- Preventive vaccines
- Clinical epidemiology

## HEALTH CARE RESEARCH

Carmen Fuentelsaz



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 3                      | 9.13          | 3.04               |

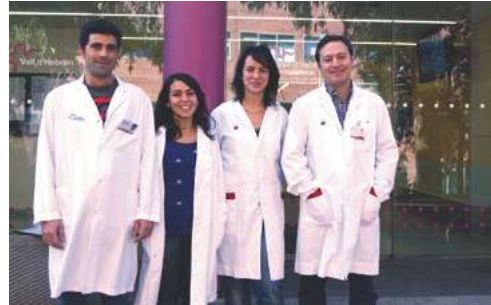
The group of health care research develops its research with the aim of generating knowledge in the specific area of activity of nurses, care, in order to translate that results to clinical practice and collaborate with other health professionals to improve care given to patients with quality care based on best results from rigorous research.

### MAIN RESEARCH LINES

- Nursing care in pediatrics
- Effectiveness of nursing care
- Nursing care to critically ill patients
- Patient safety and adverse effects
- Management of nursing care

## MOLECULAR DIAGNOSIS AND THERAPY

Francisco Vidal

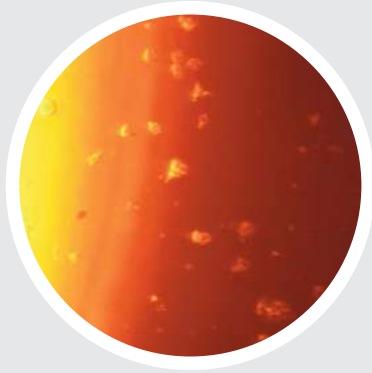


| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 1                      | 3.73          | 3.73               |

Research team with a dual character since their foundation in 1998: diagnostic support in congenital coagulation disorders as well as other hereditary diseases; research and development of new approaches in the field of medical diagnostics and therapeutics. The research activity is linked to the commitment with the Hemophilia Unit of HUVH in the development of molecular protocols applicable to genetic counselling, and prenatal diagnosis. In-depth studies of the molecular events discovered in some affected individuals and the genotype-phenotype relationship represent the most basic area of the team's goals.

### MAIN RESEARCH LINES

- Molecular genetics of haemophilia A and B in the Spanish population
- Application of the next-generation sequencing technologies to the molecular diagnosis of von Willebrand disease
- Establishment of protocols and genetic study of the rare monogenic bleeding disorders
- Next-generation sequencing for non-invasive prenatal diagnosis of haemophilia and other monogenic diseases
- Development and implementation of a highresolution HLA typing by next-generation sequencing methods in the Banc de Sang i Teixits routine laboratory



## CIBBIM - NANOMEDICINE

PUBLICATIONS

21

IMPACT FACTOR

104.598

AVERAGE IMPACT FACTOR

4.981

### CIBBIM - NANOMEDICINE BASIC RESEARCH IN AGING

Jaume Alijotas



NUMBER OF  
PUBLICATIONS

6

IMPACT  
FACTOR

17.49

AVG. IMPACT  
FACTOR

2.91

Our goal is the study of the molecular and immunological alterations associated to the aging process. In particular, the association and correlation of cellular aging and endothelial cell senescence with epigenetic and telomeric alterations, taking the immunological alterations as the basis of cellular immunosenescence. Identification of such alterations might provide us with new candidates for therapeutic intervention. [Click here for more information.](#)

#### MAIN RESEARCH LINES

- Immunological alterations as basis of immunosenescence in pathological aging
- Characterization of monocytic and lymphocytic population in healthy and pathological donors
- Endothelial senescence and their pleiotropic effects onto inflammatory processes, immunological response and angiogenesis

## CIBBIM - NANOMEDICINE DRUG DELIVERY AND TARGETING

Simó Schwartz



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 6                      | 45.91         | 7.65               |

The group on Drug Delivery and Targeting seeks two main goals; on the one hand, the identification of new disease biomarkers and therapeutic targets, with special focus on cancer molecular pathways; and on the other hand, the development of new delivery strategies in applied nanomedicine, with a particular interest into new delivery and targeting approaches for clinical applications.

### MAIN RESEARCH LINES

- Identification of new disease biomarkers and therapeutic targets
- Applied Nanomedicine: new drug delivery and targeting strategies for biomedical applications

## CIBBIM - NANOMEDICINE IMMUNOBIOLOGY

Joan Sayós



The CD300 family of immunoreceptors is composed by six members, CD300a/IRP60, CD300b/IREM3, CD300c/CMRF35, CD300d, CD300e/IREM2 and CD300f/IREM1. All of them share an extracellular region comprising a single Ig-like domain and, with the exception of CD300a, a myeloid lineage restricted pattern of expression. In addition to the expression on myeloid cells, CD300a is found in some subsets of T, B and NK cells. The Immunobiology group is focused on the study of the structure and function of the CD300 family of immune receptors, as well as in their involvement in different human pathologies.

### MAIN RESEARCH LINES

- Molecular and functional characterization of the family of immunoreceptors CD300
- The role of the CD300 family of immunoreceptors in the function of microglial cells
- The involvement of CD300 immunoreceptors in the pathogenesis of demyelinating processes

## CIBBIM - NANOMEDICINE KIDNEY PHYSIOPATHOLOGY

Anna Meseguer



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 7                      | 35.07         | 5.01               |

To investigate the role of androgens in kidney pathophysiology, by identifying androgen-regulated genes whose expression is restricted to the proximal tubule cells of the kidney.

### MAIN RESEARCH LINES

- Role of Hepatitis A viral receptor (HAVR) / kidney injury molecule-1 (KIM-1) in the development and progression of clear-cell renal carcinoma (ccRCC), as well as, in the renal tubule injury/regeneration processes
- Androgen activity in renal pathophysiology. Identification of androgen-regulated kidney-specific genes and their role in the pathogenesis of renal, cardiovascular disease and metabolic disorders
- Pathologic mechanisms leading to chronic allograft disease and its potential mediators. Detection of early markers of the chronic kidney disease of the graft
- Focal segmental glomerulosclerosis
- Mechanisms of chronic renal disease progression
- Rare inherited renal diseases
- Pediatric Renal Transplantation

## CIBBIM - NANOMEDICINE LYSOSOMAL STORAGE DISEASES AND CELL PATHOPHYSIOLOGY

M<sup>a</sup> Carmen Domínguez



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 3                      | 7.06          | 2.35               |

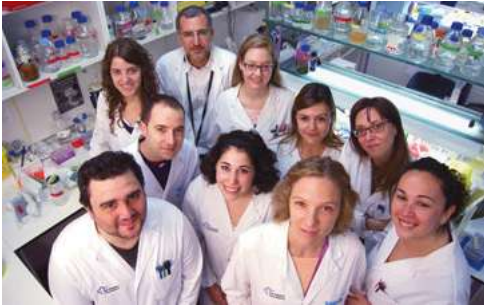
This group has focused his research on the study of the pathogenic mechanisms of disease. More specifically on the involvement of oxidative stress and cellular stress response in the pathophysiology and evolution of diabetes mellitus, gestational diabetes, multiple sclerosis, pre-eclampsia and ischaemic stroke, as well as the molecular mechanisms of cell toxicity of glycolipid storage.

### MAIN RESEARCH LINES

- Study of critical cellular mechanisms in the pathogenesis of lysosomal storage diseases
- In vitro study of pathogenic mechanisms of endothelial and neuronal damage in cerebral ischaemia: relationship with in vivo oxidative processes in acute stroke patients
- Diagnostic and disease progression biomarkers in lysosomal storage diseases, ischaemic stroke and multiple sclerosis
- Study of new therapeutic options in some lysosomal storage diseases: substrate reduction therapy, enzyme replacement therapy and chaperone enzyme activation
- Role of angiogenic factors in fetal heart development: congenital heart disease and fetal programming. Study of early markers of endothelial damage, cardiac dysfunction and angiogenesis regulation in pregnancy

## CIBBIM - NANOMEDICINE MOLECULAR ONCOLOGY

Diego Arango



| NUMBER OF PUBLICATIONS | IMPACT FACTOR | AVG. IMPACT FACTOR |
|------------------------|---------------|--------------------|
| 1                      | 6.2           | 6.2                |

The main interest of our Laboratory is the study of molecular events underlying the oncogenic process, especially in colorectal cancer. In 2008 colorectal cancer was the tumor type with highest incidence in the European Union (333,000 new cases). Gaining a deeper understanding of the molecular mechanisms responsible for the tumorigenic process is essential to improve the diagnosis and treatment of these patients.

### MAIN RESEARCH LINES

- Identification of new markers of prognosis and response to treatment for colorectal cancer patients
- Role of eph signaling in cancer
- Identification of new genetic and epigenetic causes predisposing to colorectal cancer
- Role of small GTPases in colorectal cancer
- Study of the loss of differentiation in epithelial intestinal cells during early tumorigenesis





# FACTS AND FIGURES

[annualreport2013.vhir.org/facts-and-figures](http://annualreport2013.vhir.org/facts-and-figures)

# Publications

## TOTAL PUBLICATIONS

776

## TOTAL IMPACT FACTOR

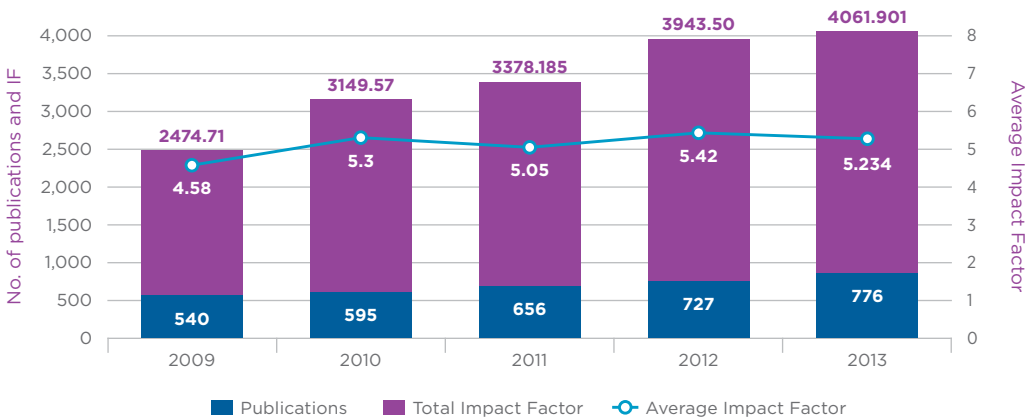
4061.901

## AVERAGE IMPACT FACTOR

5.234

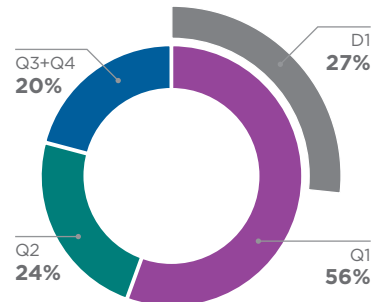
|                                      | Total IF        | No. of publications |
|--------------------------------------|-----------------|---------------------|
| Papers in international journals     | 3495.058        | 596                 |
| Papers in national journals          | 107.077         | 72                  |
| Editorials in international journals | 95.05           | 19                  |
| Editorials in national journals      | 11.517          | 7                   |
| Reviews in international journals    | 337.197         | 69                  |
| Reviews in national journals         | 16.002          | 13                  |
| <b>Total</b>                         | <b>4061.901</b> | <b>776</b>          |

## EVOLUTION IN THE LAST FIVE YEARS



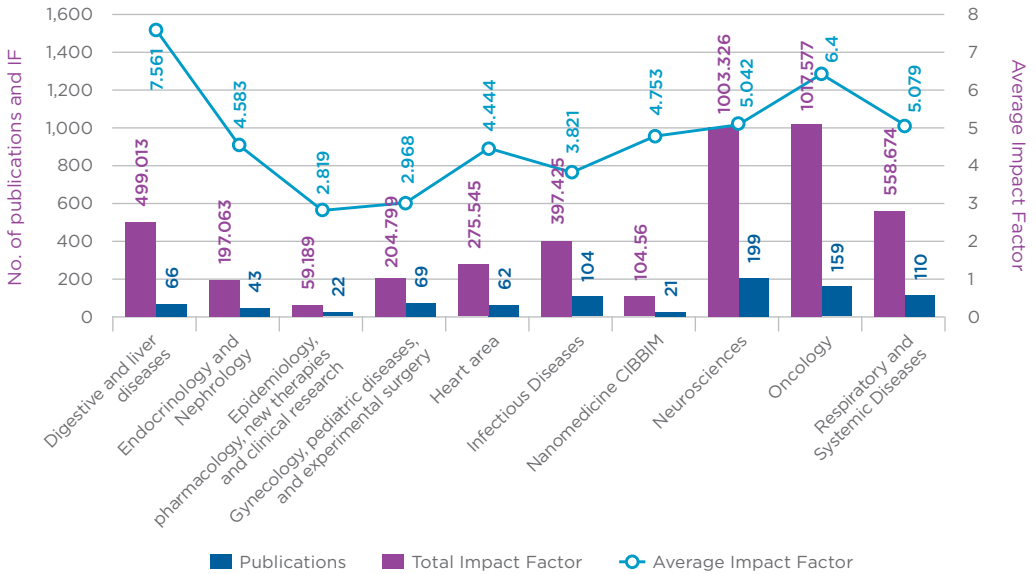
## DISTRIBUTION OF PUBLICATIONS PER QUARTILES AND FIRST DECILES

|              | Total IF        | No. of pub. | Average IF   |
|--------------|-----------------|-------------|--------------|
| Q1           | 3340.812        | 431         | 7.751        |
| D1           | 2397.768        | 209         | 11.473       |
| Q2           | 489.198         | 183         | 2.673        |
| Q3+4         | 231.891         | 162         | 1.431        |
| <b>Total</b> | <b>4061.901</b> | <b>776</b>  | <b>5.234</b> |



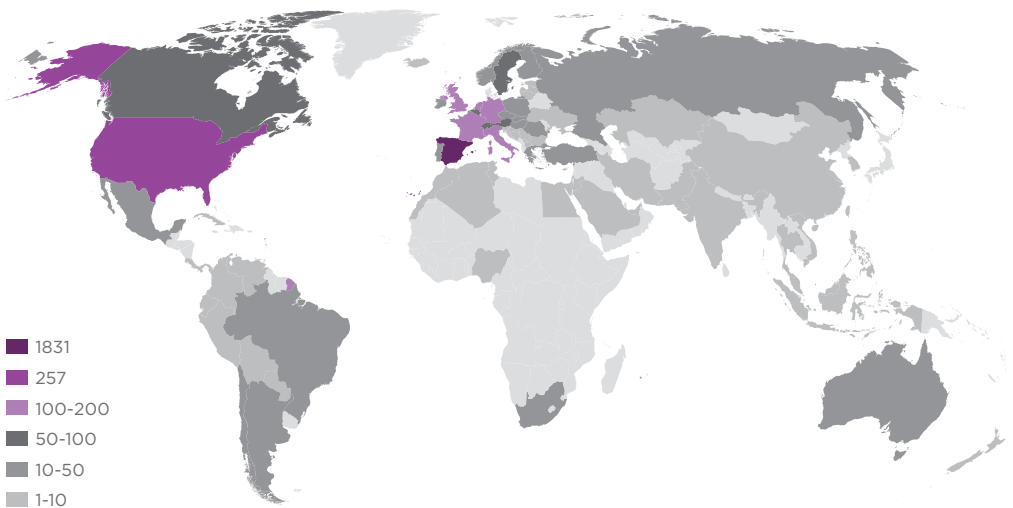


**IMPACT FACTOR AND NUMBER OF PUBLICATIONS PER RESEARCH AREAS\***



\*Publications participated by two or more research areas are analyzed independently, counting the publication and its impact factor in each of the participant areas.

**INTERNATIONAL COLLABORATIONS**



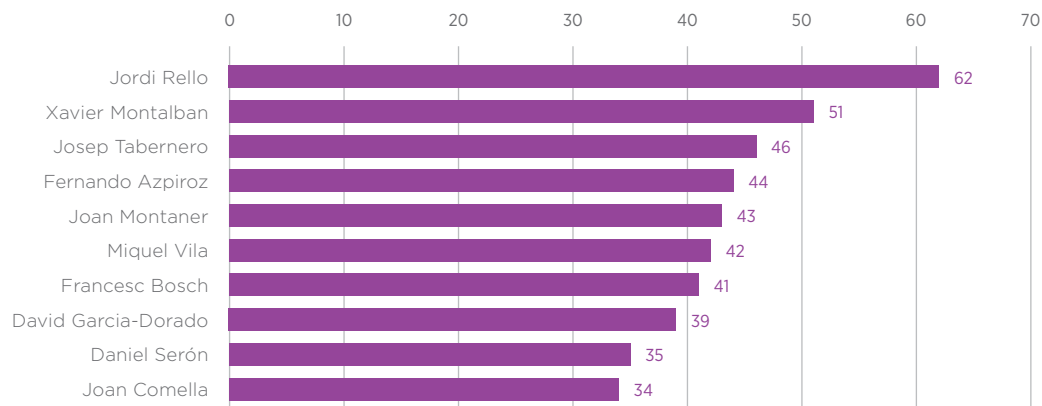
### No. OF PUBLICATIONS IN HIGH IF JOURNALS

| No. of publications | Journal  | Impact Factor |
|---------------------|--|---------------|
| 7                   | NEW ENGLAND JOURNAL OF MEDICINE                            | 51.658        |
| 3                   | LANCET   | 39.060        |
| 2                   | NATURE   | 38.597        |
| 3                   | NATURE GENETICS  | 35.209        |
| 1                   | JAMA-JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION           | 29.978        |
| 1                   | NATURE IMMUNOLOGY  | 26.199        |
| 1                   | LANCET ONCOLOGY  | 25.117        |
| 4                   | LANCET NEUROLOGY   | 23.917        |
| 1                   | NATURE METHODS   | 23.565        |
| 5                   | JOURNAL OF CLINICAL ONCOLOGY                               | 18.038        |
| 1                   | BRITISH MEDICAL JOURNAL                                    | 17.215        |
| 4                   | CIRCULATION  | 15.202        |
| 2                   | Nature Reviews Clinical Oncology                           | 15.031        |
| 1                   | Journal of the National Cancer Institute                   | 14.336        |
| 1                   | EUROPEAN HEART JOURNAL                                     | 14.097        |
| 1                   | JOURNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY              | 14.086        |
| 1                   | NANO LETTERS   | 13.025        |
| 1                   | GASTROENTEROLOGY   | 12.821        |
| 3                   | JOURNAL OF ALLERGY AND CLINICAL IMMUNOLOGY                 | 12.047        |
| 6                   | HEPATOLOGY   | 12.003        |
| 2                   | AMERICAN JOURNAL OF HUMAN GENETICS                         | 11.202        |
| 1                   | ANNALS OF NEUROLOGY  | 11.193        |
| 4                   | AMERICAN JOURNAL OF RESPIRATORY AND CRITICAL CARE MEDICINE | 11.041        |
| 6                   | GUT  | 10.732        |
| 1                   | Nature Reviews Gastroenterology & Hepatology               | 10.426        |
| 1                   | Nature Reviews Cardiology                                  | 10.400        |
| 2                   | LEUKEMIA   | 10.164        |
| 3                   | Cancer Discovery   | 10.143        |

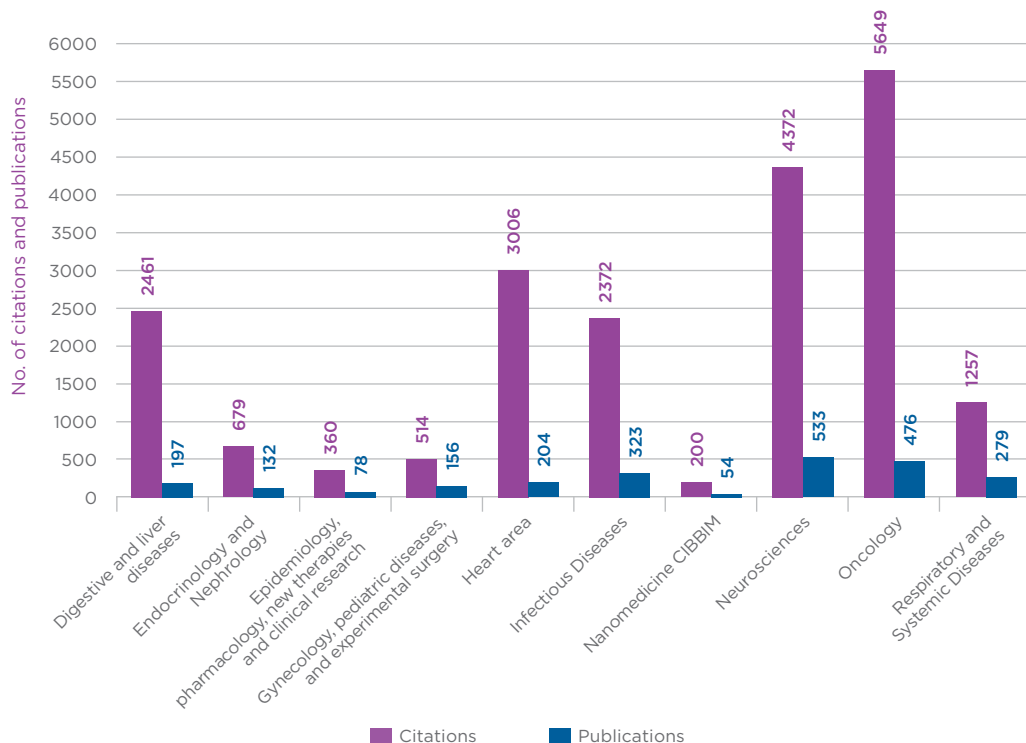
### PUBLICATIONS IN INTERNATIONALS AND NATIONALS JOURNALS

|                        | Total IF        | No. of publications | Avg. IF/pub  | %   |
|------------------------|-----------------|---------------------|--------------|-----|
| International journals | 3927.305        | 684                 | 5.743        | 88% |
| National journals      | 134.596         | 92                  | 1.463        | 12% |
| <b>Total</b>           | <b>4061.901</b> | <b>776</b>          | <b>5.234</b> |     |

### TOP 10 H-INDEX VHIR PI. 2007-2013 (VALL D'HEBRON SCIENTIFIC PRODUCTION)



### NUMBER OF CITATIONS AND PUBLICATIONS IN THE PERIOD 2011-2013



## Research projects and networks

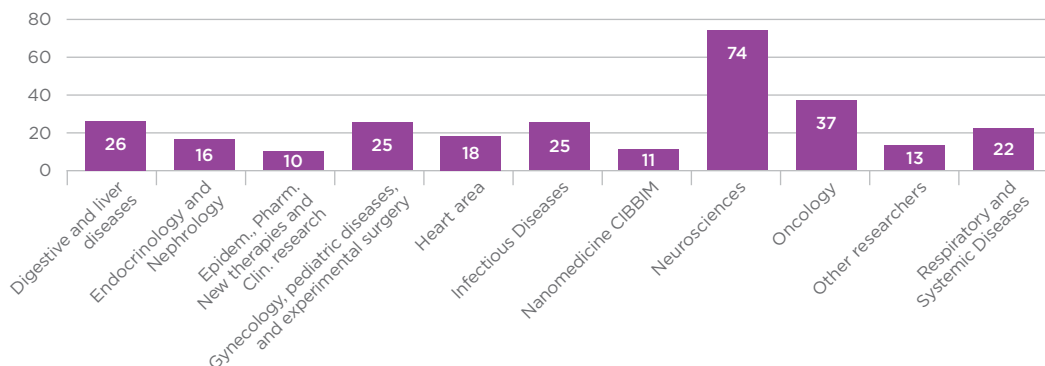
### LIST OF ACTIVE RESEARCH PROJECTS

TOTAL

277

| National   |            |
|--|------------|
| Fondo de Investigación Sanitaria (FIS), Instituto de Salud Carlos III      | 125        |
| Ministerio de Ciencia e Innovación   | 17         |
| Fundació La Marató de TV3  | 12         |
| Fundación de la Investigación Médica - Mutua Madrileña Automovilista       | 5          |
| Fundación para la Investigación y la Prevención del Sida en España (FIPSE) | 1          |
| Centro para el Desarrollo Tecnológico Industrial (CDTI)                    | 4          |
| Ministerio de Sanidad, Servicios Sociales e Igualdad                       | 26         |
| Asociación Española contra el Cáncer                                       | 4          |
| Ministerio de Economía y Competitividad                                    | 5          |
| Fundación Alicia Koplowitz   | 2          |
| Sociedad Española de Cardiología   | 3          |
| Sociedad Española Neumología Cirugía Torácica                              | 4          |
| AGAUR  | 1          |
| Others   | 15         |
| <b>TOTAL (National):</b>   | <b>228</b> |
| International  |            |
| European Commission  | 31         |
| Executive Agency for Health Consumers (EAHC)                               | 2          |
| National Institutes of Health (NIH)  | 5          |
| ERA-NET  | 4          |
| OTHERS   | 7          |
| <b>TOTAL (International):</b>  | <b>49</b>  |

### ACTIVE RESEARCH PROJECTS ACCORDING TO RESEARCH AREA



## NEW RESEARCHERS CONTRACTED

TOTAL

41

|   |           |  |           |
|---|-----------|--|-----------|
| <b>Senior Researchers</b>   | <b>6</b>  | <b>Predoc Researchers</b>                                    | <b>11</b> |
| Miguel Servet Programme   | 2         | Agència de Gestió d'Ajuts Universitaris i de Recerca (AGAUR) | 3         |
| Ramón y Cajal (MINECO)  | 2         | Ministerio de Economía y Competitividad (MINECO)             | 1         |
| Intensification Programme contracts - Instituto de Salud Carlos III | 2         | Contracts stemming from Research Projects                    | 7         |
| <b>Postdoc Researchers</b>  | <b>11</b> | <b>Support Staff</b>   | <b>13</b> |
| Río Hortega Programme   | 3         | Instituto de Salud Carlos III                                | 2         |
| Beatriu de Pinós Programme  | 2         | Ministerio de Economía y Competitividad (MINECO)             | 1         |
| Sara Borrell Programme  | 2         | Contracts stemming from Research Projects                    | 10        |
| Post-MIR VHIR-La Caixa Programme                                    | 1         |  |           |
| Juan de la Cierva (MINECO)  | 2         |  |           |
| Contracts stemming from Research Projects                           | 4         |  |           |

## LIST OF CIBER (NETWORK BIOMEDICAL RESEARCH CENTER) PROJECTS WITH VHIR INVOLVEMENT

| Title  | Project Manager               | Project   |
|--|-------------------------------|---|
| CIBER Enfermedades hepáticas y digestivas (CIBEREHD) | Azpiroz Vidaur, Fernando      | Physiology and Pathophysiology of the Digestive Tract                     |
| CIBER Enfermedades hepáticas y digestivas (CIBEREHD) | Córdoba Cardona, Juan         | Liver diseases  |
| CIBER Enfermedades hepáticas y digestivas (CIBEREHD) | Esteban Mur, Juan Ignacio     | Liver diseases  |
| CIBER Enfermedades hepáticas y digestivas (CIBEREHD) | Esteban Mur, Rafael           | Liver diseases  |
| CIBER Enfermedades hepáticas y digestivas (CIBEREHD) | Guarner Aguilar, Francisco    | Physiology and Pathophysiology of the Digestive Tract                     |
| CIBER Enfermedades raras (CIBERER)                   | Martí Seves, Ramon            | Neuromuscular and mitochondrial pathology                                 |
| CIBER Enfermedades raras (CIBERER)                   | Carrascosa Lezcano, Antonio   | Pediatrics Endocrinology  |
| CIBER Enfermedades raras (CIBERER)                   | Domínguez Luengo, Mari Carmen | CIBBIM - Nanomedicine lysosomal storage diseases and cell pathophysiology |
| CIBER: Bioingeniería, biomateriales y nanomedicina   | Schwartz Navarro, Simó        | CIBBIM - Nanomedicine Drug Delivery and Targeting                         |
| CIBER: Diabetes y Enfermedades Metabólicas           | Simó Canonge, Rafael          | Diabetes, Metabolism  |
| CIBER: Enfermedades neurodegenerativas               | Vila Bover, Miquel            | Neurodegenerative diseases  |
| CIBER: Enfermedades respiratorias                    | Morell Brotad, Ferran         | Pneumology  |
| CIBER: Epidemiología y salud pública                 | Permanyer Miralda, Gaietà     | Cardiocirculatory pathology   |
| CIBER: Enfermedades Neurodegenerativas               | Comella Carnicé, Joan Xavier  | Cell signaling and apoptosis  |

### LIST OF ISCIII THEMATIC NETWORK CENTERS THAT THE VHIR IS INVOLVED IN

| File            | Title   | Project Manager                 |
|-----------------|---|---------------------------------|
| RD06/0014/1014  | RECAVA - Red Temática de Investigación en Enfermedades Cardiovasculares                               | Simó Canonge, Rafael            |
| RD09/0077/00090 | Red de Innovación en Tecnologías Médicas y Sanitarias   | Comella Carnicé, Joan Xavier    |
| RD06/0008/0026  | REIPI - Red Española de Investigación en Patología Infecciosa   | Almirante Gragera, Benito       |
| RD06/0006/0039  | RIS - Red de Investigación en SIDA  | Ribera Pascuet, Esteve          |
| RD12/0015/0003  | Red Española de Investigación en Patología Infecciosa   | Almirante Gragera, Benito       |
| RD12/0017/0003  | Red de SIDA-RIS   | Ribera Pascuet, Esteve          |
| RD12/0018/0020  | Red de Investigación Cooperativa en Enfermedades Tropicales RICET                                     | Molina Romero, Israel           |
| RD06/0026/0010  | RENEVAS - Red de Investigación Cooperativa Neurovascular  | Montaner Villalonga, Joan       |
| RD12/0014/0005  | INVICTUS  | Montaner Villalonga, Joan       |
| RD08/0072/0034  | REDSAMID - Red de Salud Materno-Infantil y del Desarrollo   | Cabero Roura, Lluís             |
| RD12/0026/0016  | Red de Salud Materno Infantil y del Desarrollo  | Cabero Roura, Lluís             |
| RD12/0021/0013  | Red de investigación Renal  | Serón Micas, Daniel             |
| RD07/0060/0020  | REEM - Red Española de Esclerosis Múltiple  | Montalban Gairín, Xavier        |
| RD12/0032/0017  | Red Española de Esclerosis Múltiple   | Montalban Gairín, Xavier        |
| RD07/0062/0010  | OFTARED - Red de Patología Ocular del Envejecimiento, Calidad Visual y Calidad de Vida                | García Arumí, José              |
| RD12/0034/0015  | Prevención, detección precoz y tratamiento de la patología ocular prevalente, degenerativa y crónica. | García Arumí, José              |
| RD06/0014/0025  | RECAVA - Red Temática de Investigación en Enfermedades Cardiovasculares                               | García-Dorado García, David     |
| RD12/0042/0021  | Red Cardiovascular  | García-Dorado García, David     |
| RD06/0020/0104  | RTICC - Red Temática de Investigación cooperativa de cáncer   | Ramón y Cajal Agüeras, Santiago |
| RD09/0076/00066 | RETICS de Biobancos   | Ramón y Cajal Agüeras, Santiago |
| RD12/0036/0057  | Red Temática de Investigación Cooperativa en Cáncer (RTICC)   | Ramón y Cajal Agüeras, Santiago |
| RD06/0020/0058  | RTICC - Red Temática de Investigación cooperativa de cáncer   | Reventós Puigjaner, Jaume       |
| RD12/0036/0035  | Red Temática de Investigación Cooperativa en Cáncer - RTICC   | Reventós Puigjaner, Jaume       |
| RD06/0020/1021  | RTICC - Red Temática de Investigación cooperativa de cáncer   | Sánchez de Toledo Codin, Josep  |
| RD12/0036/0016  | Red Temática de Investigación Cooperativa en Cáncer - RTICC   | Sánchez de Toledo Codin, Josep  |

## LIST OF VHIR RESEARCH GROUPS RECOGNIZED BY THE “GENERALITAT DE CATALUNYA”

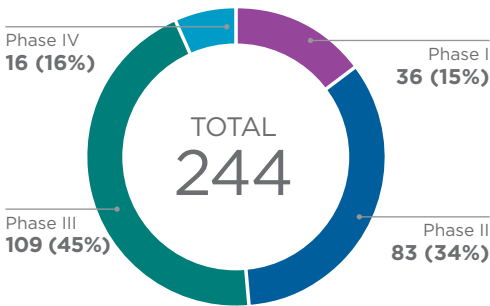
| File   | Project Manager                 | Title  | Funding |
|--|---------------------------------|--|---------|
| <b>Oncology</b>  |                                 |  |         |
| 2009 SGR 604   | Lleonart Pajarin, Matilde       | Oncology and Molecular pathology                             | 39,520  |
| 2009 SGR 487   | Reventós Puigjaner, Jaume       | Research Unit in Biomedicine and Translational Oncology      | 57,200  |
| 2009 SGR 756   | Ramón y Cajal Agüeras, Santiago | Molecular Pathology  | 41,600  |
| <b>Endocrinology and nephrology</b>                            |                                 |  |         |
| 2009 SGR 31  | Carrascosa Lezcano, Antonio     | Pediatrics Endocrinology                                     | 47,840  |
| 2009 SGR 739   | Rafael Simó Canonge             | Diabetes, Metabolism   | 43,680  |
| <b>Cardiovascular diseases</b>                                 |                                 |  |         |
| 2009 SGR 802   | David García-Dorado             | Cardiocirculatory pathology                                  | 56,160  |
| <b>Neurosciences</b>   |                                 |  |         |
| 2009 SGR 1520  | Martí Seves, Ramon              | Neuromuscular and mitochondrial pathology                    | --      |
| 2009 SGR 495   | Sahuquillo Barris, Joan         | Neurotraumatology and neurosurgery (UNINN)                   | --      |
| 2009 SGR 793   | Montalban Gairín, Xavier        | Clinical neuroimmunology                                     | 43,680  |
| 2009 SGR 432   | Montaner Villalonga, Joan       | Neurovascular diseases                                       | 46,800  |
| 2009 SGR 664   | Vila Bover, Miquel              | Neurodegenerative diseases                                   | 41,600  |
| 2009 SGR 78  | Macaya Ruíz, Alfons             | Pediatric neurology  | 41,600  |
| 2009 SGR 346   | Comella Carnicé, Joan Xavier    | Cell signaling and apoptosis                                 | 45,760  |
| <b>Digestive and liver diseases</b>                            |                                 |  |         |
| 2009 SGR 256   | Molero Richard, Francesc Xavier | Physiology and Pathophysiology of the Digestive Tract        | --      |
| 2009 SGR 383   | Genescà Ferrer, Joan            | Liver diseases   | 54,080  |
| 2009 SGR 219   | Azpiroz Vidaur, Fernando        | Physiology and Pathophysiology of the Digestive Tract        | 50,960  |
| <b>Infectious diseases</b>                                     |                                 |  |         |
| 2009 SGR 296   | Prats Pastor, Guillem           | Microbiology   | 42,640  |
| 2009 SGR 86  | Pahissa Berga, Albert           | Infectious diseases  | --      |
| 2009 SGR 1226  | Rello Condomines, Jordi         | Clinical research / Innovation in Pneumonia & Sepsis (CRIPS) | --      |
| <b>Respiratory and systemic diseases</b>                       |                                 |  |         |
| 2009 SGR 257   | Morell Brotaç, Ferran           | Pneumology   | 54,080  |
| 2009 SGR 661   | Vilardell Tarres, Miguel        | Systemic diseases  | 49,920  |
| <b>Gynecology, pediatric diseases and experimental surgery</b> |                                 |  |         |
| 2009 SGR 130   | Garcia Fontecha, César Galo     | Bioengineering, orthopedics and surgery in pediatrics        | --      |
| 2009 SGR 384   | García Arumí, José              | Ophthalmology  | --      |
| 2009 SGR 537   | Cabero Roura, Lluís             | Maternal Fetal Medicine                                      | --      |
| <b>Epi-de., pharmo., new therapies and clinical research</b>   |                                 |  |         |
| 2009 SGR 412   | Laporte Roselló, Joan-Ramon     | Clinical pharmacology  | 42,640  |
| <b>Other</b>   |                                 |  |         |
| 2009 SGR 493   | Sayós Ortega, Juan              | CIBBIM - Nanomedicine Immunobiology                          | 42,620  |
| 2009 SGR 758   | Schwartz Navarro, Simó          | CIBBIM - Nanomedicine Drug Delivery and Targeting            | 43,680  |
| 2009 SGR 157   | Arango Corro, Diego             | CIBBIM - Nanomedicine Molecular Oncology                     | 40,560  |
| 2009 SGR 75  | Meseguer Navarro, Anna          | CIBBIM - Nanomedicine Kidney physiopathology                 | --      |

 Clinical trials

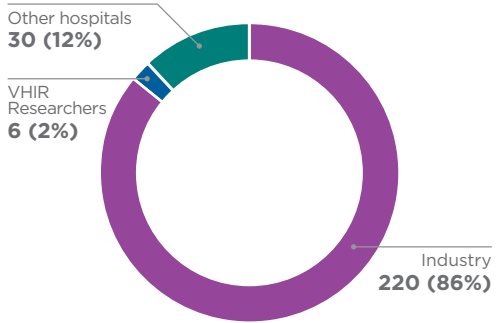
**CLINICAL TRIALS SUBMITTED TO CREC IN 2013**

| TOTAL      | APPROVED   | DENIED   | CANCELLED | POSTPONED |
|------------|------------|----------|-----------|-----------|
| <b>256</b> | <b>244</b> | <b>1</b> | <b>8</b>  | <b>3</b>  |

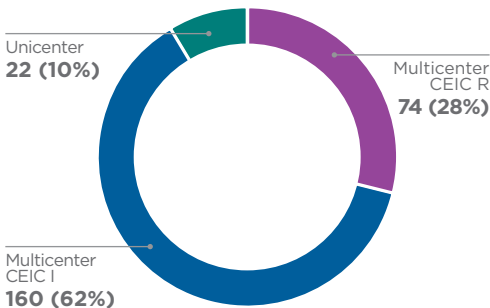
**CLINICAL TRIALS APPROVED BY CREC, CLASSIFIED ACCORDING TO THE TRIAL PHASE**



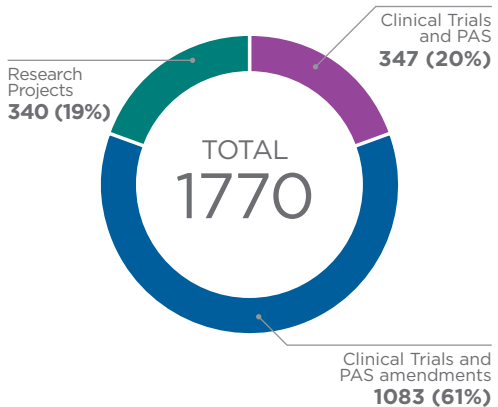
**CLINICAL TRIALS CLASSIFIED ACCORDING TO PROMOTER**



**CLINICAL TRIALS ACCORDING TO PARTICIPANTS**

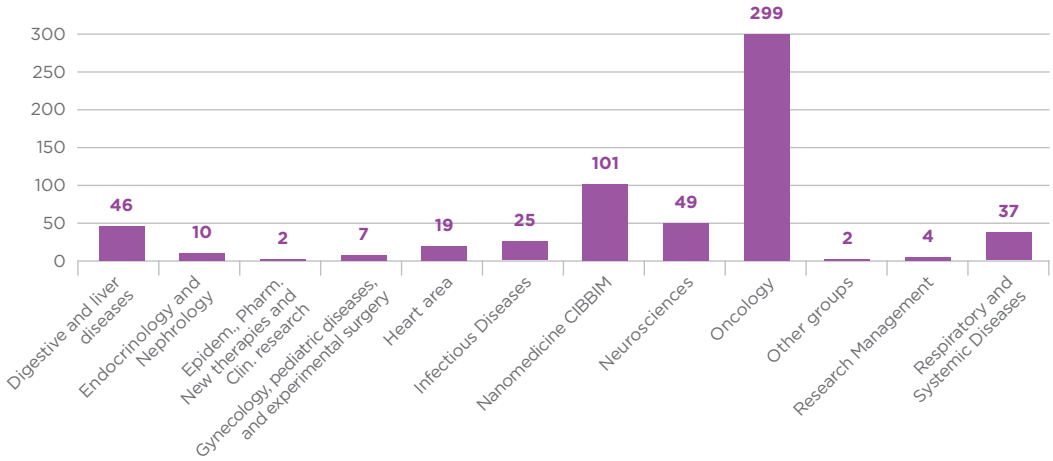


**CEIC**

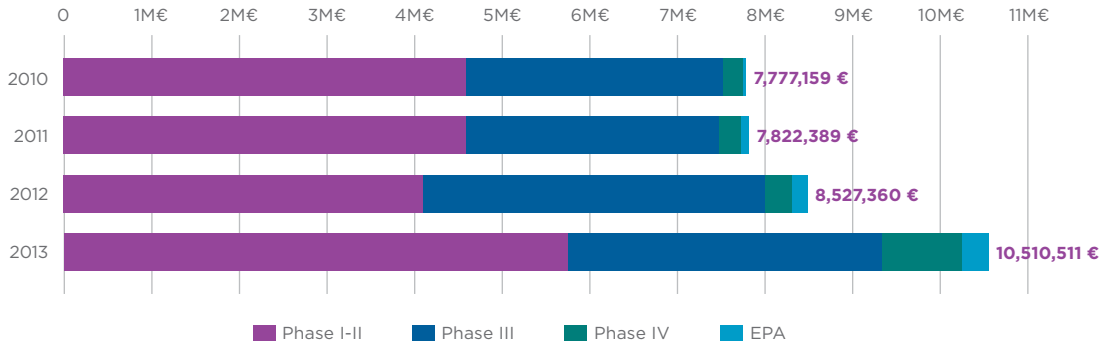




### CLINICAL TRIALS BY AREAS



### FUNDING EVOLUTION, INCLUDING OVERHEADS



### DOCTORAL THESIS READ (UAB)

55

\* The full list can be found at:  
[annualreport2013.vhir.org/facts-and-figures/thesis/](http://annualreport2013.vhir.org/facts-and-figures/thesis/)

## Events and seminars

### TOTAL

209

### EXTRAORDINARY CONFERENCES

2

### COURSES

66

### SEMINARS

141

#### EXTRAORDINARY CONFERENCES

|                             |   |
|-----------------------------|---|
| 7th Scientific Session VHIR | 1 |
| 17th HUVH Annual Conference | 1 |

#### COURSES

|                              |    |
|------------------------------|----|
| UEB                          | 5  |
| Biobank                      | 2  |
| UAT                          | 9  |
| USIC                         | 1  |
| Occupational Risk prevention | 19 |
| Other courses VHIR           | 30 |

#### SEMINARS

|                                   |    |
|-----------------------------------|----|
| VHIR seminars                     | 32 |
| VHIR briefing                     | 4  |
| Biomedicine and Innovation        | 1  |
| Cardiology                        | 26 |
| Gastroenterology                  | 32 |
| Neurosciences                     | 10 |
| Radiotherapy                      | 11 |
| Hematology                        | 21 |
| Nano Seminars CIBBIM-Nanomedicina | 4  |

\* Watch the most important seminars at :  
<http://annualreport2013.vhir.org/facts-and-figures/events-and-seminars>

## WIDER Barcelona

On July 20, 2009, the Generalitat de Catalunya and Obra Social "la Caixa" signed with the HUVH and VHIR an agreement to promote a Endoscopic Surgery Center: The World Institute for Digestive Endoscopy Research (WIDER-Barcelona), led by Dr. José Ramón Armengol. The institute is focused on teaching, research and dissemination of gastrointestinal endoscopy in all its facets, both medical and surgical, with special attention to development of methodology known as transluminal endoscopic surgery through natural orifices (NOTES).

On November 25 and 26, 2013, took place the 7th International NOTES Course WIDER-Barcelona at VHIR, with transmission of cases, demonstrations of anesthesia techniques, intubation. Anastomosis, transgastric Cholecystectomy, transvaginal, pancreatectomy, appendectomy and techniques for orifice closing. ERCP and support echoendoscopy and therapeutic. Mediastinum access, etc.

The course also addressed the new implementation techniques arising from recent developments in research in NOTES as the POEM and Laparoscopic and Endoscopic Cooperative Surgery.



INNOVATION REQUESTS

150

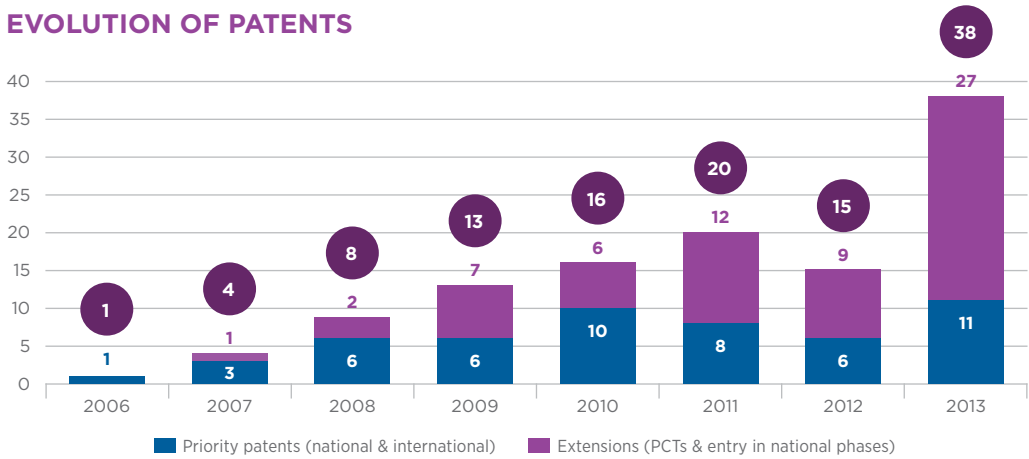
PATENTS

11

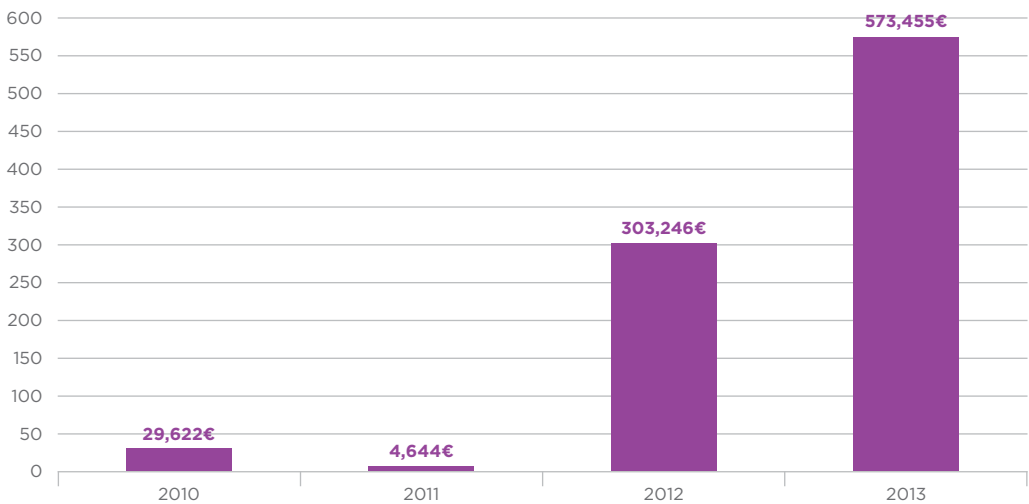
COOPERATIVE PROJECTS

114

EVOLUTION OF PATENTS



EVOLUTION OF REVENUES FROM EXPLOTATION

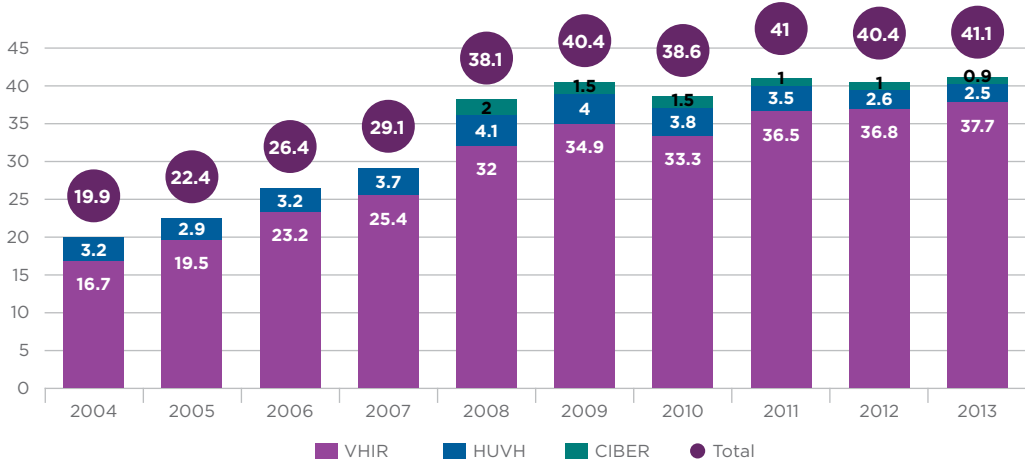


## € Economic summary

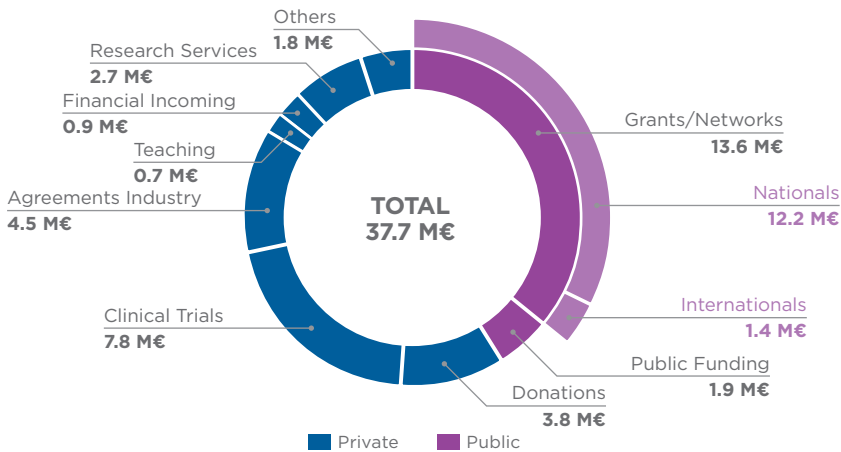
### VHIR INCOME IN MILLIONS OF EUROS

| TOTAL  | VHIR | HUVH | CIBER |
|--------|------|------|-------|
| 41.1M€ | 37.7 | 2.5  | 0.9   |

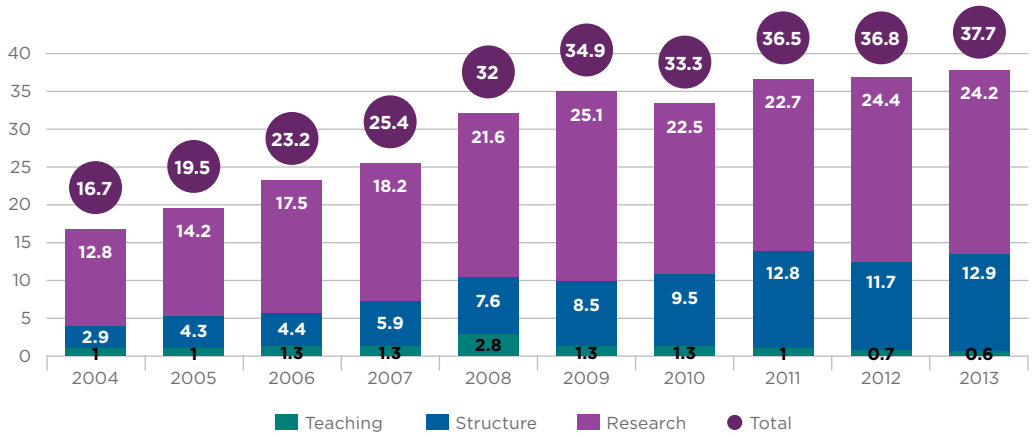
### TOTAL INCOME IN MILLIONS OF EUROS



### 2013 VHIR INCOME BREAKDOWN



**VHIR TOTAL INCOME IN MILLIONS OF EUROS**



 Human resources

TOTAL STAFF

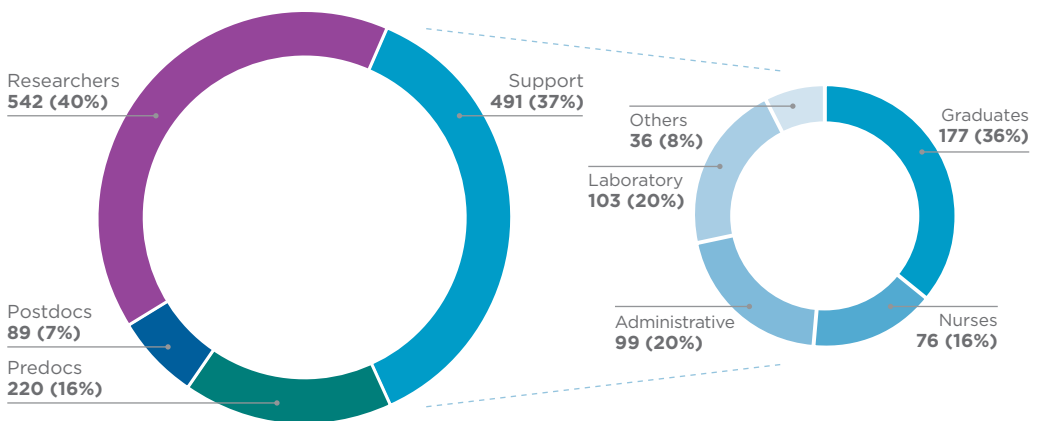
1342

RESEARCH STAFF

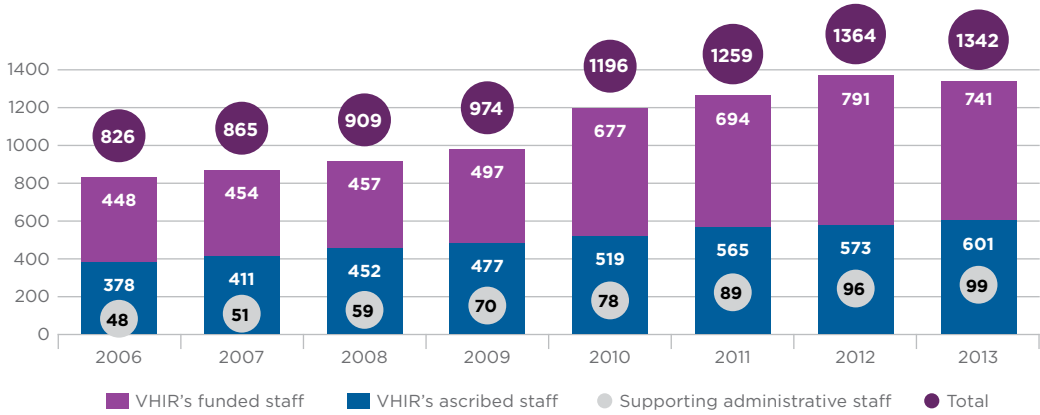
851 (63%)

SUPPORTING RESEARCH STAFF

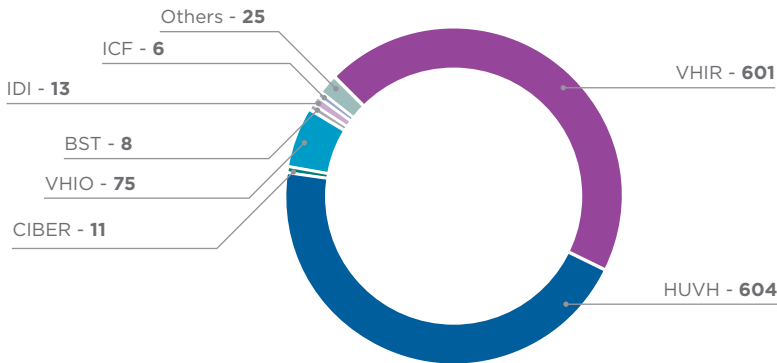
491 (37%)



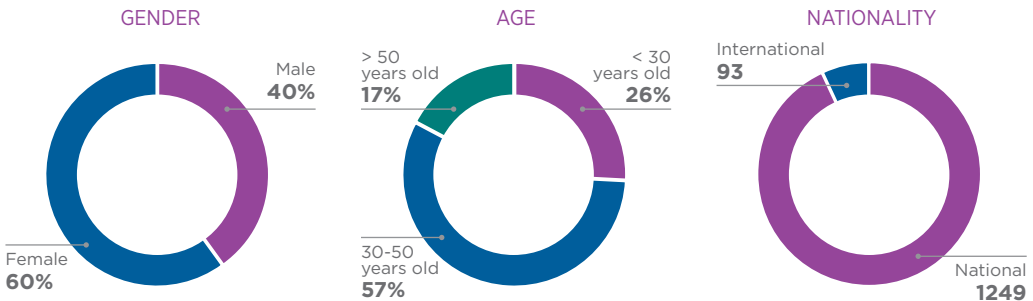
### EVOLUTION OF THE STAFF



### CONTRACTING ENTITIES



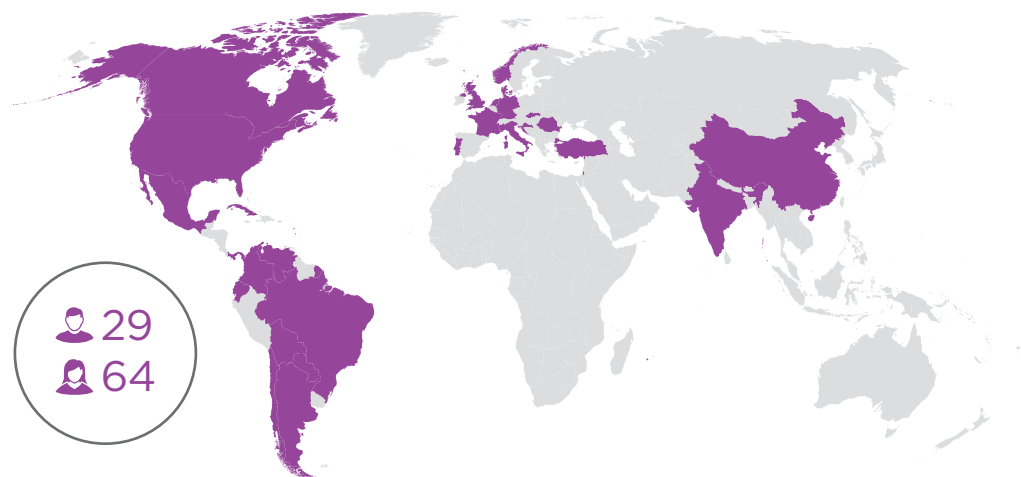
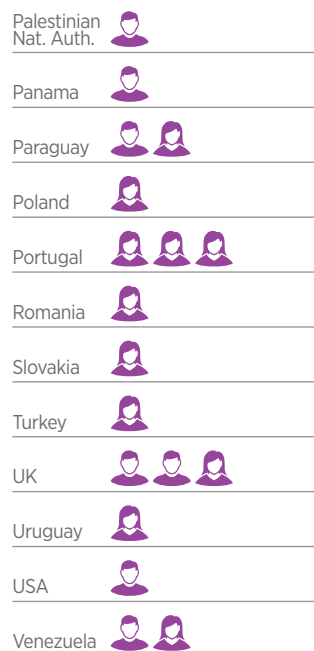
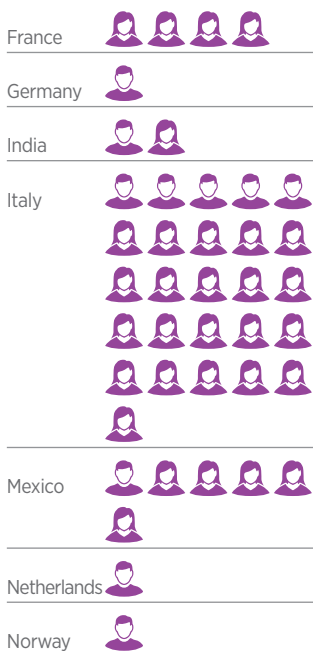
### STAFF BY GENDER, AGE AND NATIONALITY



## INTERNATIONALIZATION

### INTERNATIONAL STAFF

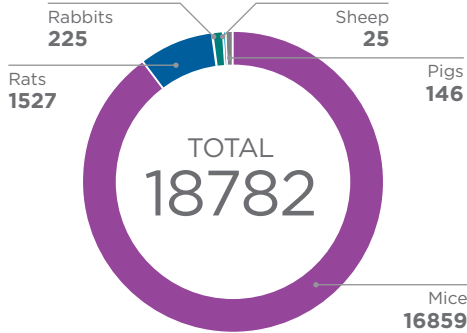
# 93



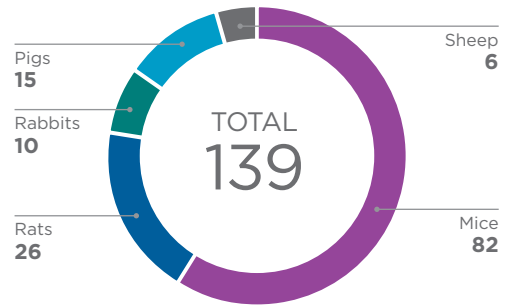
## Scientific and Technical support

### ANIMAL FACILITIES

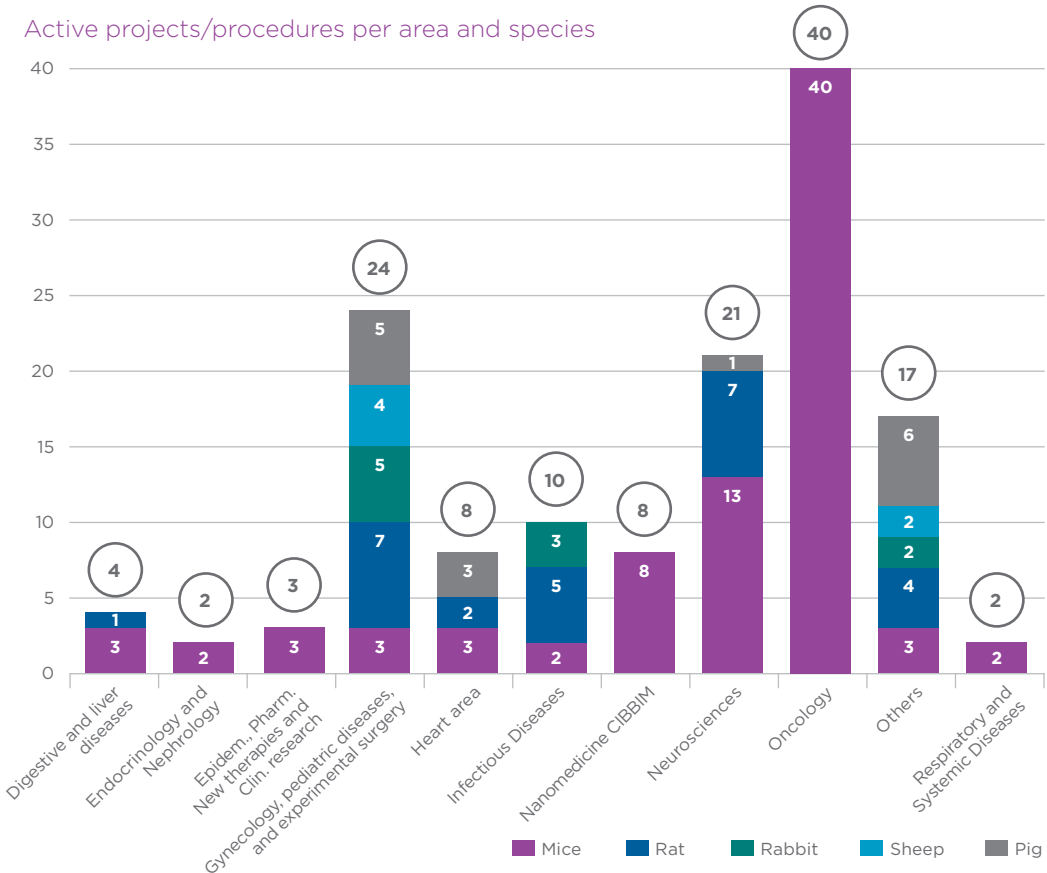
Animals used in research



Active projects/procedures per species



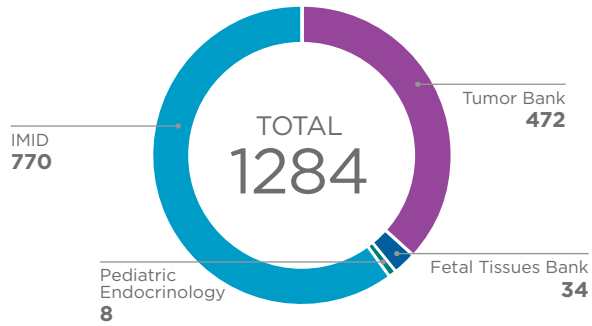
Active projects/procedures per area and species



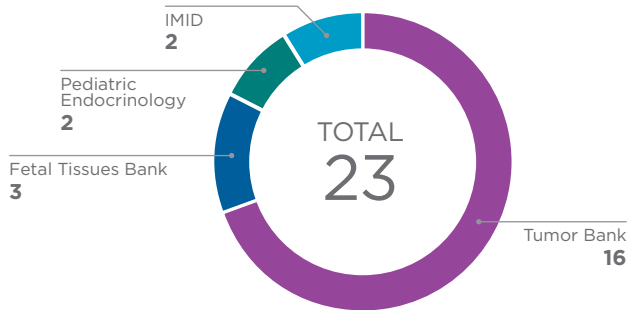


## BIOBANK

No. of donations

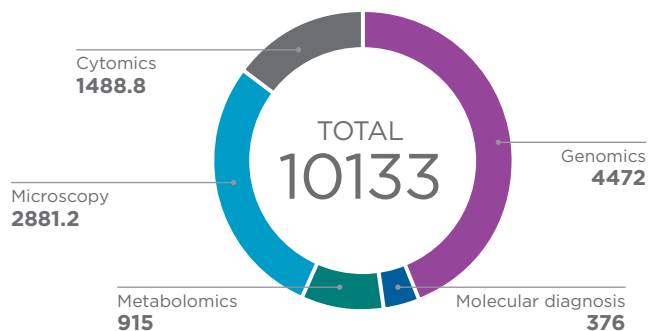


No. of publications which have used biobank collections samples



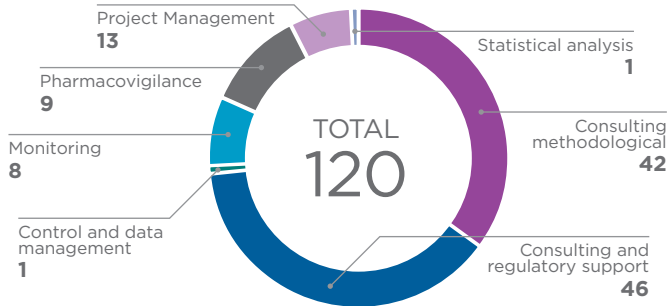
## UAT

Services performed



## USIC

Services performed by the USIC

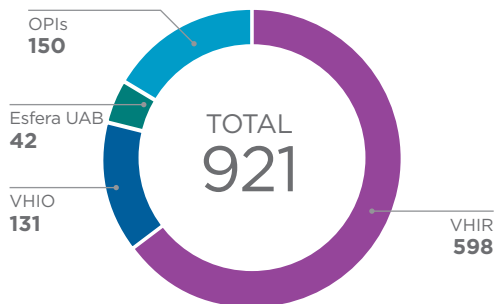


## UEB

UEB Services by Type

| TYPE                             | No. |
|----------------------------------|-----|
| Microarray Data Analysis         | 10  |
| RTqPCR Data Analysis             | 6   |
| Functional Annotation Analysis   | 1   |
| Exome Variant Analysis           | 2   |
| Amplicon Variant Analysis        | 1   |
| Methylation Data Analysis        | 1   |
| Statistical Analysis             | 1   |
| Specific Bioinformatics Training | 2   |
| Booking of UEB Computing Server  | 3   |

UEB Services by user's affiliation (by invoiced hours)



Other Services and Projects

| SERVICE/PROJECT   | No. |
|---|-----|
| Pathway Analysis Software Booked Sessions (4h slots)          | 294 |
| Revision of FIS Projects for VHIR Groups (number of projects) | 6   |
| Scientific Advisory Board's Intranet Implementation (hours)   | 8   |
| Surveys Implementation for VHIR's Quality Unit (hours)        | 26  |
| Statistical Assessment for UAT: Zeptosens (hours)             | 35  |
| Survey Implementation for UAB's BBMB Master (hours)           | 5   |
| Brief Consultancy Services (number of meetings)               | 59  |

A close-up, low-angle photograph of a computer keyboard. The focus is on the keys numbered 45, 46, 47, and 48. The keys are light grey with black lettering. The background is blurred, showing other keys and the keyboard's frame. The text "VHIR HIGHLIGHTS" is overlaid in white, bold, sans-serif font across the center of the image.

# VHIR HIGHLIGHTS

[annualreport2013.vhir.org/highlights](http://annualreport2013.vhir.org/highlights)

 Scientific highlights

JAN

FEB

MAR

APR

MAY

JUN

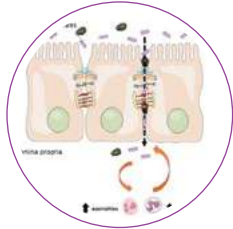
JUL

AUG



**12/03/2013**

VHIR's researchers identify a protein which predicts kidney cancer in the initial stages and in its prognosis



**08/05/2013**

Functional Dyspepsia is associated with alterations in the duodenum very similar to those detected in Irritable Bowel Syndrome



**27/06/2013**

Identified bacteria which cause more abdominal gases



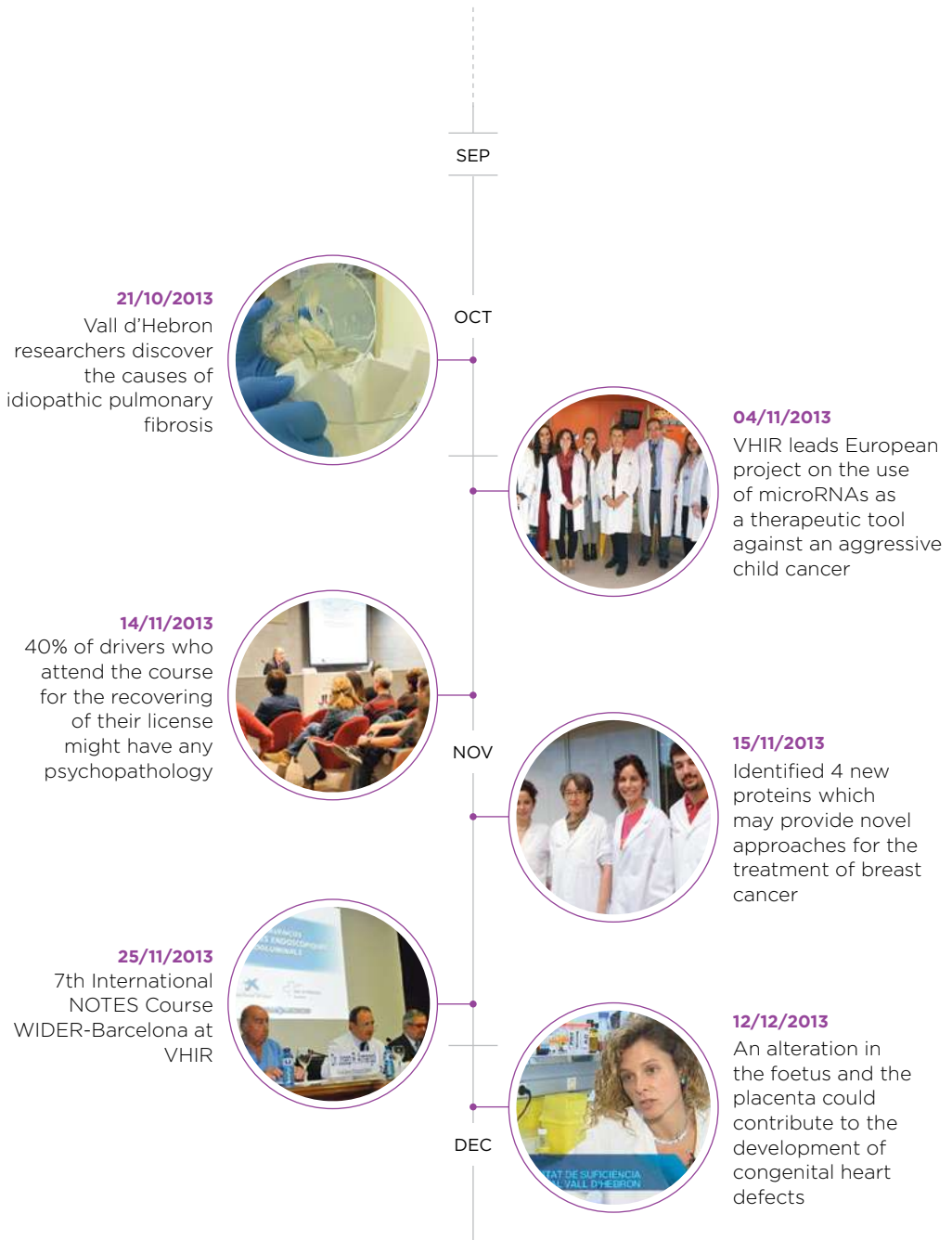
**16/07/2013**

Vall d'Hebron designs a predictive clinical-genetic model of response in ischemic stroke

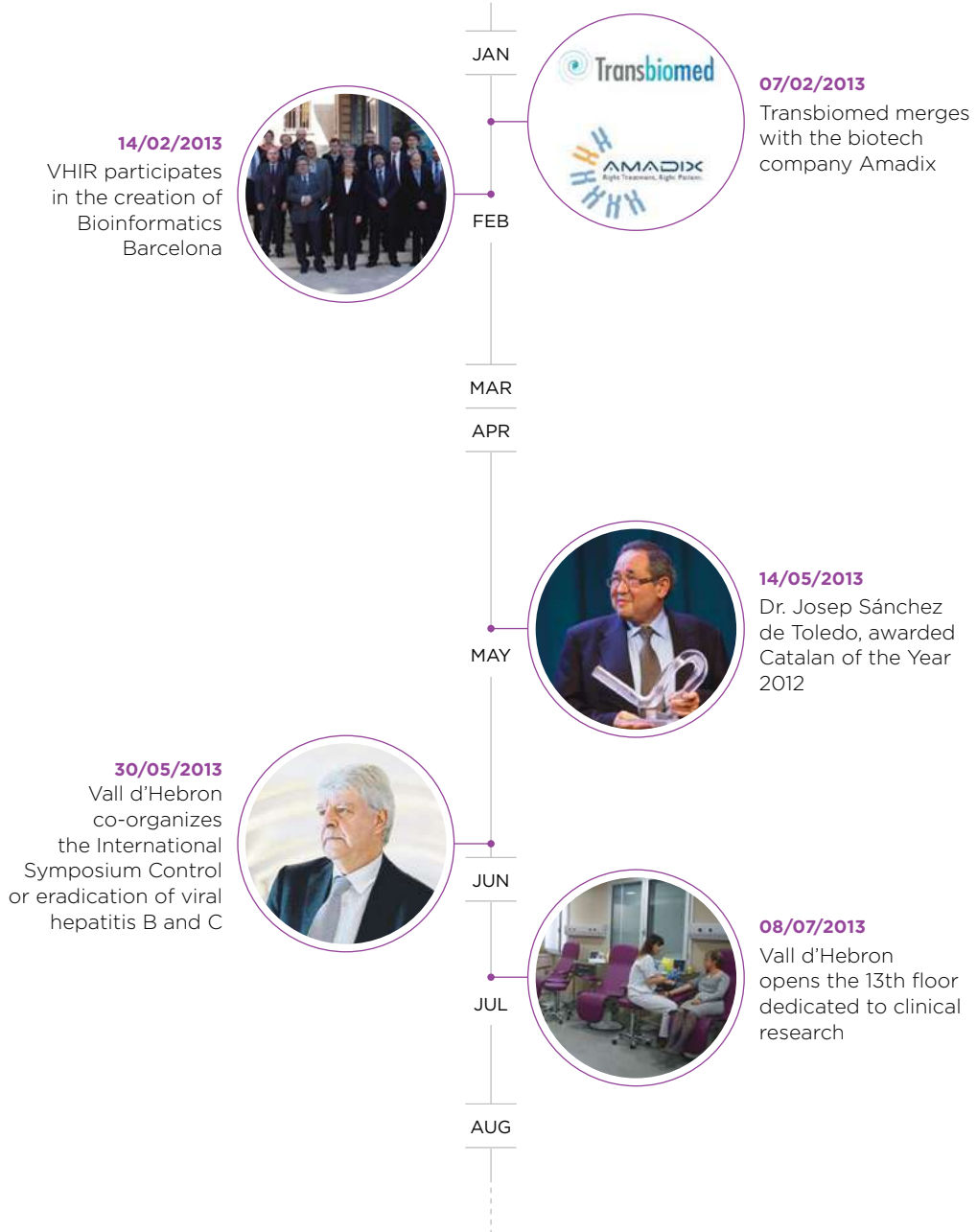


**11/08/2013**

A VHIR's team proves the genetic associated to psychiatric diseases



## Institutional highlights



**05/09/2013**  
VHIR raises 7,000 euros within the first weeks of faigreerca.org



SEP

**08/10/2013**

VHIR signs an agreement with Probitas and an Angolan Hospital to investigate drug-resistant tuberculosis



OCT

NOV

**10/12/2013**  
VHIR and IRB Barcelona collaborate in basic and translational research projects



DEC

**17/12/2013**

VHIR becomes a university research institute affiliated to UAB



**23/12/2013**  
VHIR signs an agreement with Grifols to create a centre of excellence in research of DAAT





**20VHIR**

Vall d'Hebron Institut de Recerca (VHIR)  
Hospital Universitari Vall d'Hebron  
Passeig Vall d'Hebron, 119-129  
08035 Barcelona  
[www.vhir.org](http://www.vhir.org)

