Vall d'Hebron
Institut de Recerca

20VHIR

ANNUAL REPORT

2014

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DR. VICENÇ MARTÍNEZ IBÁÑEZ

HUVH Manager

The Vall d'Hebron Institute of Research (VHIR) was created 20 years ago, as a result of the excellent spirit of all our professionals at the Hospital that, already in the late 60's, were doing research, although in poor conditions. VHIR's figures have been improving every year in terms of scientific production since then. I would like to highlight, in particular, the fact that Vall d'Hebron University Hospital is leader in the number of ongoing clinical trials in Spain. We perform one third more than the second Institution in our country. Another evidence of our excellent position in clinical research is the fact that we have more ongoing clinical trials that in all Andalucía together, and more than in all Scotland.

The excellence of our research institute is now internationally well recognized and this should be especially stressed and a very good reason to be proud of VHIR. I believe that VHIR's work is critical for the improvement and development of our hospital. It shouldn't be forgotten that research plays an essential role in health care. Mostly translational research, as in our case, that has a direct application to the care of our patients. This strategic process is so important that we can't understand our hospital without our research institute.

DR. JOAN COMELLA

VHIR's Director

During 2014 we celebrated our 20th anniversary. After two decades it is a good moment for us to do a deep reflection about what we have learned and to face what we want to be in the future. In the last months we have paid tribute to the pioneers that started in a much more difficult situation than we have in the present. At the same time we organized a lot of activities with our researchers to show our potential nowadays and what we are planning for the future. I would like to stress that we are making an effort to open our institution to society, to the people of Barcelona, and especially to the young students in schools and universities.

2014 has been also a very important year as we passed the reaccreditation of the Instituto de Salud Carlos III (ISCIII). It was a hard examination that dealt with many different aspects of our day by day, including both science and management. The reaccreditation confirms us as a top level centre related to a hospital in Spain.

Our Scientific Advisory Board (SAB) also evaluated us during 2014. It was not as much as an examination but a very practical recommendation on how the groups can individually improve the research in the future.

Internally, we organized a Faculty Retreat, defined by the presence of all the Principal Investigators (PI) of the Institute. It was a very successful meeting in which all participants did an important job on setting up our position to face the problems and difficulties of our daily work. The results of this retreat will be used in the final definition of our next Strategic Plan. Already during 2015 we also had a Scientific Retreat. It's a satisfaction having been able to manage and put in common the conclusions of both retreats. We improved the interactions between groups and PIs, and have done an effort to know each other better in terms of science. It also will help us in our day by day activity (management, capabilities, core facilities, etc.).

We are particularly proud for winning the Best in Class Award, from Gaceta Médica, in the category of Research and Innovation Centre. Apart from scientific production results, I would like to emphasize our innovative work in terms of our relationship with industry. Not only we are leaders in clinical trials at the moment, but our relationship with the industry has increased and this has put us in the top level of the hospitals in terms of innovation. All this has helped us to reach a very good economical position in spite of having suffered a very important crisis.

Added to these good news and results, and looking into the future, I'm sure that the incorporation of Vall d'Hebron Institute of Oncology (VHIO) in the ISCIII's VHIR accredited institute will boost enormously our leadership and will put Campus Vall d'Hebron, without any doubt, in the top positions of the institutes based on hospitals.

ORGANIZATION AND STAFF

annualreport2014.vhir.org/organization-and-staff

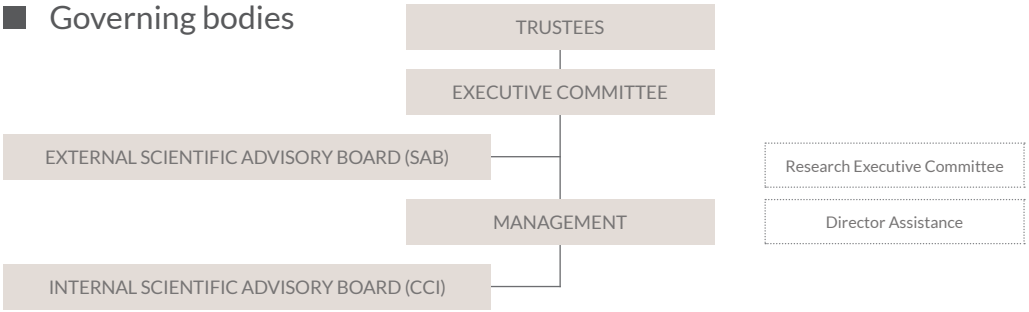
RESEARCH AREAS AND GROUPS

FACTS AND FIGURES

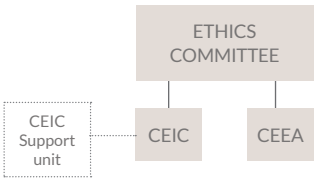
VHIR HIGHLIGHTS

ORGANIZATIONAL CHART

Governing bodies



Research

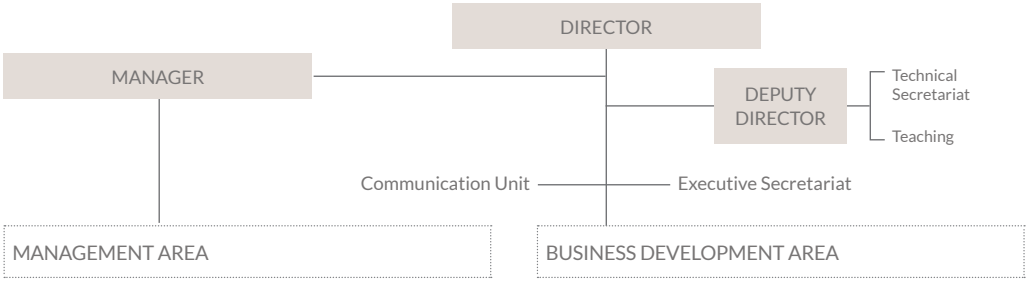


RESEARCH AREAS

- Endocrinology and Nephrology
- Cardiovascular Diseases
- Neurosciences
- Digestive and Liver Diseases
- Infectious Diseases
- Respiratory and Systemic Diseases
- Gynecology, Pediatric Diseases and Experimental Surgery

- Epidemiology, Pharmacology, New Therapies and Clinical Research
- CIBBIM-Nanomedicine

Administrative structure



HUMAN RESOURCES DIRECTION
- Professional development
- Human resources unit

FINANCIAL & PROJECT MANAGEMENT COORDINATION
- Accounting and revenue unit
- Purchase and biddings unit
- Project management unit

LEGAL UNIT

IT

GENERAL SERVICES / LAB COORDINATION

DOCUMENT MANAGEMENT

QUALITY

BUSINESS DEVELOPMENT
- Innovation
- Competitive research development
- Contract research development
- Fundraising
- Core facilities coordination
  - UEB
  - UAT
  - USIC
  - SEA
  - BIOBANK
  - ARO
  - PH-CT

ORGANIZATION AND STAFF

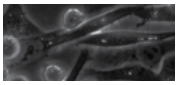
RESEARCH AREAS AND GROUPS

annualreport2014.vhir.org/research-areas

FACTS AND FIGURES

VHIR HIGHLIGHTS

LONGITUDINAL AREAS



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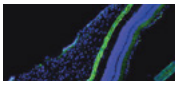
Digestive and Liver Diseases



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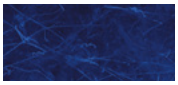
Endocrinology and Nephrology



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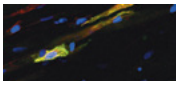
Gynecology, Pediatric Diseases and Experimental Surgery



22

Cardiovascular Diseases

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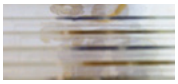
Infectious Diseases



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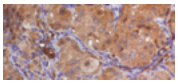
Neurosciences



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Oncology

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Respiratory and Systemic Diseases

TRANSVERSAL AREAS

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Epidemiology, Pharmacology, New Therapies and Clinical Research

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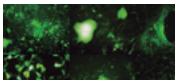
CIBBIM-Nanomedicine

VHIO



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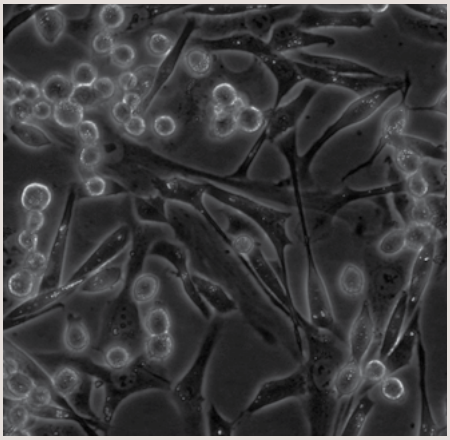
Vall d'Hebron Institute of Oncology

LONGITUDINAL AREAS

1 Digestive and Liver Diseases

Area Coordinator: Javier Santos



Publications

73

Impact Factor

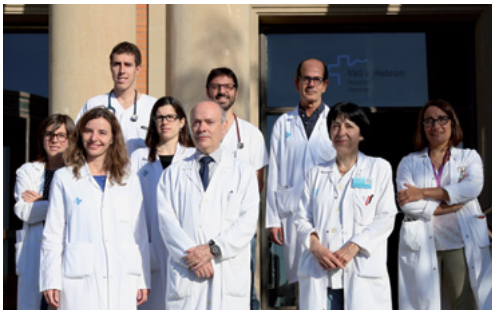
603.291

Average I.F.

8.264

1.1 DIGESTIVE TRANSPLANTS

Ramón Charco



PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
14	**38.460**	**2.747**

SUMMARY 2014

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.

1.2 LIVER DISEASES

Rafael Esteban Mur

PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
46	394.746	8.581

SUMMARY 2014

The most important aspect of our research in 2014 is the increasing number of international collaborations of our investigators and multicenter clinical trials both academic and commercial.

Dr. Joan Córdoba, clinician from the Internal Medicine- Hepatology Service at Vall d'Hebron University Hospital (HUVH) and outstanding researcher of the Liver Diseases left us at the age of 49 on 27th January. Dr. Córdoba joined the HUVH in 1989 as a doctor in training and continued his experience in the Northwestern University in Chicago for 3 years. He returned to Barcelona as a member of the Internal Medicine- Hepatology Service and became a professor of the Universitat Autònoma de Barcelona. He was a renowned expert of international prestige in the field of hepatic encephalopathy, a notorious clinician and a researcher of tireless dedication. Certainly, he's been a reference for young doctors and researchers.

1.3 PHYSIOLOGY AND PATHOPHYSIOLOGY OF THE DIGESTIVE TRACT

Fernando Azpiroz

PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
20	189.434	9.472

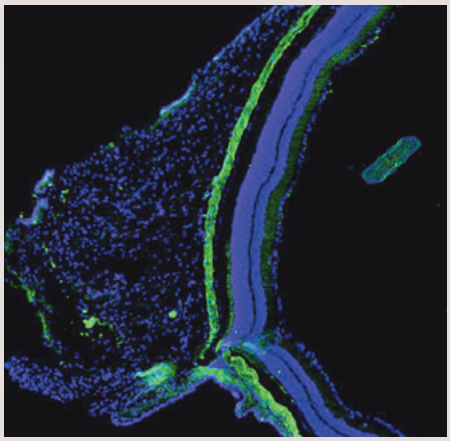
SUMMARY 2014

Idiopathic digestive symptoms have been categorized as functional gastrointestinal disorders. With our research program we have obtained evidence on the organic-type alterations underlying these disorders. In 2014 advances in three key fronts have been achieved. First, patients with functional gastrointestinal disorders have a labile microbiota that reacts abnormally to a challenge diet. In this line, we participated in a comprehensive international investigation within the EC-funded MetaHit consortium developing an integrated catalogue of reference genes in the human gut microbiota, which is key to interpret the abnormalities found in patients. Second, new evidence was obtained on the abnormalities of humoral immunity related to abnormal barrier function in patients with diarrhea and abdominal symptoms. Finally, we have identified that some symptoms in patients with functional gastrointestinal disorders are in reality somatic responses to visceral stimuli, and interestingly, these symptoms can be corrected by behavioral therapy.

LONGITUDINAL AREAS

2 Endocrinology and Nephrology

Area Coordinator: Daniel Serón



Publications

49

Impact Factor

179.286

Average I.F.

3.659

2.1 DIABETES AND METABOLISM

Rafael Simó

PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
17	**80.701**	**4.747**

SUMMARY 2014

Our research is addressed towards 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.

It should be noted that we are coordinating the first clinical trial using eye drops for the treatment of the early stages of DR. In addition, we are developing a new score system to better identify type 2 diabetic patients at risk of ischemic events and worse outcomes. Finally, we are evaluating the usefulness of the assessment of retinal neurodegeneration to identify diabetic patients at risk for developing Alzheimer disease ("the eye as a window of brain disease").

2.2 NEPHROLOGY

Daniel Serón Micas

PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
26	77.861	2.995

SUMMARY 2014

During 2014 the Nephrology group has published different papers in the field of transplantation. Some of these papers constitute the results of the INTERCOM study, a collaborative study aimed to evaluate the diagnostic utility of renal allograft biopsy microarrays. The group has been collaborating in the Spanishh Nephrology Network (REDinREN) in the areas of glomerulonephritis, diabetic nephropathy and transplantation. During 2014 the Nephrology group has obtained two grants from the Instituto de Salud Carlos III.

2.3 PEDIATRIC ENDOCRINOLOGY

Antonio Carrascosa

PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
10	33.964	3.396

SUMMARY 2014

Over 2014, related to clinical studies, we have been updating the anthropometric growth charts for premature and term newborns and normal children to final adult height in Spanish population; designing and distributing a free-use program for the anthropometric evaluation (AuxoLog®); creating and implementing an educational program for pediatric obesity therapy (Niñ@s en Movimiento®), and establishing the usefulness of GH secretion stimulatory tests.

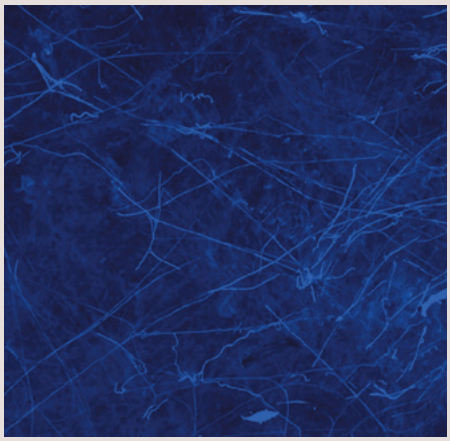
We have also been doing clinical and molecular studies establishing relationships between genetics and growth, type 1 diabetes susceptibility, low bone mass susceptibility and adrenal insufficiency in children.

Over 2014, the Group organized the XLVII Course of Pediatric Endocrinology and the Annual Master Course on Pediatric Endocrinology. We are collaborating with the Spanish Orphanet Database managers for the pediatric endocrinology information. We are partners in the COST action BM1301 "A systematic elucidation of differences of sex development (DSDNet)".

LONGITUDINAL AREAS

3 Gynecology, Pediatric Diseases and Experimental Surgery

Area Coordinator: Elena Carreras



Publications

67

Impact Factor

186.810

Average I.F.

2.788

3.1 BIOENGINEERING, ORTHOPEDICS AND SURGERY IN PEDIATRICS

César Galo García Fontecha

PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
13	**35.445**	**2.727**

SUMMARY 2014

The group has been working in the fetal surgery field, and specifically we have developed the fetoscopic repair of myelomeningocele in collaboration with the Center for Fetal, Cellular and Molecular Therapy of the Cincinnati Children's Hospital.

From the area of pediatric orthopedics, the group has been working in the field of musculoskeletal infection in the immature bone in collaboration with the group Infection in immunocompromised pediatric patients and the group Microbiology, developing the animal model of bone infection. We have also developed a new technique of revascularization of the segmental bone graft using vascularized periosteal grafts.

3.2 FETAL MATERNAL MEDICINE

Lluís Cabero
Elena Carreras

PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
4	19.714	4.928

SUMMARY 2014

During 2014 we have been working on the research in the field of the relation of congenital heart disease and abnormal angiogenesis in maternal blood from the first trimester of pregnancy, and also on the creation of a network of hospitals in Europe to perform studies for the prediction and prevention of preterm labor.

3.3 GENERAL SURGERY

Manuel Armengol

PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
20	48.319	2.416

SUMMARY 2014

During 2014, the General Surgery Group has been credited as "Grup de Recerca Consolidat" by the Catalan Government, and has also been favorably evaluated in the external evaluation performed at VHIR. Two new competitive projects have started and 25 publications have been performed, 8 of them being ranked in quartile 1. Several agreements with other Universities, such as the Universitat Politècnica de Catalunya, have been achieved. Lastly, the group has collaborated in the "Master in Translational Biomedical Research – VHIR", offering the students the possibility to develop an internship in collaboration with a leading company in the field of surgical closure technologies.

3.4 GENETICS MEDICINE

Eduardo Fidel Tizzano

PUBLICATIONS

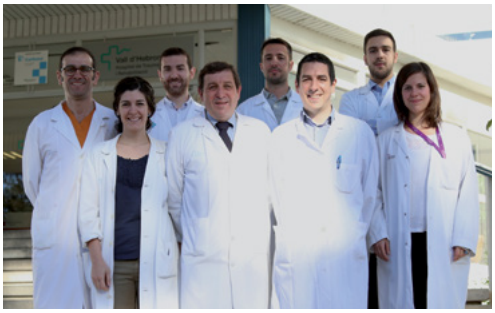
Total	*Impact Factor*	*Average I.F.*
11	34.653	3.150

SUMMARY 2014

The research group of Genetics Medicine at the Hospital VH belongs to the Area of Clinical and Molecular Genetics combining genetic diagnosis and translational research on hereditary diseases and malformations during human development. Pioneer in Spain (it was founded in 1967), has a powerful structure of Genetic Clinic for dysmorphology diagnosis and genetic counseling, molecular genetics and cytogenetics laboratories. It is a reference center (in coordination with other research groups of the hospital) in various conditions such as fetal alcohol syndrome, velocardiofacial / DiGeorge syndrome and Marfan syndrome and behavior conditions such as autism. More recently other research lines related with motor neuron diseases, particularly spinal muscular atrophy have been incorporated.

3.5 MUSCULOSKELETAL TISSUE ENGINEERING

Màrius Aguirre



PUBLICATIONS

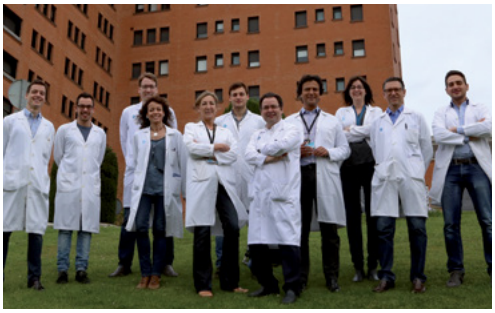
Total	*Impact Factor*	*Average I.F.*
4	8.861	2.215

SUMMARY 2014

One of the main goals in 2014 has been the finalization of our project "Viability study of the microsurgical vascular anastomosis in an irradiated population in an animal model in rats" which has been the subject matter of the doctoral thesis of Dr. Sergi Barrera Ochoa. With this study we can demonstrate that the effect of external radiotherapy can be the main cause of microvascular free flap failure in a context of extern neoadjunvant irradiation, because its application increases the incidence of venous thrombosis.

3.6 NEW TECHNOLOGIES AND MICROSURGERY IN CRANIOFACIAL SURGERY

Coro Bescós



PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
2	3.146	1.573

SUMMARY 2014

In 2014 our research group organized an international course on virtual planning and intraoperative navigation, with the presence of world-renowned surgeons. Besides the XI edition of the course of experimental microsurgery was held.

We started a collaboration in an essay with a leading reference research group on squamous cell carcinoma of the head and neck and dissemination pathways.

Two scholarships in national health research (FIS and AECC, on Oncology) and two international (AO, on Traumatology and Osteochemonecrosis) were requested. Another thesis was directed and published last year.

3.7 OPHTHALMOLOGY

José García-Arumí

PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
8	24.671	3.084

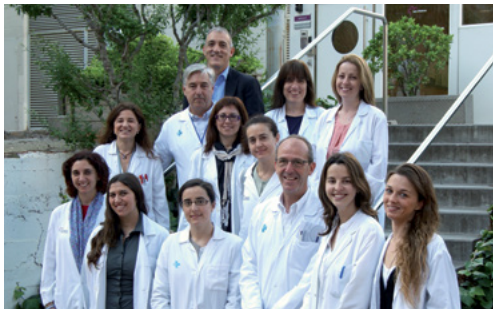
SUMMARY 2014

Within the broad range of tests performed in the unit included the identifications of biomarkers in patients with AMD (age-related Macular Degeneration) and the development of prospective studies in patients with diabetic retinopathy. In this sense, the group aims to be a leader in the development of clinical trials promoting the training and certifications of personnel. In fact, our team has recently been certified by the European Clinical Vision Research (AVICR) in recognition of research excellence.

We are researching new therapies with experimental animal models. In particular, the laboratory is developing a non-viral gene therapy in a rat model for diabetic retinopathy, a cell therapy that combines photoreceptor and RPE transplant in a rat model for retinitis pigmentosa, a topical treatment with fractions of synthetic Pigment Epithelium Derived Factor (PEDF) in a mouse model for the wet form of AMD and a non-viral gene therapy in two mouse models for wet and dry forms of AMD.

3.8 SPINE RESEARCH UNIT

Ferran Pellisé



PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
8	**17.065**	**2.133**

SUMMARY 2014

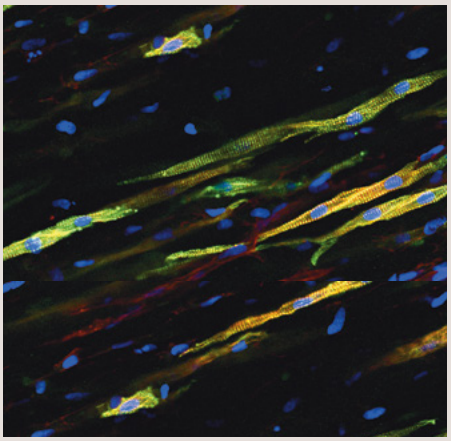
Possibly the most relevant achievement of the Spine Research Unit during 2014 is that we won the Best Full Paper Award of Eurospine with the work entitled "Impact on health related quality of life of adult spinal deformity (ASD) compared with other chronic conditions". Apart from that, the same work was nominated for the Hibbs Award of the Scoliosis Research Society (SRS).

Also during this year the Spine Research Unit was evaluated by SAB and ANEP and both results were very satisfactory. Last year, two new members were included in the research team.

LONGITUDINAL AREAS

4 Cardiovascular Diseases

Area Coordinator: David García-Dorado



Publications

80

Impact Factor

458.014

Average I.F.

5.725

4.1 CARDIOCIRCULATORY PATHOLOGY

David García-Dorado

PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
80	**458.014**	**5.725**

SUMMARY 2014

We published several unique articles, as the publication of our first investigator-driven clinical trial in the area of prevention of reperfusion injury in acute myocardial infarction, a line in which we have many preclinical studies. The PROMISE randomized, double blinded placebo-controlled clinical trial tested the effect of intracoronary adenosine at the time of primary angioplasty on infarct size determined by cardiac MRI, and found a reduction of infarct size in patients arriving within 3 hours of chest pain.

We also made the take-off of several unique projects and grants, as the very important Integrative Project of Excellence of the ISCiii to prevent ischemic cardiovascular events and to limit its magnitude in patients with diabetes, coordinated with seven groups of VHIR.

We opened the Biobank of Cardiology, starting growing collections from different research projects of our research line on aortic diseases, on blood from patients in studies on ischemic heart disease and congenital heart diseases in adolescent and adult patients.

4.2 REPARATIVE THERAPY OF THE HEART

Manuel Galiñanes

PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
6	34.550	5.758

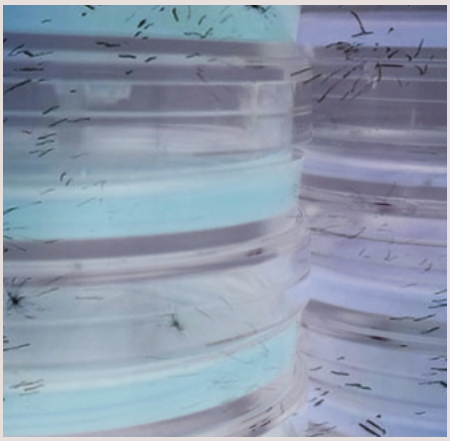
SUMMARY 2014

From 2014 the group participates in the European project: "Defining the role of xeno-directed and autoimmune events in patients receiving animal-derived bioprosthetic heart valves"-TRANSLINK to investigate the role of immune reactions in the deterioration of implanted biological prosthetic valves (FP7-Health-2013-INNOVATION-1). In this project our group investigates the contribution of oxidative and nitrosative stress as effectors of deterioration of bioprosthesis valve. The results of the TRANSLINK project may strongly impact the treatment of heart valve diseases by extending the duration of the bioprostheses implanted, improving morbid-mortality in patients with heart valves diseases and allowing the indication of bioprosthetic heart valves in younger patients.

LONGITUDINAL AREAS

5 Infectious Diseases

Area Coordinator: Tomàs Pumarola



Publications

124

Impact Factor

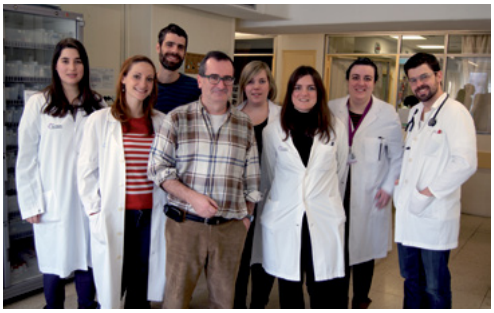
579.342

Average I.F.

4.672

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

Jordi Rello



PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
35	**182.432**	**5.212**

SUMMARY 2014

In 2014 the Group has approved the accreditations of CIBERES, AGAUR and the External Scientific Advisory Board of VHIR. Moreover, we enrolled the first patients for (USA) NIH sponsored research clinical trials. CRIPS wants to become a leading reference in drug discovery from concept to clinic, with members participating in Ad Boards and Guidelines, such as the European Guidelines on nebulized antibiotics led from CRIPS. The group Lancet has published the GWAS project on pneumonia and an Invited Review on Respiratory infections in Critically ill patients. CRIPS is working with different international research networks, with projects endorsed by the ESCMID, CIBERES, and others. Our incorporation to the Steering Committee of the iNine project and The Oncological Critical Care Research Network, and the role leading the PLUTO Network, emphasizes our interest in immunocompromised patients. Collaboration on International Projects on Donations (T Pont) is also adding value. These achievements would not be possible without the personal effort and commitment of the researchers of our team.

5.2 INFECTION IN IMMUNOCOMPROMISED PEDIATRIC PATIENTS

Concepció Figueras Nadal

PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
15	**50.769**	**3.385**

SUMMARY 2014

During 2014, the group has achieved the AGAUR recognition as an Official Emergent Research Group and has been awarded with another FIS grant that permits to continue its research in the field of combined immunodeficiencies together with the Immunology group. Moreover, a new researcher in training has joined the group thanks to private crowfunding campaigns.

5.3 INFECTIOUS DISEASES

Benito Almirante

PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
66	**325.547**	**4.933**

SUMMARY 2014

During 2014 the Research Group on Infectious Diseases has developed projects related to new therapeutic options for multi-resistant bacterial infections, the epidemiology and therapy of tropical diseases in our country, with the epidemiology and prognosis of serious infections in immunocompromised patients and assessment of new strategies for antiretroviral treatment. Our group has published a great number of articles in indexed journals and has obtained more than 10 projects with competitive funding.

5.4 MICROBIOLOGY

Tomàs Pumarola

PUBLICATIONS

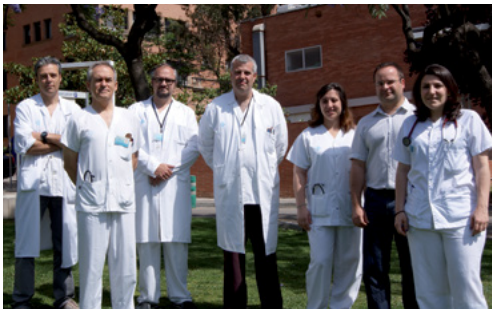
Total	*Impact Factor*	*Average I.F.*
32	158.380	4.949

SUMMARY 2014

We are developing several projects that fall within the following thematic lines of work: epidemiology and antimicrobial resistance, sexually transmitted diseases, respiratory virus, viral and fungal infection in immunosuppressed patients, cystic fibrosis, foodborne infections, tuberculosis and international health. We collaborate with other laboratories of microbiology, healthcare services, national and international organizations as well as various research Spanish networks of the Carlos III Health Institute. Additionally, the Microbiology Research Group acts as a Reference Laboratory for the Public Administration on the study of community outbreaks of foodborne infections, sexually transmitted diseases and screening of infection by human papillomavirus. It is also a Supranational Reference Laboratory (WHO) for the quality control for antibiotic sensitivity testing of mycobacteria and the Reference Laboratory of the Spanish Network of Tuberculosis Laboratories for the external quality control for antibiotic sensitivity testing for mycobacteria.

5.5 SHOCK, ORGAN DYSFUNCTION & RESUSCITATION

Joaquim Serra



PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
9	36.248	4.028

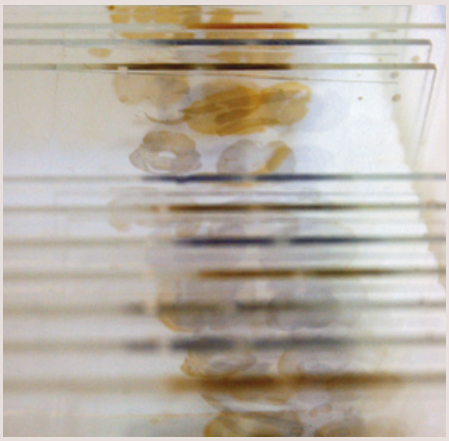
SUMMARY 2014

SODIR Research Group has the objective of integrated research and Innovation in the areas of shock, organ dysfunction, resuscitation and monitoring in the critical ill patient and the application of artificial intelligence to obtain innovative solutions for critical ill patients. During 2014, SODIR has been working in a project to improve patient safety in the ICU through the implementation of smart alarms and patient stratification techniques via automatic decision support systems. Also noteworthy research into new biomarkers of ARDS, life support, sepsis and sedation.

LONGITUDINAL AREAS

6 Neurosciences

Area Coordinator: Manuel Comabella



Publications

224

Impact Factor

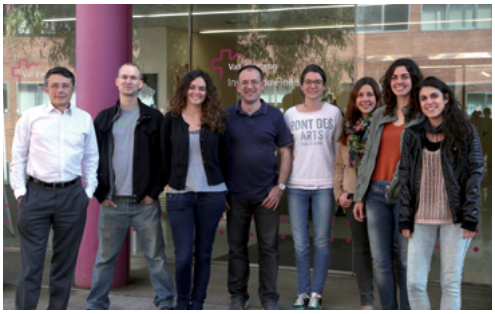
1155.830

Average I.F.

5.160

6.1 CELL SIGNALLING AND APOPTOSIS

Joan Comella



PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
3	**13.140**	**4.380**

SUMMARY 2014

We have characterized the role of two death receptor antagonists in nervous system physiology. On one hand, we have studied the role of Lifeguard (LFG) in the etiology and development of neuroblastoma. We have observed LFG is downregulated in the most aggressive and undifferentiated tumors, and there is a clear correlation between LFG levels and neuroblastoma differentiation. In addition, LFG expression is directly repressed by MYCN, whose overexpression is linked with increased neuroblastoma metastatic properties.

In addition, we have characterized the role of FAIM-L in Alzheimer disease patients' neurons and in animal models. FAIM-L levels are dowregulated both in AD patients and mice. In addition, the protection afforded by TNF as a pro-inflammatory signal against amyloid beta toxicity is lost when FAIM-L levels decrease. Overall, our results support the idea that FAIM-L levels can contribute to determine the effects of TNF in neurons in a neuroinflammatory context such as Alzheimer disease, thus pointing at FAIM-L as a likely future target for the disease.

6.2 CLINICAL NEUROIMMUNOLOGY

Xavier Montalban

PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
59	**347.935**	**5.897**

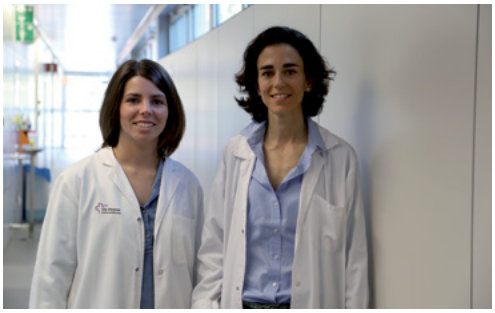
SUMMARY 2014

During 2014, we have characterized a novel regulatory T cell population in multiple sclerosis (MS) that induces apoptosis of these activated cells, and its experimental model (EAE). In relation to MS treatment, we have identified alleles associated with natalizumab-related anaphylactoid reactions. Furthermore, we have validated two cerebrospinal fluid proteins as biomarkers associated with clinically definite MS.

During this year, we have obtained a grant from the Progressive Multiple Sclerosis Alliance and another from the Multiple Sclerosis International Federation. They both will allow the group to investigate the long-term clinical evolution of primary progressive MS and the clinical impact of regional radiological changes after a first attack of MS. Further to this, two grants from the Fundació La Marató TV3 have been awarded to implement a fully-automated pipeline for brain volume calculation and also to search for diagnostic and prognostic biomarkers in pediatric MS and related demyelinating disorders.

6.3 HEADACHE AND NEUROLOGICAL PAIN

Patricia Pozo



PUBLICATIONS

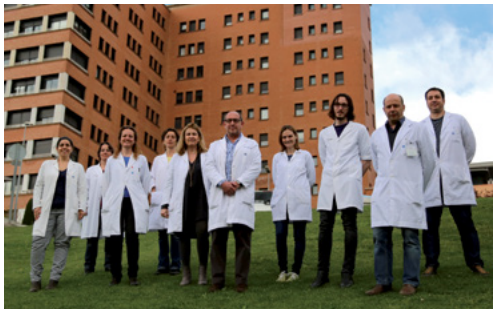
Total	*Impact Factor*	*Average I.F.*
4	**7.335**	**1.834**

SUMMARY 2014

During 2014 our research group has continued working on the genetics of chronic migraine, publishing the first paper where this has been studied. As well as continuing all of the clinical work related with treatment of onabotulinumtoxin type A for the prevention of chronic migraine.

6.4 MAGNETIC RESONANCE AND NEURORADIOLOGY

Alex Rovira



PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
33	113.550	3.441

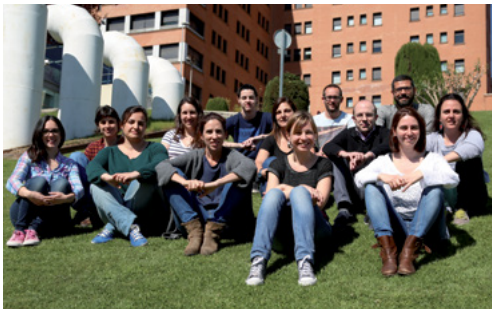
SUMMARY 2014

Projects carried out to study the diagnostic and prognostic value of magnetic resonance imaging in multiple sclerosis (MS) have shown that, in clinically isolated syndromes, non-enhancing black holes (neBH) are associated with a higher risk of conversion to clinically definite MS. However, the predictive value of the finding is lost when added to the dissemination in space criteria. Thus, the presence of neBHs does not seem to be useful as a potential alternative criterion for demonstrating DIT. Also a functional magnetic resonance imaging (fMRI) study on relapsing-remitting MS patients supports the theory that preserved fMRI activity of the frontal lobe is associated with a better cognitive profile. It also indicates the feasibility of fMRI to monitor disease evolution.

From studies carried out on other neurologic diseases, we can highlight that in the absence of histological data, early recognition of the clinical symptoms and typical radiologic features of cerebral amyloid angiopathy-related inflammation is essential to enable timely establishment of proper treatment.

6.5 NEURODEGENERATIVE DISEASES

Miquel Vila



PUBLICATIONS

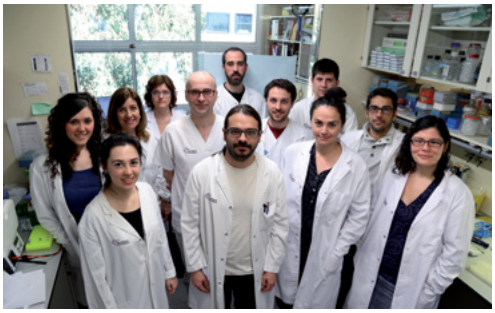
Total	*Impact Factor*	*Average I.F.*
3	31.718	10.573

SUMMARY 2014

In 2014, we have shown that α-synuclein species contained in nigral Lewy bodies (LB) from postmortem brains of patients with Parkinson's disease (PD) have the capacity to trigger a PD-like pathological process when directly injected into the brain of mice and monkeys, including intracellular and pre-synaptic accumulations of pathological α-synuclein in different interconnected brain areas and slowly progressive axon-initiated dopaminergic nigrostriatal neurodegeneration. On the other hand, we have shown that the pro-apoptotic protein Bax is able to permeabilize lysosomal membranes in animal models of PD, resulting in the lysosomal-autophagic defects that occurr in this disease. Furthermore, pharmacological inhibition of Bax-induced permeabilization, and this was shown to attenuate PD-linked dopaminergic neurodegeneration in experimental PD models. These results indicate point to small molecules able to block Bax channel activity as potentially beneficial to attenuate both lysosomal defects and neurodegeneration occurring in PD.

6.6 NEUROMUSCULAR AND MITOCHONDRIAL PATHOLOGY

Ramon Martí



PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
14	116.232	8.302

SUMMARY 2014

During 2014 we have reached three important achievements. First, we obtained very good results in our preclinical studies to investigate a Gene Therapy approach for MNGIE, a rare mitochondrial disease, using an adeno-associated vector (AAV) (Torres-Torronteras et al, Mol Ther 2014). The use of this vector in a murine model prevented the biochemical imbalances observed in this disorder. Based on these results, Orphan Drug Designation of this AAV vector was achieved from the EMA (EU/3/14/1326) and from the FDA (14-4410). Second, we have obtained also results that allowed us to propose a new strategy to treat the mitochondrial DNA depletion/deletions syndrome, based on the supply of substrates of the enzymes which are defective in these disorders (Cámara et al, Hum Mol Genet, 2014). And third, framed in our EUROMAC project, we finished the design and implementation of the functional platform to introduce patients, which will allow all partners of the consortium we coordinate to initiate the registering activity.

6.7 NEUROTRAUMATOLOGY AND NEUROSURGERY RESEARCH GROUP (UNNIN) *Juan Sahuquillo*

PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
23	175.286	7.621

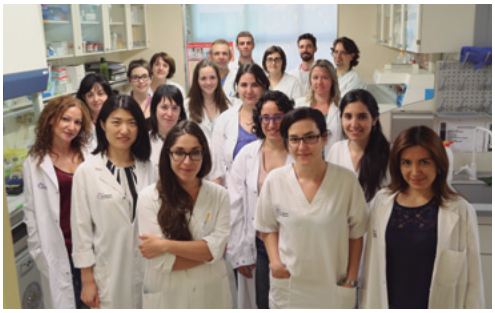
SUMMARY 2014

Our group has been successful in extracting and culturing human adult neural stem cells giving support to one of our emerging research lines dedicated to slow disease progression and functional improvement in patients with traumatic brain injury, spinal cord injury, and stroke. Also, we have shown in patients with post-traumatic brain contusions that the sulfonylurea 1-receptor is significantly overexpressed in their brains. Our findings reveal opportunities to act therapeutically on the mechanisms of growth of traumatic contusions and reduce the number of patients with poor neurological outcome.

We have significantly increased our participation in the development of international guidelines and consensus conferences in the field of traumatic brain injury, and we have entered the FP7 project CENTER-TBI. We have established strong synergies with the Comparative Neurobiology research group at the University of Valencia and with the Department of Neurosurgery, University of Maryland School of Medicine, Baltimore.

6.8 NEUROVASCULAR DISEASES

Joan Montaner



PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
43	258.871	6.020

SUMMARY 2014

Our group has identified several blood biomarkers that were shown to be predictive of different stroke subtypes. Together with seven other centres in Catalonia, our group carried out the StrokeChip study, which included more than 1,300 patients with suspected stroke, to look for biomarkers for stroke diagnosis.

In 2014 and thanks to a project funded by the Ministerio de Economía y Competitividad we started a second phase: Point of care device for stroke diagnosis by plasmatic biomarkers, 2-Stroke-Chip.

By means of brain proteomics we have identified potential simvastatin targets in acute phase of stroke in a rat embolic model.

In 2014 we started the project "Genetic Architecture of Human Brain Ischemia" funded by the National Institutes of Health (NIH).

6.9 PEDIATRIC NEUROLOGY

Alfons Macaya

PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
12	43.247	3.604

SUMMARY 2014

The group has greatly improved its capacity of genomic data analysis, leading to a remarkable increase of diagnostic yield from several NGS techniques. This has had an impact on the management of congenital neuromuscular disorders and genetic epilepsies and other paroxysmal neurological disorders. The group has also developed cellular models to perform mutational functional analysis and to evaluate novel therapeutic strategies.

6.10 PERIPHERAL NERVOUS SYSTEM

Josep Gámez

PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
12	34.027	2.836

SUMMARY 2014

In 2014, Dr. Gámez has participated in the publication of scientific research data on MND off-label treatments (ursodiol, vitamine D, retroviruses). Dr. Salvadó was awarded with the Scientific Poster Prize at the International Symposium on MND/ALS for the results of a coordinated translational research between the Biochemistry and Molecular Biology Unit - Faculty of Medicine (IDIBAPS, UB) and our research group. This study showed that in our clinical series, functional variants of the CXCR3 gene acted as one of the most potents disease progression and survival modifiers in ALS.

Recently, Dr. Gámez presented the outcomes of the project entitled 'Progressive degeneration of nigrostriatal pathway in Huntington disease' in the 19th International Congress of Parkinson's Disease and Movement Disorders. This is the first study to investigate the [123I]-FP-CIT DaTSCAN SPECT as a biomarker of Huntington's disease. It provides an objective method for measuring the effectiveness of future neuroprotective therapies in HD.

6.11 PSYCHIATRY, MENTAL HEALTH AND ADDICTIONS

Miquel Casas

PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
58	170.062	2.932

SUMMARY 2014

The research of our group is mainly focused on Attention Deficit Hyperactivity Disorder (ADHD) and the rest of neuro-psycho-developmental disorders, Borderline Personality Disorder (BPD), Substance Use Disorders, Transcultural Psychiatry, Psychiatric Liaison and Psychiatry Genetics.

The most relevant findings of the Group in the different areas of research were: (1) the identification of ADHD susceptibility genes through the first Genome-Wide Association Study (GWAS) in adults with ADHD and the study of new DSM-5 criteria in adults with ADHD; (2) the study of the cost of Borderline Personality Disorder in Catalonia ; (3) the participation in the new European Psychiatric Association Guidance mental health care for migrants;(4) the study of clinical differences between cocaine-induced psychotic disorder and psychotic symptoms in cocaine-dependent patients and (5) the study of psychosocial factors and antiepileptic drug use related to delayed diagnosis of refractory psychogenic non-epileptic seizures.

6.12 TRANSLATIONAL BIOINFORMATICS

Xavier De la Cruz

PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
2	7.984	3.992

SUMMARY 2014

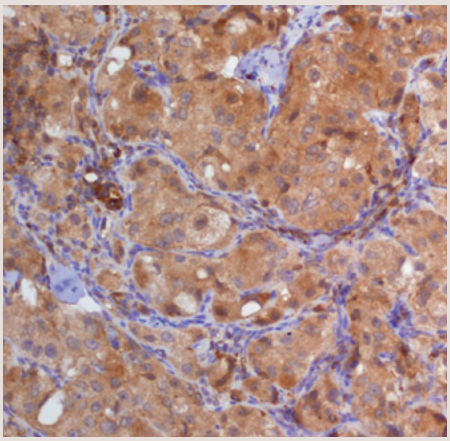
The Translational Bioinformatics group has developed its activities with two different goals: increase the applicability of bioinformatics tools and contribute to the diffusion of genomics among the VHIR community. For the first goal, we have reinforced our research line on the scoring of pathological mutations. More precisely, we have developed an original approach for the identification of causative mutations in Fabry (Riera et al., Proteins, 2014). In parallel, we have increased our collaborations with other groups inside and outside the VHIR, with the goal of benchmarking our new bioinformatics models. Finally, we have recently started to work as bioinformatics coordinators of the benchmarking of Illumina's TruSight Tumour Panel.

Regarding the diffusion of genomics within the VHIR community, we have acted as scientific responsibles, and co-organizers, of the meeting "The impact of genomics in translational medicine: present view" (October, 2014). In addition, we have brought to the VHIR two top speakers in genomic diagnostics and epigenetics, Dr. Belén Pérez and Dr. Marian Martínez, respectively.

LONGITUDINAL AREAS

7 Oncology

Area Coordinator: Santiago Ramón y Cajal



Publications

141*

Impact Factor

1118.526

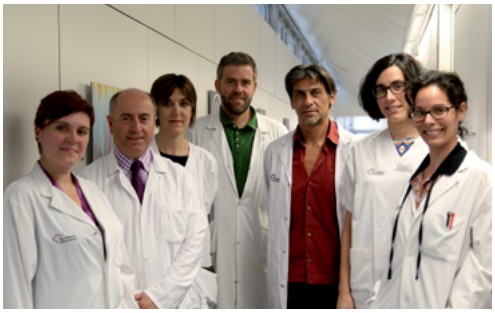
Average I.F.

7.933

* These publications are from Oncology Area + Oncology Service.

7.1 ANIMAL MODELS AND CANCER, MELANOMA PROJECT

Juan Angel Recio / Vicente García-Patos



PUBLICATIONS

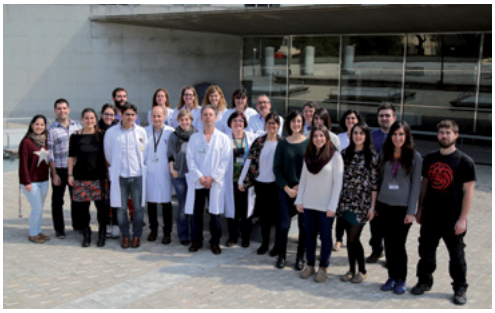
Total	*Impact Factor*	*Average I.F.*
3	176.211	58.737

SUMMARY 2014

Our main interest is to investigate the genetic and molecular mechanisms underlying tumor development and progression. More precisely, our research is directed to understand melanoma. Melanoma represents the most deadly form of skin cancer. If it is not recognized and treated early, the cancer can advance and spread to other parts of the body, where it becomes hard to treat and can be fatal.

7.2 BIOMEDICAL RESEARCH IN GYNECOLOGY

Antonio Gil



PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
11	**35.827**	**3.257**

SUMMARY 2014

The long-standing Biomedical Research and Translational Oncology Unit has been restructured during 2014, mostly due to the departure of its director, Dr. Jaume Reventós. The outstanding research on gynaecological pathologies is now conducted by the Biomedical Research Group in Gynaecology, leaded by Dr. Antonio Gil Moreno. Dr. Gil has managed to increase the already high crosstalk between clinicians and basic and translational researchers generating a more fruitful research environment. Apart from his duties as director of the group, Dr. Gil is mostly dedicated to endometrial cancer translational and clinical research within the group.

During this year, the group also incorporated a young principal investigator, Dr. Anna Santamaria Margalef, who was recipient of a Miguel Servet Grant. She is now specially dedicated to ovarian cancer.

Together, they have managed to provide the group with a more directed research towards improving the management of endometrial and ovarian cancer patients, as well as endometriosis.

7.3 BIOMEDICAL RESEARCH IN UROLOGY

Joan Morote

PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
24	**85.425**	**3.560**

SUMMARY 2014

We discovered the oncogenic actions of the Prostate Tumor OVerexpressed-1 (PTOV1) gene in the promotion of cell proliferation and metastatic dissemination of prostate cancer cells (1,2). Mechanistically, we showed that PTOV1 is implicated in multiple processes controlling cell fate such as (i) induction of mRNA translation that leads to a specific increased translation of c-Jun and Snai1 oncogenes (1), and (ii) PTOV1 is a transcriptional repressor of HES1 and HEY1 genes, leading to inhibition of Notch signaling in metastatic prostate cancer (2). PTOV1 significantly affect the self-renewal potential of the cancer stem cell populations of PC3 cells (2).

Furthermore, anti-cancer properties of a Cyclooxygenase-2 inhibitor (celecoxib) were studied. Our results demonstrated that, in a preclinical mice model, celecoxib administered orally at the standard human dose inhibits the progression of established prostate cancer bone metastases (3). Other studies demonstrated the important role of serum cholesterol and statin use in the risk of prostate cancer detection and tumor aggressiveness (4).

7.4 EXPERIMENTAL HEMATOLOGY

Francesc Bosch

PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
28	180.893	6.460

SUMMARY 2014

During 2014 we have identified a new therapeutic target for chronic lymphocytic leukemia (CLL) that is specifically aimed at the proliferative and chemoresistant compartment. We have also thoroughly defined an *ex vivo* co-culture system that mimics the favorable microenvironment found *in vivo* in CLL. Using this system we are currently conducting pre-clinical studies of new drugs for the treatment of patients with CLL that will shortly move into clinical trials. Regarding the study of primary central nervous system lymphoma, we have established an *in vivo* orthotropic model using both cell lines and primary cells from patients that we will shortly use to test new therapeutic options. We are also identifying new targets in this rare but fatal disease by the deep molecular analysis of biobanked biopsies. Finally, we are also studying new potential therapeutic options in acute myeloid leukemia, both pre-clinical and in early phase clinical trials.

7.5 MOLECULAR PATHOLOGY

Santiago Ramón y Cajal

PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
34	144.428	4.248

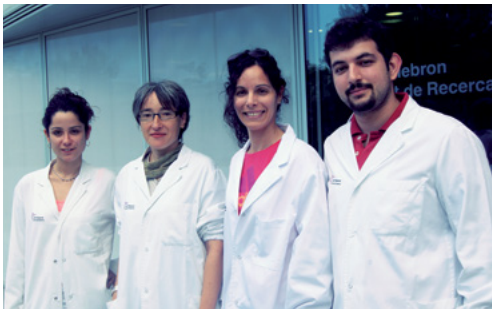
SUMMARY 2014

Our group is interested in identifying new factors that confer resistance to cellular stress to tumor cells, factors that may be inhibited and become novel therapeutic targets. In this context, we focused on the association between the phosphorylated form of the eukaryotic translation initiation factor (eIF4E) and cellular resistance. Moreover, we have been working on the design of new and more potent MNK1/2 inhibitors in collaboration with Grup d'Enginyeria Molecular in IQS. Other studies are focused on the identification and validation of new factors upregulated after hypoxia and other metabolic inhibitors, by RNA-seq approach.

On the other hand, we have analyzed the function of YB-1 in breast cancer and discovered a novel interplay between YB-1 and IL-6 regulating EMT and other metastatic features. The group is also interested in the role and regulation of gap junctions in cancer and disease and in 2014 we made significant advancement in this field, some of which has already been published in the journal *Cell Communication and Signalling*.

7.6 ONCOLOGY AND MOLECULAR PATHOLOGY

Matilde Lleonart



PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
4	22.134	5.534

SUMMARY 2014

In the last decade, an increasing number of studies have associated ribosomal proteins (RPs) with extraribosomal functions related to proliferation. Importantly, the expression of RPs appears to be deregulated in several human disorders due, at least in part, to genetic mutations. We explored the roles of the most frequently mutated oncogenes and tumor suppressor genes in human cancer that modulate ribosome biogenesis, including their interaction with RPs. Importantly, RPs are pivotal to development and tissue homeostasis. RP Large P1 (Rplp1) overexpression is associated with tumorigenesis. However, the physiological function of Rplp1 in mammalian development remains unknown. We disrupted Rplp1 in the mouse germline and central nervous system and we demonstrated that the translation "fine-tuning" exerted by Rplp1 is essential for embryonic and brain development and for proper cell proliferation.

7.7 TRANSLATIONAL RESEARCH IN CHILD AND ADOLESCENT CANCER

Josep Sánchez de Toledo

PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
9	39.058	4.340

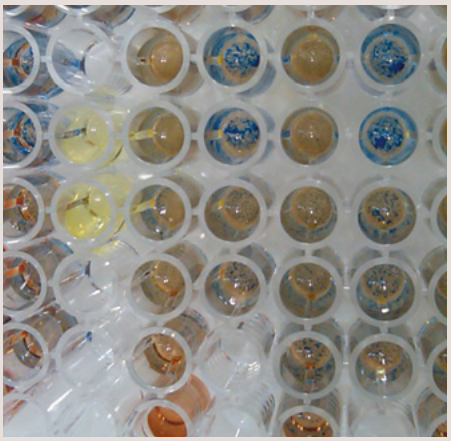
SUMMARY 2014

During 2014, the group of Translational Research in Pediatric Cancer has been consolidated and recognized by the *Generalitat de Catalunya* as an "emerging group". The group has participated in 9 publications and two of the Principal Investigators have been awarded with grants from the *Instituto de Salud Carlos III*. Moreover, one of the post-graduate researchers has been awarded with a VHIR predoctoral fellowship. In addition, the group has established and consolidated agreements with biotech companies to test and develop new therapeutic tools against the most aggressive pediatric solid tumors.

LONGITUDINAL AREAS

8 Respiratory and Systemic Diseases

Area Coordinator: Josep Ordi



Publications

114

Impact Factor

454.023

Average I.F.

3.983

8.1 CHRONIC FATIGUE

José Alegre

PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
8	**18.159**	**2.270**

SUMMARY 2014

During 2014, our group has worked on:
- Neuropsychopathology impairments and association with clinical predisposing factors in Chronic Fatigue Syndrome/Myalgic Encephalomielitis (CFS/ME). Cognitive dysfunction in CFS/ME could be explained by pathophysiological events of the disease. It's needed to identify homogeneous subgroups of patients with CFS/ME by common factors, which help to identify more specific cognitive profiles as individualized potential therapeutic strategies.
- CFS/ME and personality. The results of this study are consistent with existing data of the relationship between neuroticism and CFS / ME.
- Analysis of Single Nucleotide Polymorphisms (SNP) and Copy Number Variation (CNV) in Fibromyalgia (FMS). The results of genomic study by GWAS and aCGH point to a key role of the central nervous system (brain) in patients with major genetic susceptibility factors to FMS. Impact of Fibromyalgia (FMS) in patients with CFS/ME. The comorbidity of FMS worse clinical symptoms, fatigue and quality of life of CFS/ME patients.

8.2 EAR, NOSE AND THROAT DISORDERS

Juan Lorente

PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
1	1.816	1.816

SUMMARY 2014

The group conducts research on obstructive sleep apnea syndrome, using canine brachycephalic breeds as an animal model. The main goal of the research is defining which the similarities are and differences between human and animal patients in regard to this disease in order to, if it were the case, be able to use brachycephalic breeds as animal models in the options of treatment of the human disease.

It is necessary to identify markers that enable the prediction of tumoral behavior and responsiveness to different treatments, especially those factors that are predictive of the appearance of metastasis, with the purpose of selecting the patients who can respond most satisfactorily to a certain therapeutic option.

The discovery of novel markers involved in malignant transformation and tumor progression, especially for tumors that lack effective treatment, is an issue of urgent social interest.

Therefore, the identification of new markers in laryngeal tumors of an aggressive nature would allow the discovery of drugs that can cure the disease.

8.3 IMMUNOLOGY

Ricardo Pujol

PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
7	21.834	3.119

SUMMARY 2014

Down syndrome individuals develop autoimmunity in general and thyroid autoimmunity in particular. The transcription factor AIRE regulates the predisposition to autoimmunity and is coded in chromosome 21, of which Down Syndrome (DS) individuals carry three copies instead of two. AIRE is almost exclusively expressed in the thymus. Paradoxically, but not uniquely, AIRE expression has been found diminished in the thymus of DS. We have found the link between these observations by demonstrating that the reduction of AIRE expression disturbs the settings of central tolerance to tissue-restricted antigens such as those expressed in endocrine glands. This finding was supported by showing that the subjects who had lower thyroglobulin levels in the thymus were those who more often developed hypothyroidism. This work was made possible by the thymus biobank of the Vall d'Hebron University Hospital and the help of the heart surgery team.

8.4 PNEUMOLOGY

Maria Jesús Cruz
Jaume Ferrer

PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
73	306.913	4.204

SUMMARY 2014

Among the most important scientific discoveries in 2014 highlights that the group has shown that administration of genetically modified mesenchymal stem cells regenerates lung tissue and stops the inflammatory process in mice with asthma. Dr. Ferran Morell was awarded with one of the "Premios Mejores Ideas 2014", by Diario Médico, for the discovery of one of the causes of the idiopathic pulmonary fibrosis. The Pneumology Service is one of the coordinators of an international study for the implementation and validation of a diagnostic in vitro tool for Alpha-1 antitrypsin deficiency screening. Currently, the Pneumology service of the Vall d'Hebron Hospital it is one of the hospitals where the largest number of lung transplants are carried out annually, which places it among the leading centers in Europe and the world for this activity. During the last year the group has created the biobank of transplanted patients, providing an important future resource for research in respiratory diseases.

8.5 SYSTEMIC DISEASES

Miquel Vilardell

PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
32	123.766	3.868

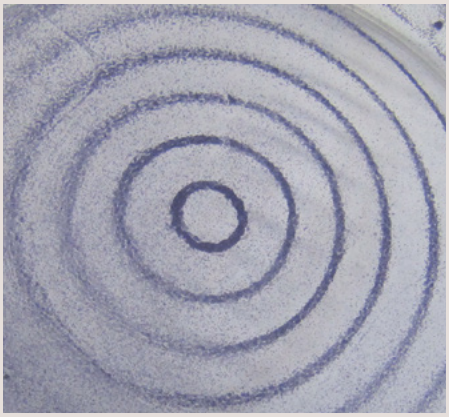
SUMMARY 2014

We have detected that the transcript levels of three epigenetically regulated genes (ITGAL, PRF1, and CD70) are overexpressed in CD4+ T cells from patients with systemic lupus erythematosus. We have also identified neutrophil gelatinase-associated lipocalin (NGAL) as a biomarker for lupus nephritis. Furthermore, we have found out that cortactin is a new target antigen for patients with autoimmune diseases, especially for patients with polymyositis or immune-mediated necrotizing myopathy. Thus, anti-cortactin antibodies can be considered as a new myositis-associated serological marker. Finally, we have also established (by using a new ELISA and immunoblot techniques) the association between the presence of anti-MDA-5 antibodies and rapidly-progressive interstitial pneumonia in patients with dermatomyositis.

TRANSVERSAL AREAS

9 Epidemiology, Pharmacology, New Therapies and Clinical Research

Area Coordinator: Jordi Barquinero



Publications

34

Impact Factor

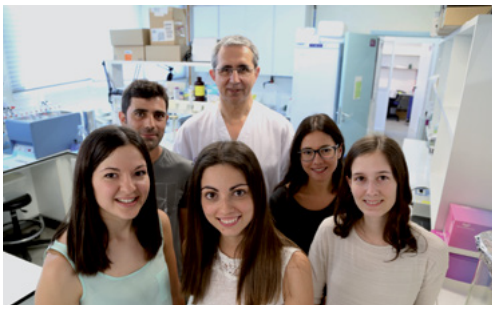
133.845

Average I.F.

3.937

9.1 CELL AND GENE THERAPY

Jordi Barquinero



PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
5	**21.003**	**4.201**

SUMMARY 2014

In collaboration with the group of Drs. C. Espejo and X. Montalban we have found that myeloid-derived suppressor cells (MDSCs) are ideal vehicles to present autoantigens in a tolerogenic manner in the murine model of multiple sclerosis.

In the context of European consortium we coordinate, using iPSCs from hemophilia patients, we have generated, for the first time, a cellular model of the disease that allows molecular characterization at the RNA level.

Finally, in collaboration with the group of Dr. R. Martí, we used a vector (AAV2/8) encoding thymidine phosphorylase (TP) transcriptionally targeted to the liver to correct the biochemical abnormalities in a murine model of mitochondrial neurogastrointestinal encephalomyopathy (MNGIE). Also in 2014 we got orphan drug designation (ODD) for this vector, which we are now planning to use in a clinical trial in patients with this rare and devastating disease. Also we demonstrated that the TP gene can behave as a suicide gene in the presence of the 5-fluorouracil drug capecitabine.

9.2 CLINICAL PHARMACOLOGY (FICF)

Joan-Ramón Laporte

PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
11	30.128	2.739

SUMMARY 2014

The Generalitat de Catalunya renewed our recognition of the Fundació Institut Català de Farmacologia as a Consolidated Research Group for the period 2014-2016.

In 2014, six papers from the PROTECT project have been published (four led by members of our group) in peer reviewed journals, focusing on sources of data on out of hospital and inhospital consumption of medicines in Europe, and the utilization of antiepileptic and respiratory medicines. The inventory of European Drug Consumption databases has also been updated by FICF researchers. A study on the perioperative management of antithrombotic therapy has been completed and the preliminary results have been presented in an international congress. The results of a multicentre prospective study on the outcomes of off-label drug use in hospitals have been published.

The relationships with the European networks of drug utilization EuroDURG and PIPERSKA have been strengthened. Members of the group have authored several chapters of an European textbook on drug utilization methods.

9.3 EPIDEMIOLOGY AND PUBLIC HEALTH

Magda Campins

PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
14	31.973	2.284

SUMMARY 2014

The broad purpose of the Epidemiology and Public Health research group is contributing to increase the available scientific evidence regarding preventive interventions. We are primarily dedicated to epidemiology and prevention of infectious diseases, in both individual and population levels.

This year was the 25th anniversary of the "Prevalence of Nosocomial Infections Study in Spain" (EPINE). This study has been actualized and analyzed by our group since 1990, and involved the participation of more than 250 hospitals.

During 2014, we have been engaged in cooperative and singular research projects related mainly with morbidity associated with vaccine-preventable diseases (pertussis), vaccination coverage (influenza), efficacy, immunogenicity and safety (meningococcal B and herpes zoster vaccines). We also hosted the second consortium meeting of the FP7 cooperative project for the development of a universal influenza vaccine based on Tandem Core technology (FLUTCORE).

9.4 HEALTH CARE RESEARCH

Carmen Fuentelsaz

PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
4	**50.741**	**12.685**

SUMMARY 2014

The research group in health care, composed entirely by nurses, has continued to work on its research lines, mainly in the area of critical care patients and pediatric patients. In 2014, the group is completing the analysis of data and preparing papers to publicate the results of two projects, both related to the quality of life of these patients.

The aim of the first project is to assess the health-related quality of life of mechanically ventilated patients admitted in an ICU and its relation to nursing-sensitive outcomes. The aim of the second one is to know the quality of life and nursing care needs of children with cancer and their caregivers. Both are prospective cohort studies.

9.5 MOLECULAR DIAGNOSIS AND THERAPY

Francisco Vidal

SUMMARY 2014

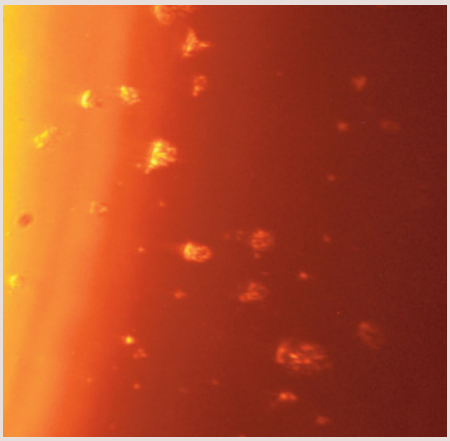
Accomplishment of the molecular study of all patients enrolled in the National Registry for Clinical and Molecular Profile of von Willebrand Disease in Spain, a multicenter project that involves the largest Spanish hospitals and that recruited more than 550 patients suffering from different types of VWD. The application of the high-throughput NGS technology to perform the molecular diagnosis of a large cohort of patients is providing invaluable results for a powerful investigation in the pathophysiological mechanisms of VWD in correlation with molecular defects, shedding light on the complex genotype-phenotype relationship.

We have underway the development of the study "Development of a high-throughput platform for Hemophilia A drug screening and gene correction using induced pluripotent stem cells (iPSCs) from patients". It's focused on the development of optimized molecular tools to perform functional studies related to the production, processing, secretion, and half-life of FVIII in disease-relevant cells from hemophilia patients.

TRANSVERSAL AREAS

10 CIBBIM-Nanomedicine

Area Coordinator: Simó Schwartz



Publications

26

Impact Factor

132.719

Average I.F.

5.105

10.1 CIBBIM-NANOMEDICINE DRUG DELIVERY AND TARGETING

Simó Schwartz

PUBLICATIONS

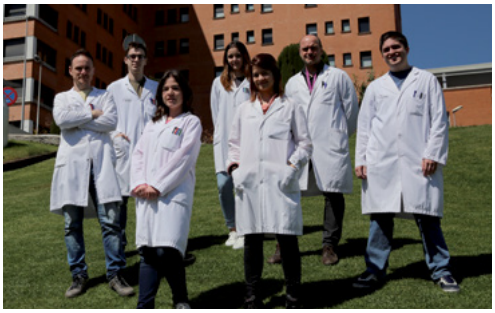
Total	*Impact Factor*	*Average I.F.*
14	**78.625**	**5.616**

SUMMARY 2014

Our group seeks the identification of new disease biomarkers and therapeutic targets, and the development of new drug delivery strategies as applied nanomedicine. Among our projects are a new EuroNanoMed II project and four additional projects, two of them from La Marató de TV3, and the other two, industry oriented. Several *in vitro* and *in vivo* cancer models have been generated by the group for preclinical testing of nanomedicines. Further, several projects are focused into the molecular mechanisms of low-prevalent diseases, e.g, the study of the cellular mechanisms involved in the pathogenesis of lysosomal storage diseases and in other low-prevalence pathologies such as congenital heart disease. Finally, a new research line (DINA) has been opened with a main goal: the exploitation of nanostructures, nanomaterials and nanocomponents as transducers, biofunctionalization platforms and signal amplifiers for fast assay and biosensor development.

10.2 CIBBIM-NANOMEDICINE IMMUNOBIOLOGY

Joan Sayós



SUMMARY 2014

During 2014 our Group has worked in the role of murine CD300f in nervous system. CD300f can act as a co-activator receptor and this receptor could play a key role in the regulation of microglial activation. Moreover, by using a model of crush injured sciatic nerve in Thy1-YFP-H mice we demonstrated that the pair CD300f-ligand is implicated in Wallerian degeneration and nerve regeneration. Finally, in collaboration with Dr. Ariel Munitz we have shown that murine CD300f is physically associated with IL-4Ralpha and potently amplifies IL- 4Ralpha-induced responses. Our results establish CD300f as a novel IL-4Ralpha co-receptor.

About human CD300f, we are completing the molecular and functional characterization of their physiological ligand. Our data showed that human CD300f acts as a "don't eat me" receptor tonically activated by their ligand expressed by most of the cells. This data open the way to target this molecule to activate specific myeloid cells as a therapeutic approach to diverse pathologies.

10.3 CIBBIM-NANOMEDICINE KIDNEY PHYSIOPATHOLOGY

Anna Meseguer

PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
10	**40.210**	**4.021**

SUMMARY 2014

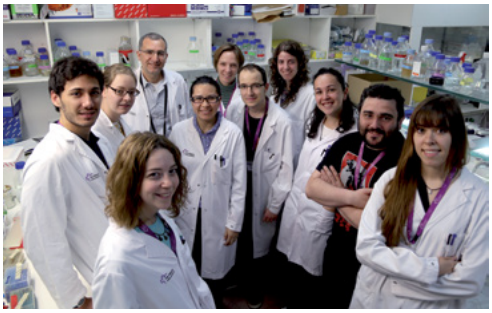
We are focused on investigating the mechanisms of disease involved in tubular injury/dysfunction, tubular regeneration, cancer and fibrosis in several clinical scenarios that include: i) rare inherited kidney diseases (tubulopathies); ii) acute kidney injury promoted by nephrotoxicants and ischemia; iii) hypertension and metabolic processes that drive to chronic kidney diseases and fibrosis and iv) renal cell carcinoma.

In 2014, we have been able to raise competitive projects for rare inherited kidney diseases joining efforts with Patient Associations. Other projects in the lab focused on renal cancer and the mechanisms of kidney injury and regeneration have also been financed, as well as a project on focal segmental glomeruloesclerosis.

Our major scientific contribution from this year has been a manuscript in Cancer Research describing novel pathways of renal cancer progression, as well as, a novel independent prognostic biomarker that would change the way renal cancer patients with localized tumors could be treated upon surgery.

10.5 CIBBIM-NANOMEDICINE MOLECULAR ONCOLOGY

Diego Arango



PUBLICATIONS

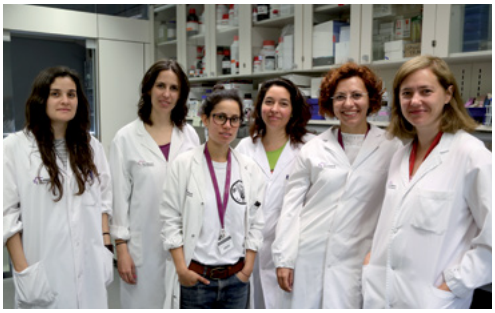
Total	*Impact Factor*	*Average I.F.*
3	24.626	8.209

SUMMARY 2014

The main interest of our laboratory is the study of molecular events underlying the oncogenic process, especially in colorectal cancer. In 2008 colorrectal 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. A major scientific contribution of the group during 2014 has been the identification of RHOA as an important tumor suppressor gene in colorectal cancer mainly though the regulation of Wnt signalling.

10.4 FUNCTIONAL VALIDATION & PRECLINICAL RESEARCH (FVPR)

Ibane Abasolo



PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
6	29.494	4.916

SUMMARY 2014

We aim to provide the industry and other research groups with an optimum technical platform for testing new biomedical applications based on the nanotechnology from compounds for the treatment of specific diseases to new applications in diagnosis and imaging.

The efficacy and toxicity of the therapeutic nanoconjugates developed at CIBBIM-Nanomedicine in collaboration with other research groups and companies are being currently evaluated, with the objective of favouring the entry of those compounds into clinical trials.

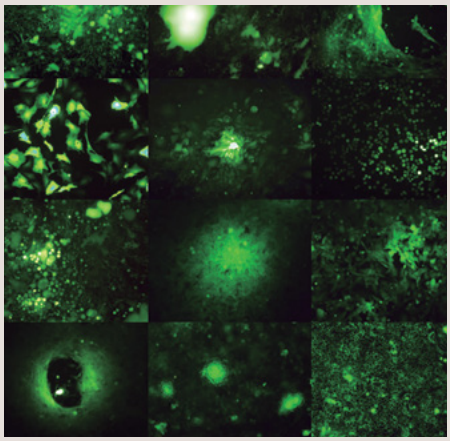
It's formed by the In vitro Experimental Platform and the In vivo Experimental Platform. We also take part in the Nanotoxicology Unit of CIBER-BBN, with research Institute at Santa Creu i Sant Pau.

During 2014 FVPR has provided services to 10 different VHIR groups, VHIO, researchers at UAB, Universidad del País Vasco-Euskal Herriko Univertsitatea, Universidad Miguel Hernández and University of Coimbra (Portugal). FVPR also worked for Nanotherapix SL (a Grifols company) in 6 different research contracts.

VHIO

11 Vall d'Hebron Institute of Oncology

Area Coordinator: Josep Tabernero



Publications

229

Impact Factor

2217.352

Average I.F.

9.683

11.1 BREAST CANCER & MELANOMA

Javier Cortés

PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
36	**403.995**	**11.222**

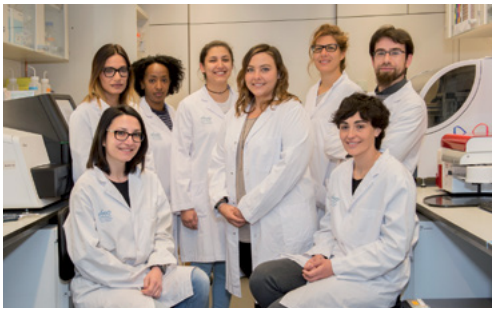
SUMMARY 2014

In 2014, we have initiated more than 20 new clinical trials. Our main areas of interest continue to center on the development of novel therapies and the search for mechanisms of resistance to current ones.

In 2014 we observed that combining eribulin with PI3K inhibitors might enhance the activity of both drugs – a phase Ib/II trial is currently underway. -derived xenografts in collaboration with VHIO's Preclinical Research Program. We have been involved in the steering committees of the most relevant randomized clinical trials, and participated in some of the most important ones -- previously leading to the approval of drugs such as pertuzumab and eribulin. With regards to our circulating free DNA Program we now have our first results which will be published next year. We have also provided more than 10 different new molecules in collaboration with VHIO's Experimental Therapeutics Group. In addition, more than 50% of our patients with metastatic melanoma have entered clinical trials.

11.2 CANCER GENOMICS

Ana Vivancos



PUBLICATIONS

Total	Impact Factor	Average I.F.
3	129.585	43.195

SUMMARY 2014

Our Group serves as a Core Technology Lab. Our activities bridge the preclinical and clinical fields of cancer research. We work on providing cutting-edge applications in cancer genomics through the use of new technologies and protocol development. In 2014 we validated and incorporated an Amplicon-seq VHIOCard panel to facilitate mutation detection in 61 genes. The analysis and relevance of mutations in tumor suppressor genes is however hampered by the fact that they occur broadly along the coding sequence. The wide mutation distribution in tumor suppressor genes is due to the fact that tumor cells need only inactivate their products. Assessment of the mutational status of tumor suppressor genes can only be accomplished by Sequencing-based approaches such as NextGen sequencing. We developed and validated a panel of over 800 amplicons in 61 genes that allows for the interrogation of mutations in oncogenes as well as tumor suppressor genes. We also validated and implemented a Gene Fusion panel based on nCounter technology in order to prescreen patient samples.

11.3 EARLY CLINICAL DRUG DEVELOPMENT GROUP

Jordi Rodón

PUBLICATIONS

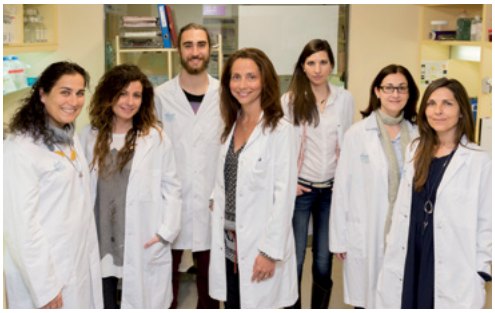
Total	Impact Factor	Average I.F.
22	122.293	5.559

SUMMARY 2014

As one of the leading institutes worldwide with expertise in areas of drug development including PI3K/akt/mTOR inhibitors, MAPK inhibitors or drugs targeting developmental pathways such as TGFbeta, SHH, WNT, and NOTCH, we have been clinically testing the best-in-class drugs. We have also expanded our expertise to other cell-signaling pathway inhibitors such as MET and FGFR, immunotherapeutics including agents targeting PD1/PDL1, OX40, CD40, and engineered antibodies. In addition, we have performed several clinical trials with novel-novel combinations. In immunotherapeutics, we have explored combinations such as a CXCR4 antagonist with chemotherapy or a CD40 agonist with an anti-PDL1 agent. We have conducted many clinical trials with patients selected on molecular alterations. Finally, our group has co-developed several molecular tests for patient screening such as disease-oriented mutation panels for Sequenom.

11.4 EXPERIMENTAL THERAPEUTICS GROUP

Violeta Serra



PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
3	29.461	9.820

SUMMARY 2014

During 2014 our research has advanced the understanding of mechanisms of sensitivity and resistance to targeted therapy in breast cancer, with two main areas of focus: the blockade of the PI3K-pathway as well as therapies targeting homologous recombination deficiency. We have established novel patient tumorderived breast cancer models *in vivo*, in collaboration with VHIO's Breast Cancer and Melanoma Group. These preclinical models have been extremely useful in the study of targeted therapy sensitivity and resistance.

Highlights this year have included the identification of two mechanisms that lead to activation of mTORC1 signaling and impair sensitivity to PI3K inhibitors. This preclinical observation has been linked with limited activity of these agents in the clinic and proposes therapeutic combination strategies to improve the activity of this class of agents. We have also developed a panel of ten patient-derived tumor xenografts from BRCA1/2-germline patients and evaluated the activity of novel therapeutic strategies exploiting the homologous recombination deficiency.

11.5 GASTROINTESTINAL AND ENDOCRINE TUMORS

Josep Tabernero

PUBLICATIONS

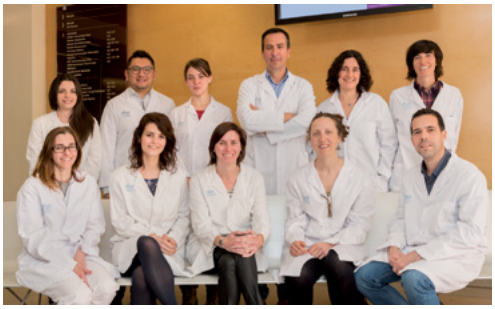
Total	*Impact Factor*	*Average I.F.*
38	326.867	8.602

SUMMARY 2014

We spearhead and participate in numerous cooperative and singular research projects related to Gastrointestinal Malignancies, partner in consortia of excellence including the WIN Consortium and other EU FP7 funded projects (EurocanPlatform, COLTHERES, and MErCuRIC), and continue to strengthen our multidisciplinary and translational approach to research - at preclinical and clinical levels. We have led and published studies with important clinical implications, and also focus on the use of validated biomarkers and their respective reference isogenic cell lines to develop next generation, non-invasive, blood-based diagnostics that can monitor the burden of disease, its molecular traits, and response to novel therapies. We collaborate in pre-clinical & clinical studies on predicted responsive patient subsets using genetically annotated tumor surgical specimens ('Xenopatients') in mice, in collaboration with other VHIO groups. In partnership with industry or academic groups, we continue to focus on the validation of repurposed or candidate drugs.

11.6 GENE EXPRESSION & CANCER

Joan Seoane



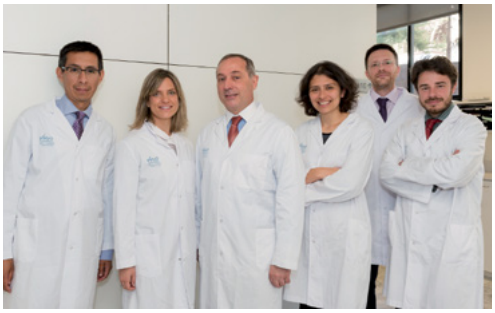
PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
14	235.447	16.818

SUMMARY 2014

Our group focuses on the study of brain tumors, primary tumors and brain metastasis. 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 allows the study of the molecular mechanisms involved in cancer and the evaluation of the efficacy of pharmacological compounds. Our efforts have led to several publications in 2014. Specifically we would like to highlight the publication Rodon L. et al. *Cancer Discovery* 2014, reporting on molecular mechanisms involved in the aberrantly high levels of TGFb2 present in some glioblastoma. We found that a malignant autocrine loop occurs in glioblastoma where TGFb2 induces TGFb2 which in turn induces more TGFb2. The work identified CREB as a therapeutic target against glioblastoma and a biomarker to predict the response to anti-TGFb agents since CREB is the transcription factor involved in the generation of the autocrine loop.

11.7 GENITOURINARY, CNS TUMORS, SARCOMA & CANCER OF UNKNOWN PRIMARY SITE *Joan Carles*



PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
16	112.579	7.036

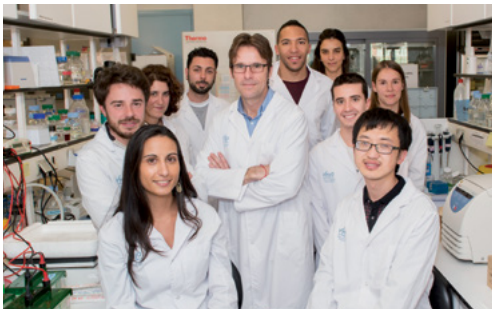
SUMMARY 2014

We focus on clinical and translational research and participate in pioneering trials with different drugs including vaccines (Prostvac), Enzalutamide, and Radium-223. These therapies have proven to impact on the prognosis of prostate cancer patients and may also improve survival.

In other GU malignancies we are participating in studies to explore the efficacy of adjuvant therapy in renal cancer, or novel drugs in second and third line treatment. In bladder cancer we are conducting trials combining classical chemotherapy with novel targeted agents and second line therapy. We have also been developing agents that can modulate the host immune response and combat cancer (PD-1 and PDL-1), as well as participated in Phase I/II trials to test new therapies and immunotherapeutics for bladder and prostate cancer. Research into Central Nervous System (CNS) tumors has been expanded with additional trials and a Board comprised of experts in neurosurgery, radiology, radiotherapy, translational research, and medical oncology.

11.8 GROWTH FACTORS GROUP

Joaquín Arribas



PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
4	32.684	8.171

SUMMARY 2014

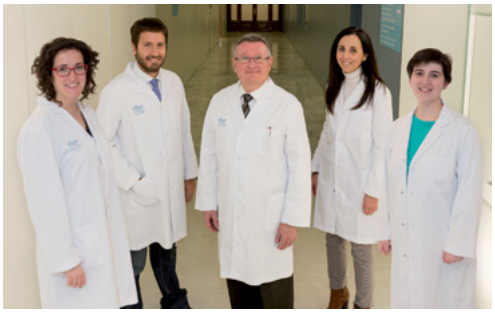
During 2014 we completed the characterization of the role of the receptor tyrosine kinase HER2 in breast cancer progression and identified PELO as a negative regulator of the signaling pathways initiated by HER2. Importantly, the knock down of PELO increases the metastatic ability of breast cancer cells. In addition, we showed that breast cancer cells that express a fragment of HER2, known as p95HER2, are particularly sensitive to chemotherapy combined with targeted therapies.

We have also been collaborating with other VHIO groups, to characterize how cancer cells remodel the extracellular environment. We are extremely grateful to the Spanish Association Against Cancer (AECC) and the Breast Cancer Research Foundation (BCRF) for their continued, critical support of our research.

Our group continues to coordinate the Breast Cancer Program within the *Red Territorial de Investigación Cooperativa en Cáncer*, supported by the *Insituto de Salud Carlos III* (ISCIII), which involves many of the most active groups working on breast cancer in Spain.

11.9 HEAD AND NECK & GYNECOLOGICAL TUMORS

Josep Maria del Campo



PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
10	141.618	14.162

SUMMARY 2014

Our group focuses on standard patient care as well as clinical research and as such, we are dedicated to developing novel anticancer drugs as well as participating in the revision of all Spanish guidelines in gynecological cancer. We are also members of some of the most relevant alliances in gynecology including the Gynecologic Cancer Inter Group (GCIG), European Network of Gynaecological Oncology Trial Groups (ENGOT), *Grupo Español de Investigación en Cáncer de Ovario* (Spanish Gynecologial Group - GEICO), and the Gynecologic Oncology Group (GOG).

In addition, we are involved in developing new strategies, approaches, and optimal trial design for research, and play a central role as members of multidisciplinary committees. Our contribution leads to the establishment of new treatment protocols and clinical guidelines to further advance clinical practice. We have steadily increased the number of patients treated in clinical trials with new drugs. Currently we are involved in more than 20 trials.

11.10 HIGH RISK & CANCER PREVENTION

Judith Balmaña

PUBLICATIONS

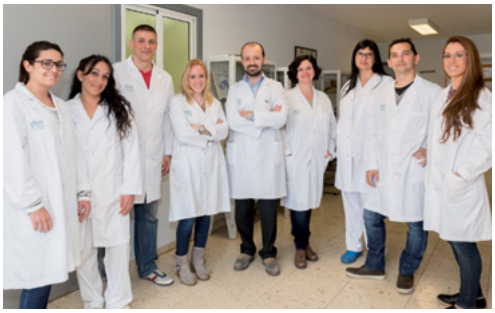
Total	*Impact Factor*	*Average I.F.*
9	58.058	6.451

SUMMARY 2014

We develop novel targeted therapies for patients with hereditary breast cancer. During 2014, patients with advanced breast cancer and a *BRCA* mutation participated in several phase II or phase III trials with a specific DNA binding agent or a PARP inhibitor. In the field of genetic epidemiology, we are mainly focused on identifying new genetic susceptibilities to hereditary breast cancer. In hereditary colorectal cancer we are participating in a study of mutations in POLD1 and POLE in families with polyposis, or young onset colorectal cancer with microsatellite stability. Finally, we continue to participate in the international multi-center IMPACT study (Identification of Men with a genetic predisposition to ProstAte Cancer: Targeted Screening in BRCA1/2 mutation carriers and controls, MREC 05/MRE07/25, Chief Investigator: R. Eeles) to analyze the efficacy of early detection of prostate cancer in patients with a mutation in the *BRCA1/2* genes.

11.11 MOLECULAR ONCOLOGY

Paolo Nuciforo



PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
8	68.753	8.594

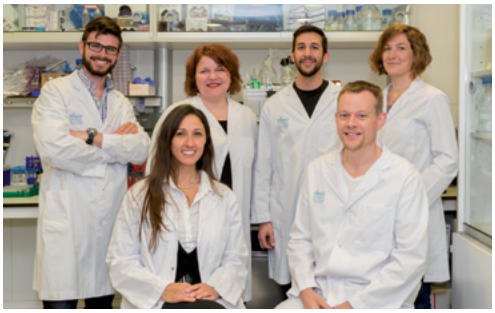
SUMMARY 2014

As one of VHIO´s Core Facilities, we currently provide support to more than 160 clinical trials conducted at Vall d'Hebron, representing ~70% of all trials open in our institution. Our activities relating to clinical trials range from the coordination of sample collection and biorepository, developing and running multiple assays for real-time patient inclusion, as well as pharmacodynamic monitoring and dose finding.

In 2014, our laboratory successfully maintained the prestigious ISO15189 quality accreditation for running tissue-based analysis on clinical samples. During this year, we have performed over 2700 molecular determinations on samples for patient inclusion into clinical trials and over 14,000 tests to support basic and translation research programs, with a ~40% overall increase in testing activity as compared to 2013. We have also been the central laboratory for 8 national and international studies.

11.12 MOUSE MODELS OF CANCER THERAPIES

Laura Soucek



PUBLICATIONS

Total	Impact Factor	Average I.F.
1	10.742	10.742

SUMMARY 2014

The ideal cancer drug should target a signaling conduit common to multiple cancer types, be both non-redundant and also necessary for tumor maintenance, as well as dispensable for normal tissue function. In the search for this ideal target our group focuses on the pleiotropic and ubiquitous Myc oncoprotein, whose deregulation is implicated in almost all human cancers. However, over the past few years, we have demonstrated in several mouse models that Myc inhibition has a dramatic therapeutic impact across several tumor types, with very mild and reversible side effects in normal tissue.

Now we are interested in developing viable, non-toxic pharmacological options for Myc targeting in the clinic. In this context, this year we obtained a prestigious European Research Council (ERC) Consolidator Grant, to develop, produce and purify Omomyc-based cell penetrating peptides for direct delivery to cancer cells and tumors. Studies assessing their therapeutic impact are currently underway.

11.13 ONCOGENETICS

Orland Díez

PUBLICATIONS

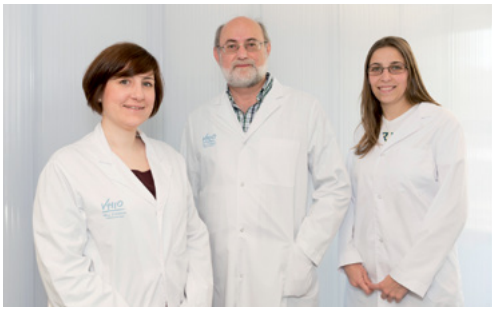
Total	Impact Factor	Average I.F.
9	51.193	5.688

SUMMARY 2014

We focus on the genetic predisposition to hereditary breast/ovarian cancer and radiotherapy-induced toxicity. We have performed exome sequence analysis of relatives from breast cancer families negative for BRCA1/2 pathogenic variants to unmask potential predisposing genes, and developed a panel of 100 predisposition cancer genes. We have shown prevalence of RAD51D disease-causing variants in Spanish breast/ovarian cancer families, and assessed methodologies for DNA/RNA analysis, and alternative transcripts in BRCA1 and BRCA2 genes, collaborating with the ENIGMA Consortium, and participated in the CIMBA Consortium to identify two new susceptibility genes of ovarian cancer and modifier alleles for BRCA1/BRCA2 mutation carriers. We have evidenced that severe, late side effects induced by radiotherapy of breast cancer are associated with low levels of irradiation-induced apoptosis. To validate predictive models of radiotherapy toxicity to reduce side-effects, we have enrolled breast cancer patients in the EU FP7 REQUITE project.

11.14 PROTEOMICS

Francesc Canals



PUBLICATIONS

Total	Impact Factor	Average I.F.
6	32.635	5.439

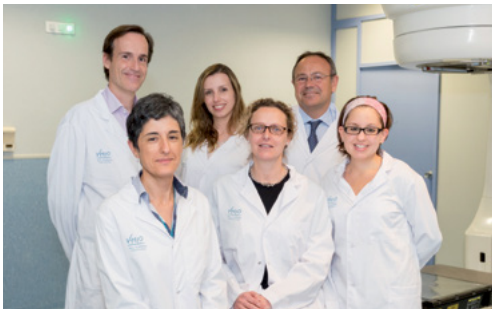
SUMMARY 2014

We mainly focus on the application of proteomic techniques to the identification and characterization of substrates of metalloproteases involved in tumor progression. Our group employs mass spectrometry-based proteomic strategies to search for new substrates of these proteases and analyze their involvement in tumor progression. We also use proteomic techniques for screening and the validation of biomarkers for cancer diagnostics, personalized treatment and monitoring.

In 2014 we have contributed to research aimed at the validation of a biomarker signature to facilitate patient selection and the monitoring of TGFbeta inhibitor-based treatment of glioma, and identified proteins shed by metalloproteases in breast cancer cells. We have also characterized the role of proteolysis by the metalloprotease ADAMTS1 of the insulin-like growth factor binding protein IGFBP2 in glioma, as well as collaborated in the unmasking of a new role of the kinase LKB1 as a UV damage sensor in melanoma.

11.15 RADIATION ONCOLOGY

Jordi Giralt



PUBLICATIONS

Total	Impact Factor	Average I.F.
13	124.132	9.549

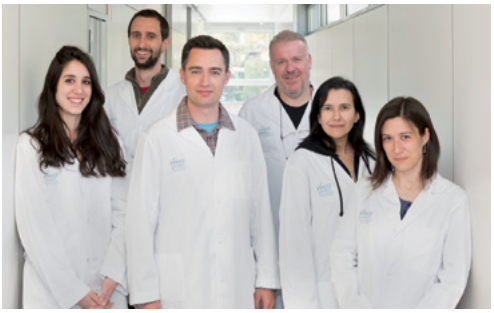
SUMMARY 2014

Our group is integrated within the Radiation Oncology Department of the Vall d'Hebron University Hospital 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 of important clinical trials, translational research projects, as well as technology development programs.

More specifically in 2014, we achieved an increase in the number of patients treated with IMRT: 418 patients with IMRT, representing a 28% increase. Regarding our participation in the Adaptive and innovative Radiation Treatment FOR improving Cancer treatment outcomE (ARTFORCE) project, initiated in 2013, we have to-date succeeded in including 6 patients. This year has also marked the initiation of a dose escalation program using Image Guided RadioTherapy (IGRT), with fiducials, and we have since treated 21 patients. In addition, we have also started a stereotaxic extracranial RT in lung cancer program and have thus far treated 4 patients.

11.16 STEM CELLS & CANCER

Héctor G. Palmer



PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
1	8.559	8.559

SUMMARY 2014

Over recent years we have succeeded in describing a new mechanism of resistance to PI3K and AKT inhibitory drugs conferred by beta-catenin in colorectal cancer. Such discovery is of great clinical relevance since many patients in clinical trials are not responding to these drugs. We are currently leading research focusing on a new generation of Wnt/beta-catenin inhibitory drugs in close collaboration with several major pharmaceutical companies, and have already produced experimental data regarding the efficacy and mechanisms of action of such drugs in pre-clinical models of colorectal cancer with patient-derived xenografts. This marks an important milestone in the field, since colorectal cancer was described as a paradigmatic tumor addicted to the oncogenic Wnt/beta-catenin pathway many decades ago. We are also identifying the molecular determinants of response to these drugs that could become robust biomarkers to select sensitive patients and guide the design of new clinical trials in the future.

11.17 THORACIC TUMORS

Enriqueta Felip

PUBLICATIONS

Total	*Impact Factor*	*Average I.F.*
20	203.17	10.156

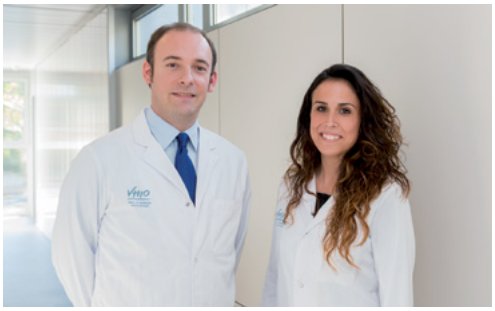
SUMMARY 2014

The main focus of our group is to tackle various aspects of lung cancer, the most frequently diagnosed tumor to date. We work on 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 focuses on targeted therapies in patients with specific molecular alterations and immunotherapy strategies.

Main highlights this year are as follows: 500 new lung cancer patients including 20 cases of mesothelioma and 5 of thymoma, fostering close multidisciplinary collaboration through our established lung cancer tumors committee, the implementation of pharmacogenomic approaches in advanced NSCLC, our involvement in exome sequencing in NSCLC patients, the analysis of PDL1 expression in mesothelioma patients, as well as our active participation in two *New England Journal of Medicine* papers published in 2014 including ALK positive patients. We have also organzied the 2014 European Lung Cancer Conference (ELCC), 26 – 29 March, Geneva, Switzerland.

11.18 TRANSLATIONAL GENOMICS

Aleix Prat



PUBLICATIONS

Total	Impact Factor	Average I.F.
12	90.728	7.561

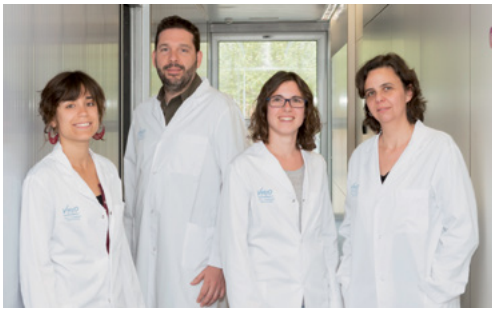
SUMMARY 2014

2014 has been a highly productive year for our group. We have been the first in Europe to successfully implement a clinically applicable gene expression-based test, known as PAM50, for the management of breast cancer patients. In addition, we have analyzed >500 samples and provided scientific guidance and advice to several collaborators, leading to multiple publications in high-impact factor journals. Moreover, our lab has started participating in the genomic analyses of tumor samples from national and international clinical trials.

We have led important advances regarding HER2-positive breast cancer. This disease can be classified as four different subtypes according to respective molecular characteristics, and these different groups might predict a different response to therapies and survival outcome. Among the different subtypes of HER2+ disease, the HER2-enriched is the one to benefit the most from anti-HER2 therapies. These findings have led to the initiation of a prospective clinical trial in HER2+ breast cancer that will test a particular hypothesis using genomic data.

11.19 TUMOR BIOMARKERS

Josep Villanueva



PUBLICATIONS

Total	Impact Factor	Average I.F.
4	34.853	8.173

SUMMARY 2014

Our group has described an EGFR-centric secretome induced by cetuximab in 3D spheroids of colorectal cancer cells. Furthermore, in plasma of colorectal cancer patients we have identified and preliminarily validated that phosphorylated-EGFR is a candidate secreted biomarker of response to cetuximab. We have also shown that intracellular and extracellular signaling are connected in tumor cells, and how this connection can lead to the non-invasive monitoring of anti-EGFR treatment in patients with colorectal cancer.

We have developed and implemented a normalization algorithm that corrects the statistical results of secretome-based comparative proteomic studies by the global protein secretion rate of cells. This altered the statistical significance of several secreted proteins. In an epithelial-to-mesenchymal transition (EMT), known EMT effectors were only statistically significant when the normalization was applied. Therefore, the cell-centric normalization of secretomes increases the sensitivity of statistical tests.

ORGANIZATION AND STAFF

RESEARCH AREAS AND GROUPS

FACTS AND FIGURES

annualreport2014.vhir.org/facts-and-figures

VHIR HIGHLIGHTS

RESEARCH ACTIVITY

Publications

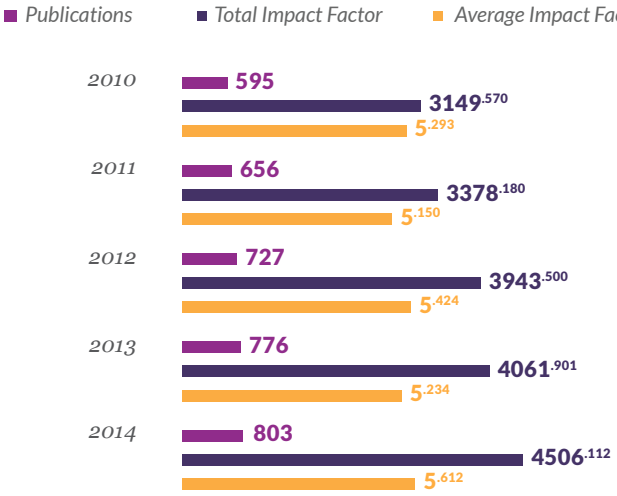
	No. of publications	*Total IF*
Papers in international journals	659	3881.728
Papers in national journals	84	138.246
Editorials in international journals	11	45.487
Editorials in national journals	5	9.868
Clinical guides	8	39.615
Reviews in international journals	32	383.332
Reviews in national journals	4	7.836
TOTAL	**803**	**4506.112**

Total
803

Impact Factor
4506.112

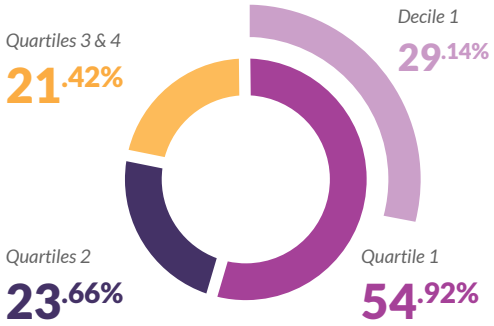
v I.F.
5.612

EVOLUTION IN THE LAST FIVE YEARS

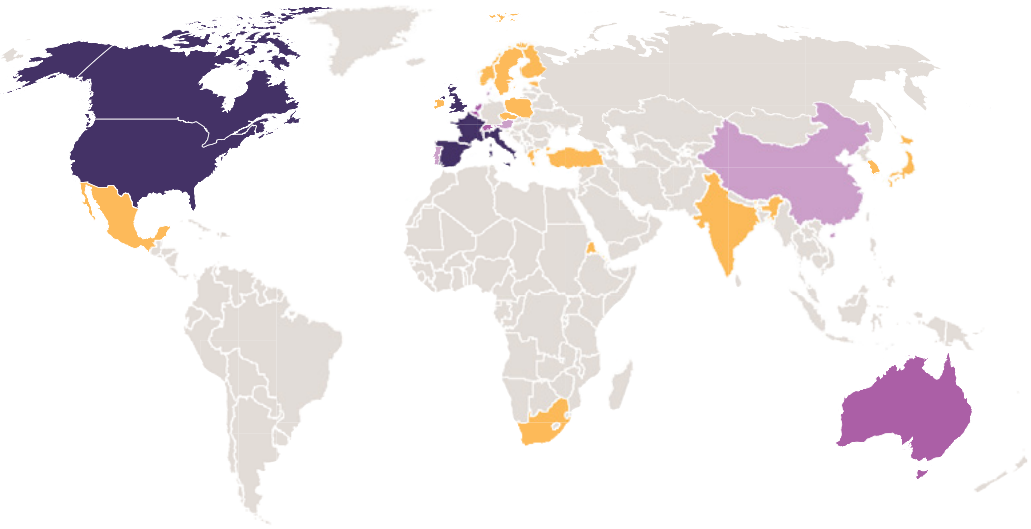


DISTRIBUTION OF PUBLICATIONS PER QUARTILES & FIRST DECILES

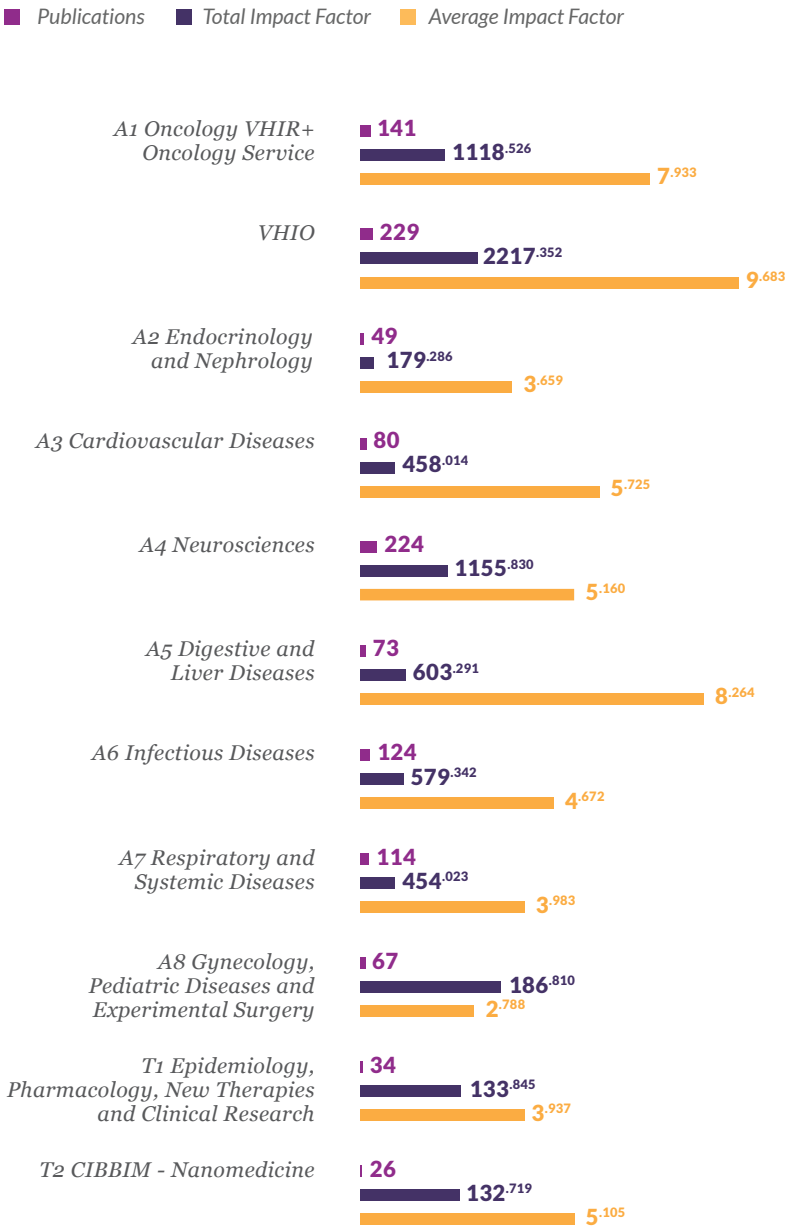
Q 1	441	3713.559	8.421
D 1	234	2840.980	12.141
Q 2	190	542.087	2.853
Q 3 & 4	172	250.466	2.627
TOTAL	803	4506.112	5.612



INTERNATIONAL COLLABORATIONS



IMPACT FACTOR & 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.*

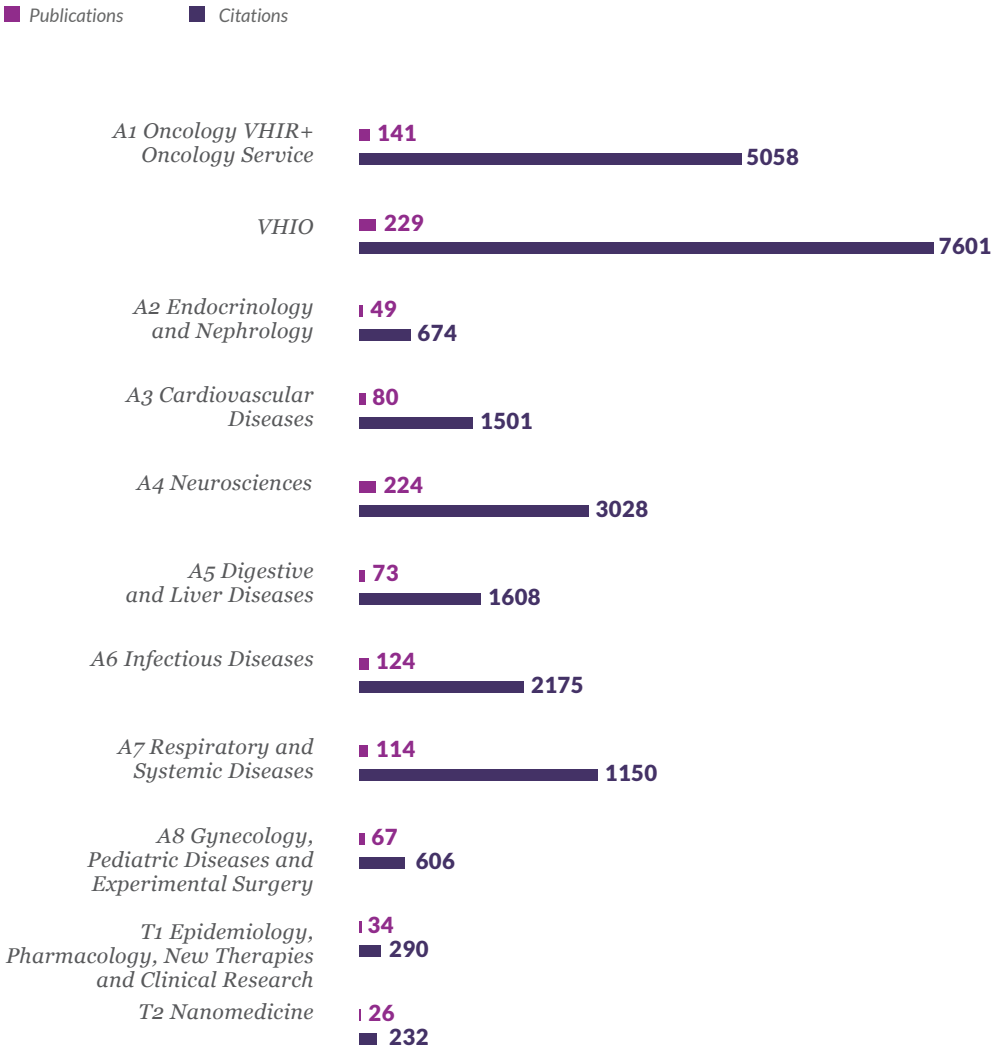
NUMBER OF PUBLICATIONS IN HIGH IF JOURNALS

	No. of publications	*IF*	*Total IF*
CA-A Cancer Journal for Clinicians	1	162.500	162.500
New England Journal of Medicine	11	54.420	598.620
Lancet	2	39.207	78.414
Nature Biotechnology	2	39.080	78.160
Jama-Journal of the American Medical Association	1	30.387	30.387
Nature Medicine	2	28.054	56.108
Lancet Oncology	1	24.725	24.725
Cancer Cell	1	23.893	23.893
Lancet Neurology	5	21.823	109.115
Lancet Infectious Diseases	2	19.446	38.892
Journal of Clinical Oncology	2	17.960	35.920
Alzheimers & Dementia	1	17.472	17.472
BMJ-British Medical Journal	1	16.378	16.378
Nature Reviews Clinical Oncology	1	15.696	15.696
Journal of the American College of Cardiology	3	15.343	46.029
JNCI-Journal of the National Cancer Institute	1	15.161	15.161
Molecular Psychiatry	1	15.147	15.147
Circulation	4	14.948	59.792
European Heart Journal	2	14.723	29.446
Nature Reviews Neurology	1	14.103	14.103

DISTRIBUTION OF INTERNATIONAL & NATIONAL JOURNALS

				%
National journals	93	155.950	5.579	11.58 %
International journals	710	4350.162	6.127	88.42 %
TOTAL	**803**	**4506.112**	**5.612**	

NUMBER OF CITATIONS AND PUBLICATIONS IN THE PERIOD 2012-2014



Research projects and networks

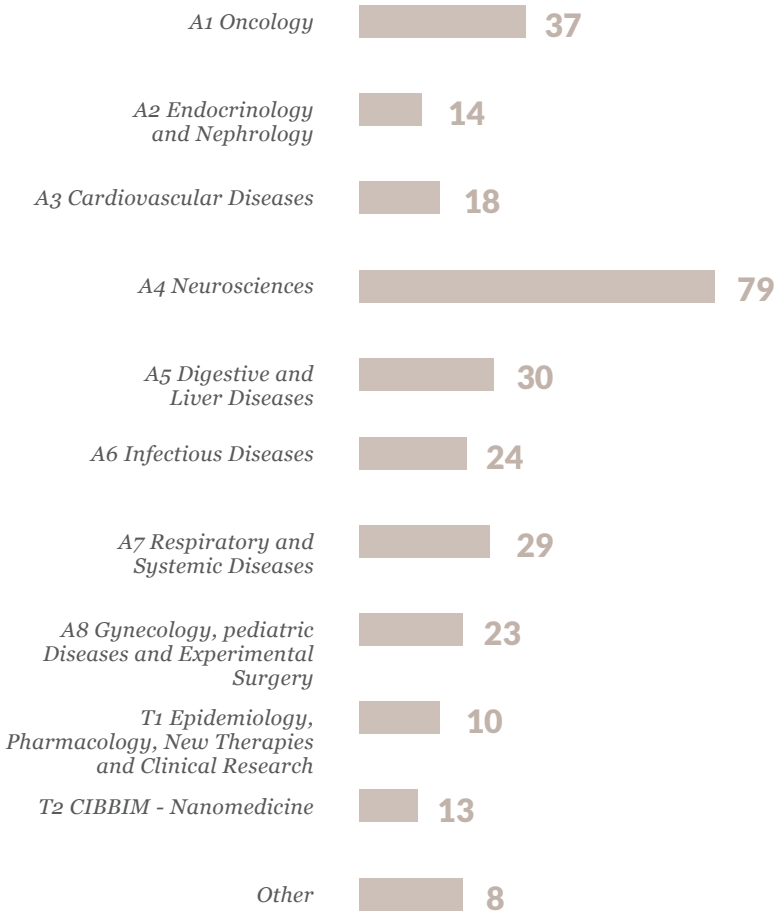
Total
285

National Projects	
Instituto de Salud Carlos III	131
Ministerio de Ciencia e Innovación	18
Ministerio Sanidad Servicios Sociales e Igualdad	20
Fundació La Marató de TV3	14
Asociación Española Contra el Cáncer	5
Fundació Catalana de Pneumologia	4
Col·legi Oficial d'Infermers/es de Barcelona	3
Gilead Sciences SL	3
Societat Catalana de Pneumologia	3
Sociedad Española Neumología Cirugía Torácica	3
Fundación Invest. Médica Mutua Madrileña	3
Others	22
TOTAL	**229**

International Projects	
European Commission	33
National Institutes of Health (NIH)	8
ERA-NET	3
Others	12
TOTAL	**56**

ONGOING RESEARCH PROJECTS ACCORDING TO RESEARCH AREA

Total
285



RESEARCH POSITIONS GRANTED

Senior Researchers		Total 7
Miguel Servet Programme	3	
Strengthening of research activity Programme - Instituto de Salud Carlos III	3	
Juan Rodés Programme	1	
Postdoctoral Researchers		Total 4
Beatriu de Pinós Programme	2	
Contracts stemming from Research Projects	2	
Post-Mir Researchers		Total 4
Río Hortega Programme	3	
Post-MIR VHIR-La Caixa Programme	1	
Predoctoral Researchers		Total 8
Agència de Gestió d'Ajuts Universitaris i de Recerca (AGAUR)	3	
Ministerio de Economía y Competitividad (MINECO)	1	
Contracts stemming from Research Projects	4	
Support Staff		Total 14
Ministerio de Economía y Competitividad (MINECO)	1	
Contracts stemming from Research Projects	13	
TOTAL	37	

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)	Genescà, Joan	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 - Namomedicine 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: Epidemiologia 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

Title	*Project Manager*	*File*
REIPI - Red Española de Investigación en Patología Infecciosa	Almirante Gragera, Benito	RD06/0008/0026
RTICC - Red Temática de Investigación cooperativa de cáncer	Ramón y Cajal Agüeras, Santiago	RD06/0020/0104
RECAVA - Red Temática de Investigación en Enfermedades Cardiovasculares	Simó Canonge, Rafael	RD06/0014/1014
REEM - Red Española de Esclerosis Múltiple	Montalban Gairín, Xavier	RD07/0060/0020
RTICC - Red Temática de Investigación cooperativa de cáncer	Sánchez de Toledo Codin, Josep	RD06/0020/1021
RETICS de Biobancos	Ramón y Cajal Agüeras, Santiago	RD09/0076/00066
Red de Innovación en Tecnologías Médicas y Sanitarias	Comella Carnicé, Joan Xavier	RD09/0077/00090
Red Temática de Investigación Cooperativa en Cáncer (RTICC)	Ramón y Cajal Agüeras, Santiago	RD12/0036/0057
Red de investigación Renal	Serón Micas, Daniel	RD12/0021/0013
INVICTUS	Montaner Villalonga, Joan	RD12/0014/0005
Red Española de Investigación en Patología Infecciosa	Almirante Gragera, Benito	RD12/0015/0003
Red de SIDA-RIS	Ribera Pascuet, Esteve	RD12/0017/0003
Red de Investigación Cooperativa en Enfermedades Tropicales RICET	Molina Romero, Israel	RD12/0018/0020
Red Española de Esclerosis Múltiple	Montalban Gairín, Xavier	RD12/0032/0017
Prevención, deteción precoz y tratamiento de la patologia ocular prevalente, degenerativa y crónica	García Arumí, José	RD12/0034/0015
Red Temática de Investigación Cooperativa en Cáncer - RTICC	Reventós Puigjaner, Jaume	RD12/0036/0035
Red Temática de Investigación Cooperativa en Cáncer - RTICC	Sánchez de Toledo Codin, Josep	RD12/0036/0016
Red Cardiovascular	García-Dorado García, David	RD12/0042/0021
Red de Salud Materno Infantil y del Desarrollo	Cabero Roura, Lluís	RD12/0026/0016
Plataforma de biobancs	Novoa Garcia, Isabel	PT13/0010/0021
Plataforma d'unitats de recerca clínica i assaigs clínics	Fuentes Camps, Immaculada	PT13/0002/0028
Plataforma d'innovació en tecnologies mèdiques i sanitàries	Comella Carnicé, Joan Xavier	PT13/0006/0024
European Expert Paediatric Oncology Reference Network for Diagnostics and Treatment (EXPO-r-NeT)	Sánchez de Toledo Codin, Josep	EXPORNET_ PILOT2013

LIST OF VHIR RESEARCH GROUPS RECOGNIZED BY THE "GENERALITAT DE CATALUNYA"

Title	*Project Manager*	*File*
Fatiga Crònica (GRE)	Alegre Martin, José	2014 SGR 340
Malalties Infeccioses (GRC)	Almirante Gragera, Benito	2014 SGR 759
Oncologia Molecular (GRC)	Arango Corro, Diego	2014 SGR 1084
Cirurgia General (GRC)	Armengol Carrasco, Manuel	2014 SGR 1075
Unitat de Recerca del Sistema Digestiu (GRC)	Azpiroz Vidaur, Fernando	2014 SGR 1285
Unitat de Recerca Translacional en Hematologia (GRC)	Bosch Albareda, Francesc	2014 SGR 1355
Endocrinologia Pediàtrica (GRC)	Carrascosa Lezcano, Antonio	2014 SGR 1302
Medicina Materna i Fetal (GRC)	Carreras Moratonas, Elena	2014 SGR 1010
Psiquiatria, Salut Mental i Addicions (GRC)	Casas Brugué, Miquel	2014 SGR 1357
Apoptosi i Neurodegeneració (GRC)	Comella Carnicé, Joan Xavier	2014 SGR 1609
Malalties Hepatobiliars (GRC)	Esteban Mur, Rafael	2014 SGR 421
Infecció en el Pacient Pediàtric Immunodeprimit (GRE)	Figueras Nadal, Concepción	2014 SGR 762
Bioenginyeria, Ortopèdia i Cirurgia Pediàtriques (GRC)	Garcia Fontecha, César Galo	2014 SGR 1401
Patologia Cardiocirculatòria (GRC)	García-Dorado García, David	2014 SGR 1572
Fundació Institut Català de Farmacologia (GRC)	Laporte Roselló, Joan-Ramon	2014 SGR 766
Oncologia i Patologia Molecular	Lleonart Pajarin, Matilde	2014 SGR 1617
Neurologia Pediàtrica (GRC)	Macaya Ruíz, Alfons	2014 SGR 1087
Patologia Neuromuscular i Mitocondrial (GRC)	Martí Seves, Ramón	2014 SGR 842
Patologia Cel·lular (GRC)	Meseguer Navarro, Anna	2014 SGR 667
Neuroimmunologia Clínica. Centre d'Esclerosi Múltiple de Catalunya (CEMCAT((GRC)	Montalban Gairín, Xavier	2014 SGR 1082
Malalties Neurovasculars (GRC)	Montaner Villalonga, Joan	2014 SGR 686
Penumologia (GRC)	Morell Brotad, Ferran	2014 SGR 523

Title	*Project Manager*	*File*
Transcripció, traducció i mitosi en càncer de pròstata resistent a teràpia.TRAMIT-CAP (GRE)	Paciucci Barzanti, Rosanna	2014 SGR 733
Microbiologia (GRC)	Pumarola Suñé, Tomàs	2014 SGR 1194
Anatomia Patològica (GRC)	Ramón y Cajal Agüeras, Santiago	2014 SGR 1131
Grup de Recerca Multidisciplinar en Melanoma (GRC)	Recio Conde , Juan Angel	2014 SGR 1405
Clinical Research / Innovation in Pneumonia & Sepsis (CRIPS) (GRC)	Rello Condomines, Jordi	2014 SGR 278
Unitat de Recerca Biomèdica i Oncologia Translacional (GRC)	Reventós Puigjaner, Jaume	2014 SGR 1330
Unitat d'Investigació de Neurotraumatologia i Neurocirurgia (UNINN) (GRC)	Sahuquillo Barris, Joan	2014 SGR 844
Investigació translacional en càncer infantil (GRE)	Sánchez de Toledo Codin, Josep	2014 SGR 660
Immunobiologia (GRC)	Sayos Ortega, Juan	2014 SGR 1091
Grup de direccionament i alliberament farmacològic	Schwartz Navarro, Simó	2014 SGR 1394
Diabetis i Metabolisme (GRC)	Simó Canonge, Rafael	2014 SGR 270
Autoimmunitat i Malaltia Trombòtica (GRC)	Vilardell Tarres, Miguel	2014 SGR 329

GRANTED PROJECTS

Total Funding

7.9 M€

3 institutional projects

0.4 M€

National	
Instituto de Salud Carlos III	38
Ministerio de Ciencia e Innovación	7
Fundació La Marató de TV3	5
Fundació Catalana de Pneumologia	4
Col·legi Oficial d'Infermers/es de Barcelona	2
Associació Catalana de Diabetis	2
Gilead Sciences SL	1
Asociación Española Contra el Cáncer	1
Others	8
TOTAL	68

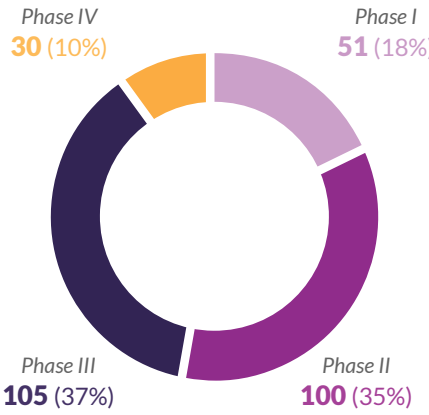
International Projects	
Canadian Institutes of Health Research	2
European Commission	1
National Institutes of Health (NIH)	1
ERA-NET	1
National Multiple Sclerosis Society	1
Others	3
TOTAL	9

Clinical trials

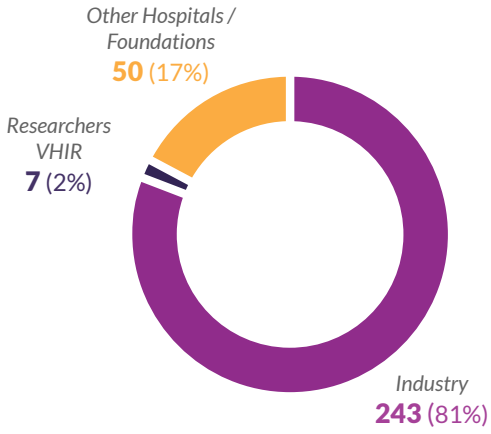
CLINICAL TRIALS SUBMMITED TO CREC IN 2014

Aproved	Denied	Cancelled	Postponed	Total
286	2	11	1	300

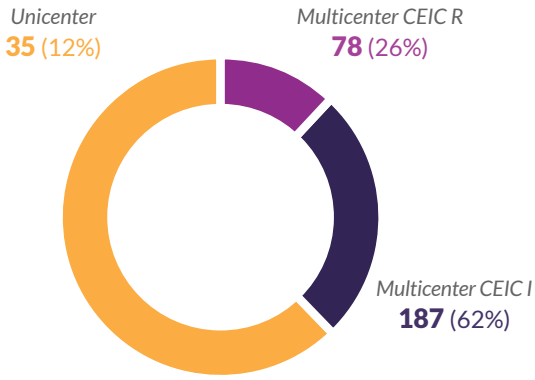
CLINICAL TRIALS APPROVED BY CREC, CLASSIFIED ACCORDING TO THE TRIAL PHASE



CLINICAL TRIALS CLASSIFIED ACCORDING TO PROMOTER



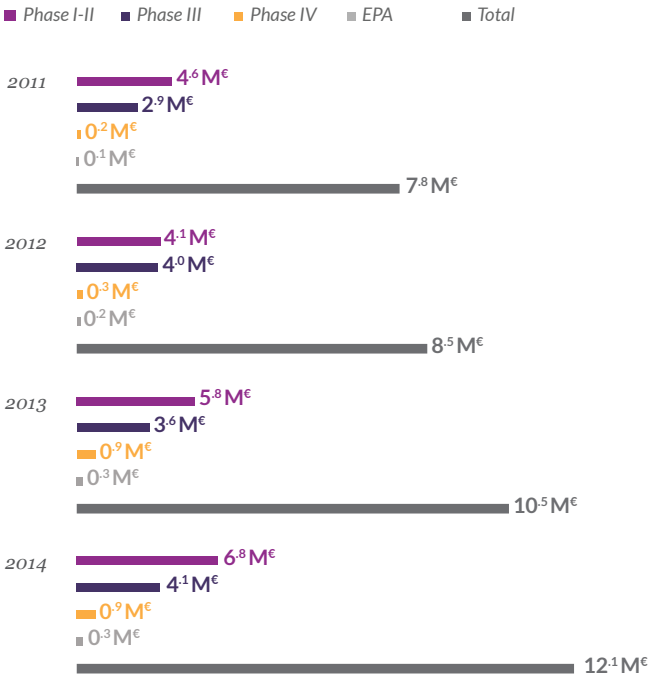
CLINICAL TRIALS ACCORDING TO PARTICIPANTS



CEIC

Research Projects	Clinical Trials and PAS	Clinical Trials and PAS amendments	Total
388	403	1221	2012
19.28 %	20.03 %	60.69 %	

FUNDING EVOLUTION, INCLUDING OVERHEADS



CLINICAL TRIALS BY HUVH SERVICES

Service	*No. Clinical Trials*	*Service*	*No. Clinical Trials*
Allergology	2	Neurology	24
Anesthesia	5	Neurophisiology	1
Cardiac Surgery	1	Neurosciences	1
Cardiology	29	Neurotraumatology	1
Dermatology	1	Oftalmology	8
Digestive	7	Oncology	404
Endocrinology	12	Pediatrics	14
General Surgery	8	Pediatrics Surgery	1
Gynecology and Obstetrics	9	Pedriatrics Onco-hematology	22
Hematology	72	Plastic Surgery and Burned	2
Hemophilia	10	Pneumology	26
Infectious Diseases	38	Preventive Medicine	5
Intensive Care Unit	6	Psiquiatry	9
Internal Medicine	69	Radiology	3
Internal Medicine-Hepatology	14	Rehabilitation	2
Maxillofacial Surgery	1	Traumatology	4
Nephrology	25	Urology	5
Neuroinmunology	36	Others	9

TOTAL	886

Events and Seminars

EXTRAORDINARY CONFERENCES

8th Scientific Session VHIR	1
18th HUVH Annual Conference	1

COURSES

VHIR/HUVH formation course	3
VHIR	12
UEB	3
UAT	1
Occupational hazards prevention	20
Languages	16
Innovation Contest	1
Equality Courses	1
Other Courses	14

SESSIONS AND SEMINARS

VHIR seminars	25
ARECES-VHIR and rare diseases seminars	14
NanoSeminars CIBBIM-Nanomedicine	1
Protocols in Hematology	11
Oncology (VHIO)	1
Cardiology	14
Gastroenterology	21
Neurosciences	5
Medicine and Anatomic Pathology	11
Hematology	28
External activities	9

* Watch the most important seminars at :
annualreport2014.vhir.org/facts-and-figures/events-and-seminars

Total
213

Extraordinary Conferences
2

Courses
71

Seminars
140

Master's Degree in Traslational Biomedical Research

FIGURES OF THE COURSE 2014-2015

Pre-resgistred students	55
Admitted students	55
Enroled students	**37**
External students (Master's Degree in Biochemistry, Molecular Biology and Biomedecine in UAB)	15

STUDENTS PER ELECTIVE MODULE*

Area	
Oncology	15
Neurosciences	14
Cardiology and Nephrology	8
Digestive and Liver Diseases	11
Respiratory, Immunology, Endocrinology and Systemic Diseases	13
Microbiology, Infectious Diseases and Critical patients	13

* Each student selects 2 specialties.

GRANTS FOR STUDENTS

Company	*No. of grants*
OFenin	1
Pfizer	1
Promax	1
Santander	2
VHIR-Fundació Catalana per la Recerca i Innovació	1
TOTAL	6

Thesis

Doctoral thesis read (UAB)

44

* The full list can be found at:
annualreport2014.vhir.org/facts-and-figures/thesis/

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 developmentof methodology known as transluminal endoscopic surgery through natural orifices (NOTES).

On the 1st and 2nd of December 2014, WIDER organized the 8th Edition of the International Course in NOTES, where over 130 doctors, surgeons and researchers from all over the globe participated. It offered presentations about simulations such as Single port access, NOTES experimental, NOTES clinic, NOTES applied to obesity and transrenal surgery. In endoluminal endoscopy new diagnostic alternatives were presented in bilipancreatic diseases, and in endomulnial therapeutic specialty Poem's new techniques with Acalasia treatment and new techniques in tumor resection. Furthermore, in this edition two surgeries were broadcasted, one of them from the clinical side, endoscopy, Acalasia patients and tumoral and polypoid deformation of the digestive tract. The other video was broadcasted from VHIR's 'Animal Facility', very sophisticated bile and pancreatic drainage interventions using ecoendoscopy.

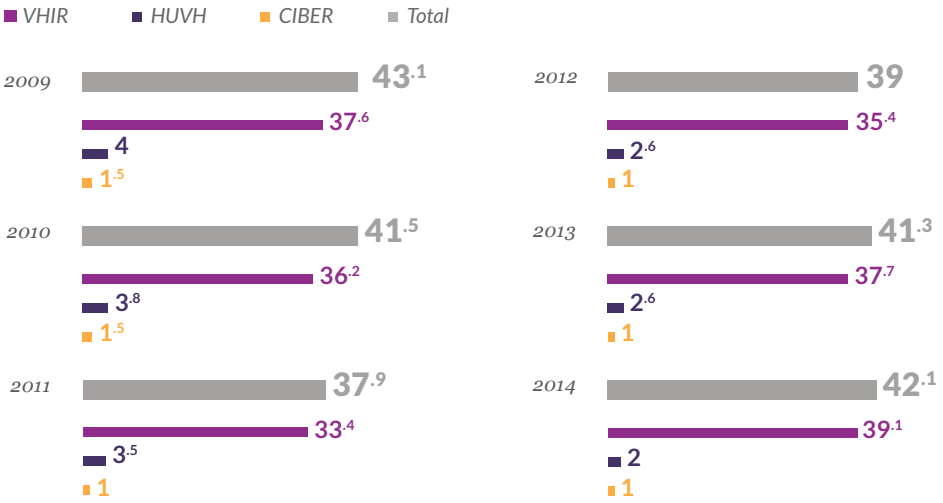
We can say that the meeting has become the world's most outstanding forum about advanced endoscopic and transluminal surgery.

VHIR STATISTICS

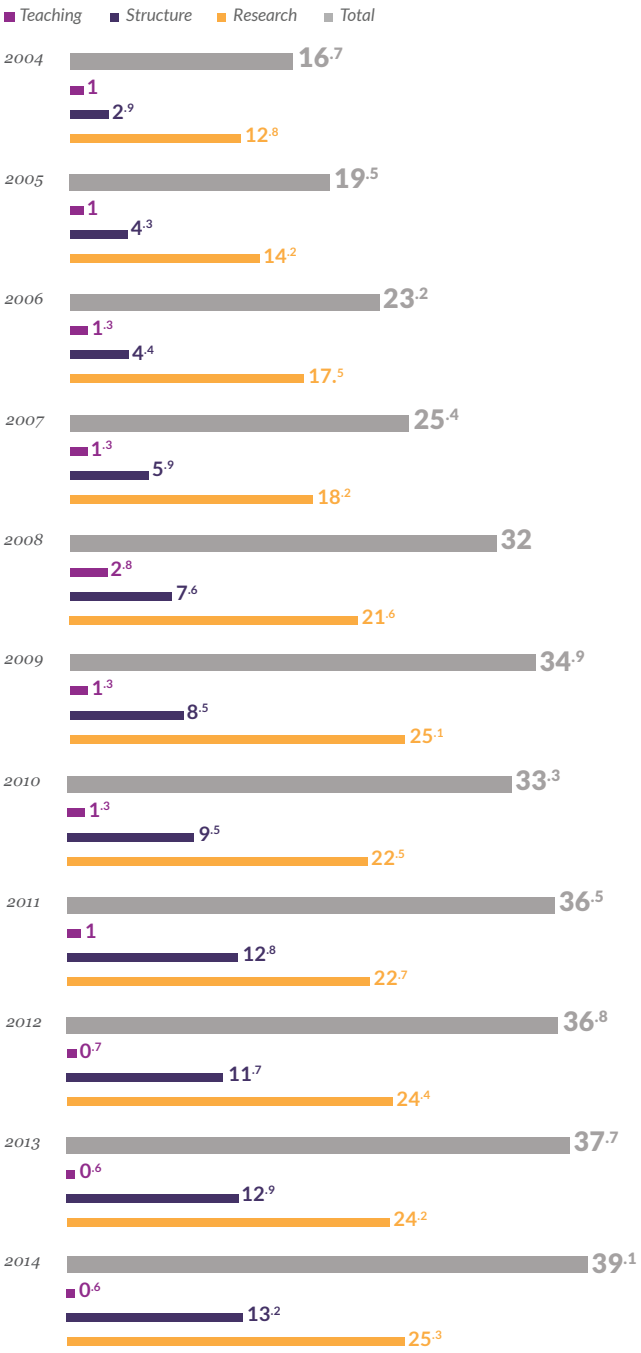
Economic summary

VHIR	*HUVH*	*CIBER*	*Total*
39.1 M€	2 M€	1 M€	42.1 M€

TOTAL INCOME IN MILLIONS OF EUROS

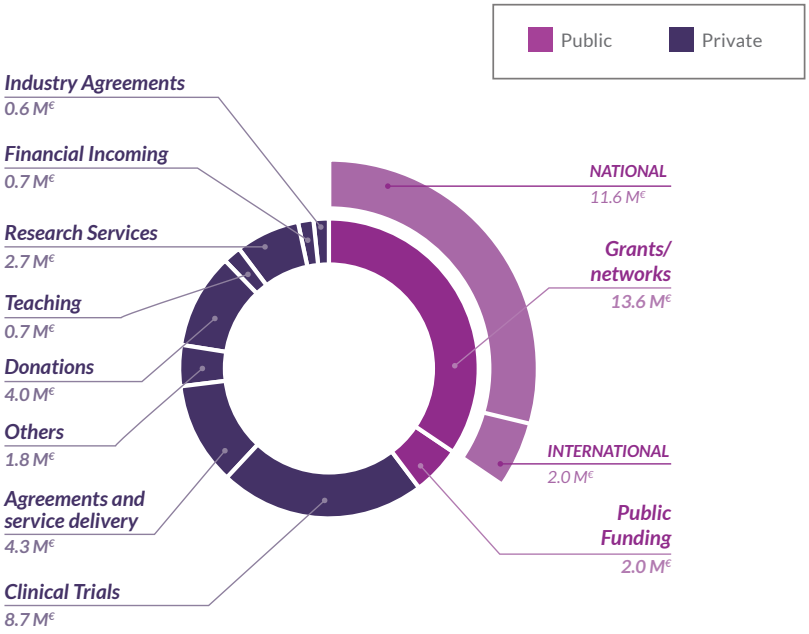


VHIR TOTAL INCOME IN MILLIONS OF EUROS



2014 VHIR INCOME BREAKDOWN

Total
39.1 M€

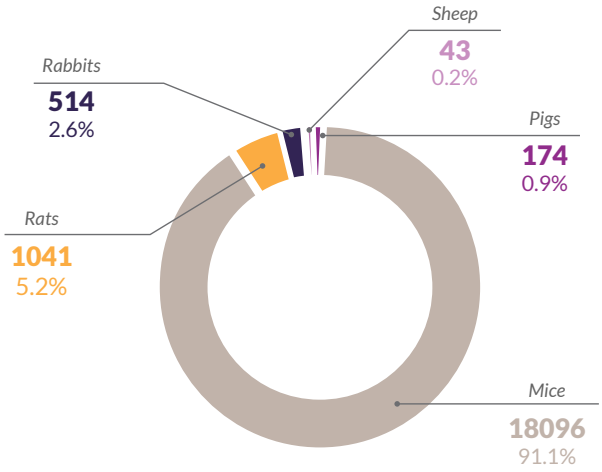


Scientific and Technical support

ANIMAL FACILITIES

Animals Used In Research

Total
19868



Annual average of cages and individuals/day

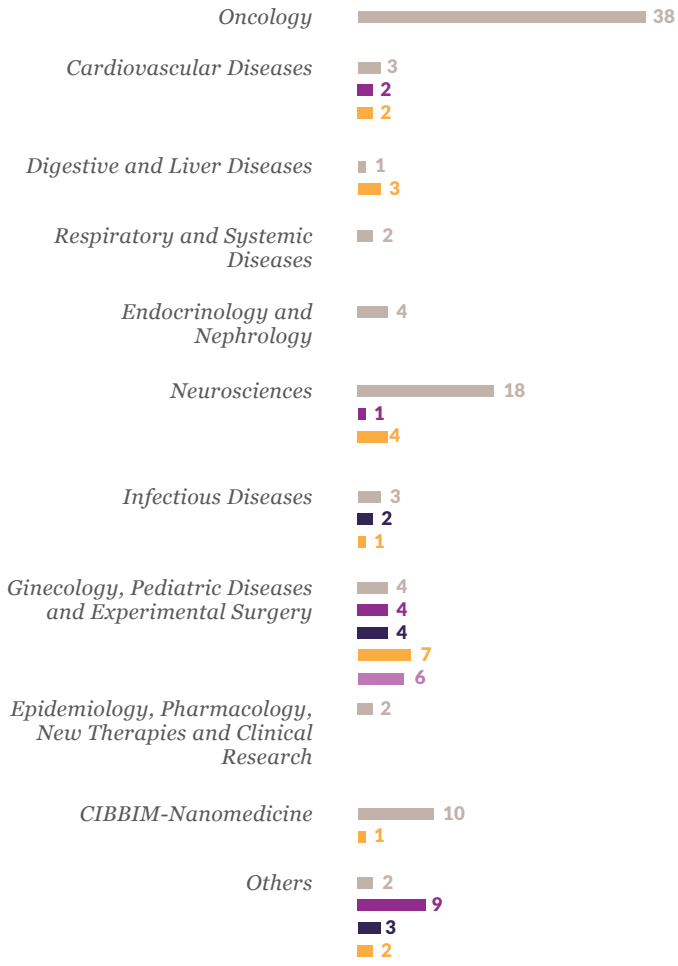
Mice-rats	Pigs	Rabbits	Sheep
2216	8	32	10

Active projects/procedures per species

Mice	Pigs	Rabbits	Rats	Sheep
87	16	9	20	6

Active projects/procedures per area and species

Number of Projects / Procedures
138

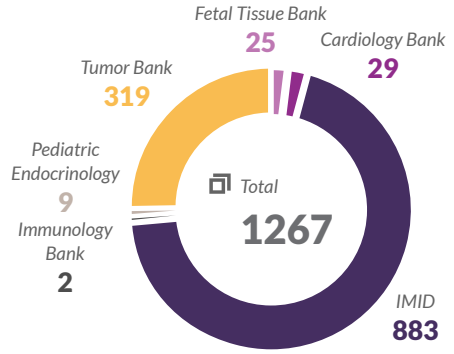


Molecular imaging plataform activity per group

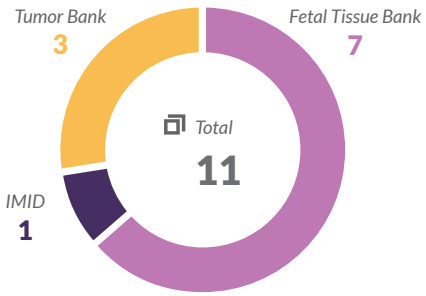
Research Groups	*Image Acquiring Hours*	*Image Quantification and Analysis Hours*
Molecular Pathology	1.25	6
Experimental Hematology	14.50	30
Translational Research in Child and Adolescent Cancer	7.75	2
General Surgery	14.75	26
CIBBIM	1	3
Functional Validation and Preclinical Research	382.25	4
VHIO	325.75	0
Others	0.75	5
TOTAL	748	76

BIOBANK

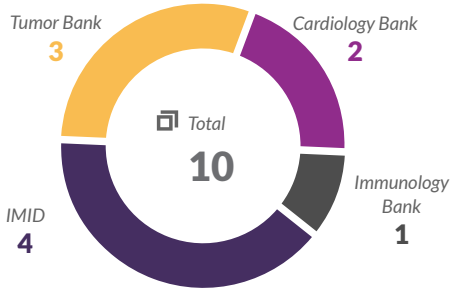
Number of donations



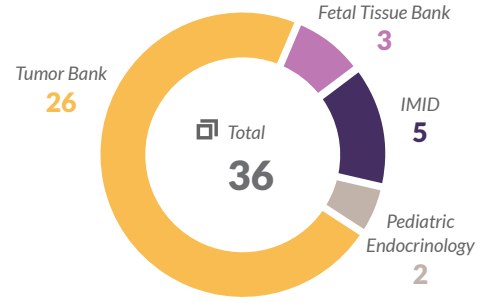
Number of projects which have asked for samples (Material Transfer Service)



Number of projects which have asked for samples processing services

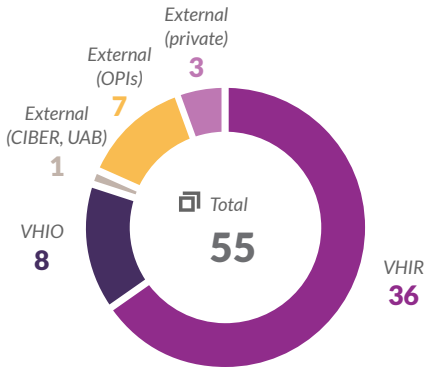


Number of publications which have used biobank collections samples

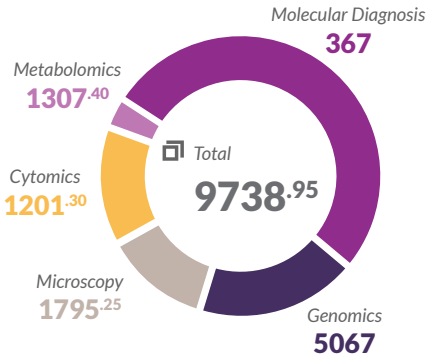


UAT

User groups



Services performed



Courses organised

Title	*Category*
Proteomics and Metabolomics: techniques and experimental design	Course
Bioinformatics for biomedical research	Collaboration in course organized by the UEB
A translational view of the microarray technology	Technology update seminar (in collaboration with affymetrix)
Advancing towards personalized medicine: the role of bioinformatics	Workshop (vhir-grib)
Participation in the Master's Degree in Translational Biomedical Research	Teaching hours
Participation in Escolab visits	Teaching hours

Current agreements with external services providers

Name		*Services provided*
Centre for Genomic Regulation	*PUBLIC INSTITUTION*	Shared use of core facilities
National Center for Genomic Analysis	*PUBLIC INSTITUTION*	Access to state-of-the-art NGS technologies
Autonomous University of Barcelona	*PUBLIC INSTITUTION*	Shared use of core facilities
Institute of Molecular and Translational Medicine (IMTM) in Olomouc, Czech Republic	*PUBLIC INSTITUTION*	Shared use of core facilities
OWL-One Way Liver Genomics	*PRIVATE COMPANY*	Lipidomics
Anaxomics	*PRIVATE COMPANY*	Systems Biology
Macrogen	*PRIVATE COMPANY*	Sanger Sequencing, NGS
BGI	*PRIVATE COMPANY*	NGS

New internal services

Platform	*Service*
Molecular Diagnosis	FFPE sample processing for microarrays
Genomics	Fluorimetric quantification of nucleic acids
	RT-qPCR full service
Metabolomics	Development and validation of LC/MS/MS Method-Benznidazol
	Development and validation of LC/MS/MS Method-Aztreonam
	Development and validation of LC/MS/MS Method-Tolcapone
Microscopy	TIRF tool of the CellR microscopy

USIC

Services performed by the USIC
USIC-SCReN Platform

Consulting and Regulatory/ Methodological Support	*Project Management*	*Project Monitoring*	*Centres Monitoring*	*FV clinical trails*
1	2	3	9	1

Services performed by the USIC

USIC-Care Platform	
% clinical trails USIC-Care Area/ active trails in HUVH	12,50%
% of the use of care spaces	12,20%
Spaces for medical consultation	75
Day Hospital	10
Nursing	57
No. of visits	1233
No. intravenous treatments	34
No. principal investigators	35
Services/Units HUVH	15
Clinical trials/studies active during 2014	75
Petitions of public funded studies	14
Petitions of private funded studies	61
No. spaces used for monitoring/auditories/center seleccion visits, beginning and end	61

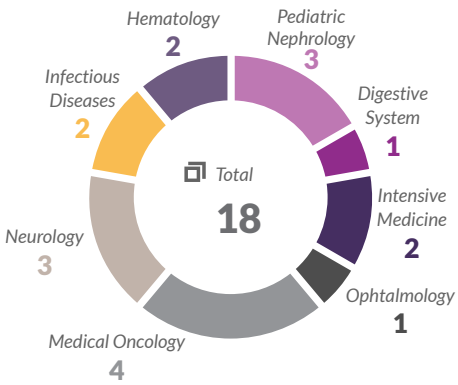
UEB

UEB services by user type	*Total (€)*	*Total (hours)*
Teaching activities (Courses & Personalized)	6835[6]	381
Advanced Data Analysis	3231	158
High Throughput Data Analysis (Bioinformatics)	20324[3]	758
Data Analysis for Clinical Research (Biostatistics)	23206[6]	667
Statistical & methodological consultancy services	13698	348
Scientific results communication	300	75
Database & applications development	0	194
Report writing and Documentation development writings	0	83
Booking of UEB resources	410	17
TOTAL	68005[5]	2681

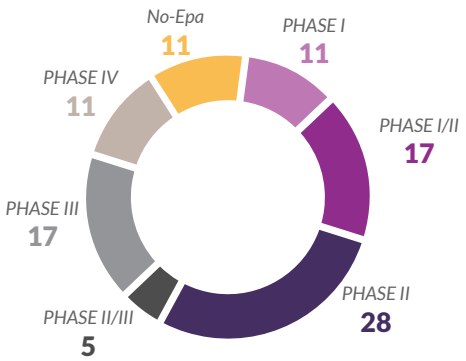
UEB results by user type	*Total (€)*	*Total (hours)*
Internal	48173[4]	1572
UAB	2388	61
OPIs	12384[1]	588
External-Private	1620	11
Support Units	3440	449
TOTAL	68005[5]	2681

ARO

Services we have worked with



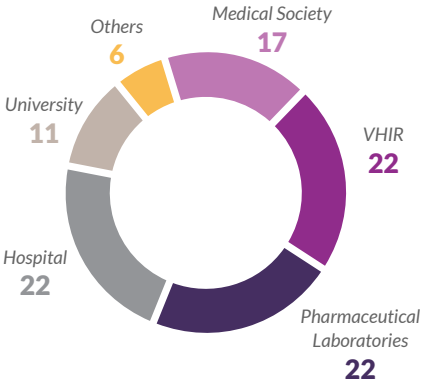
Phases of the Studies



Development area	
National	8
International	10

Centers Participating	
Unicentric	10
Multicentrict	8

Promoter (%)



Human resources

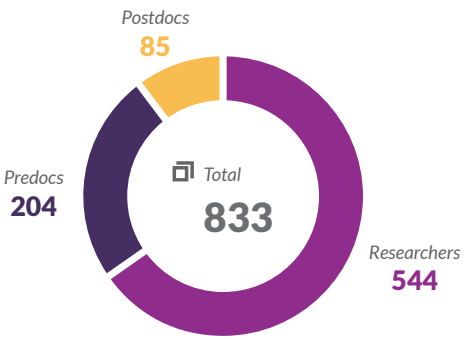
Total staff **1332**

Research staff **833**

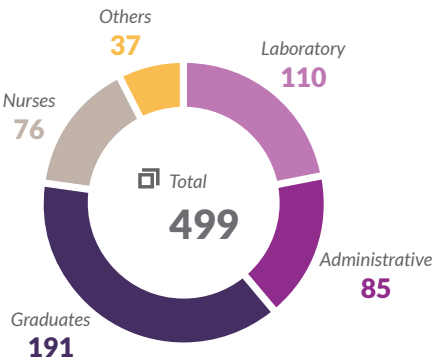
Supporting research staff **499**

DISTRIBUTION ACCORDING TO PROFESSIONAL CATEGORY

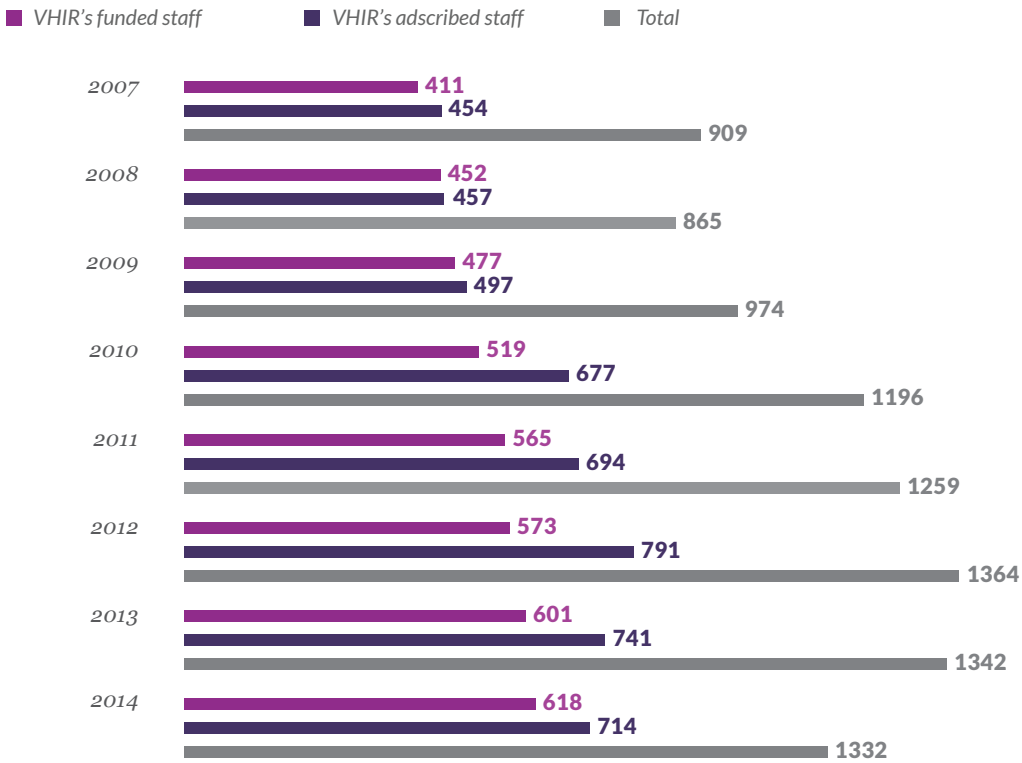
Research Staff:



Support:



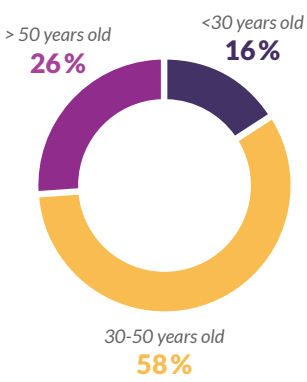
EVOLUTION OF THE STAFF



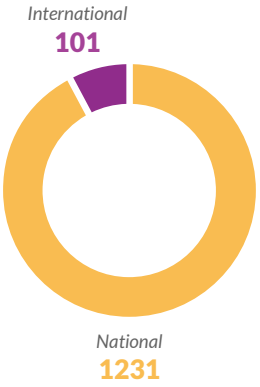
CONTRACTING ENTITIES

Gender:

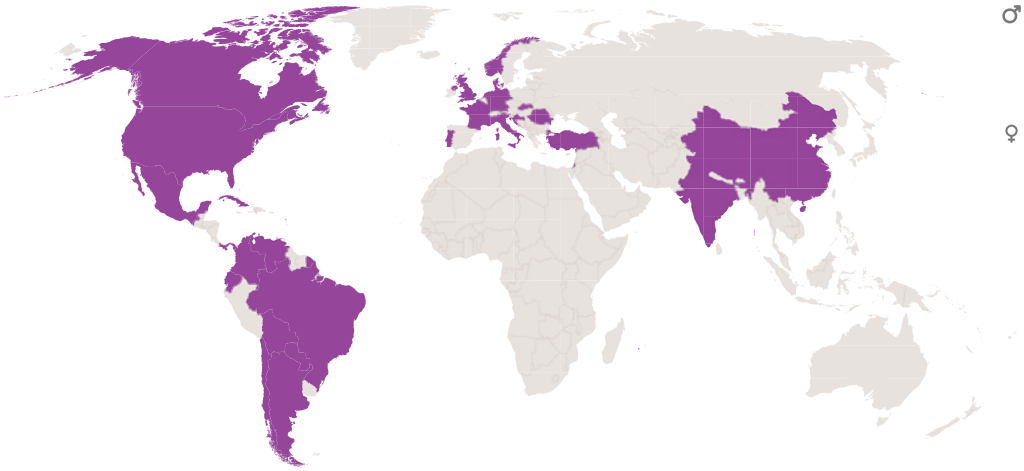
Age:



Nationality:



INTERNATIONALIZATION



♂ *Male*
34

♀ *Female*
67

Total
101

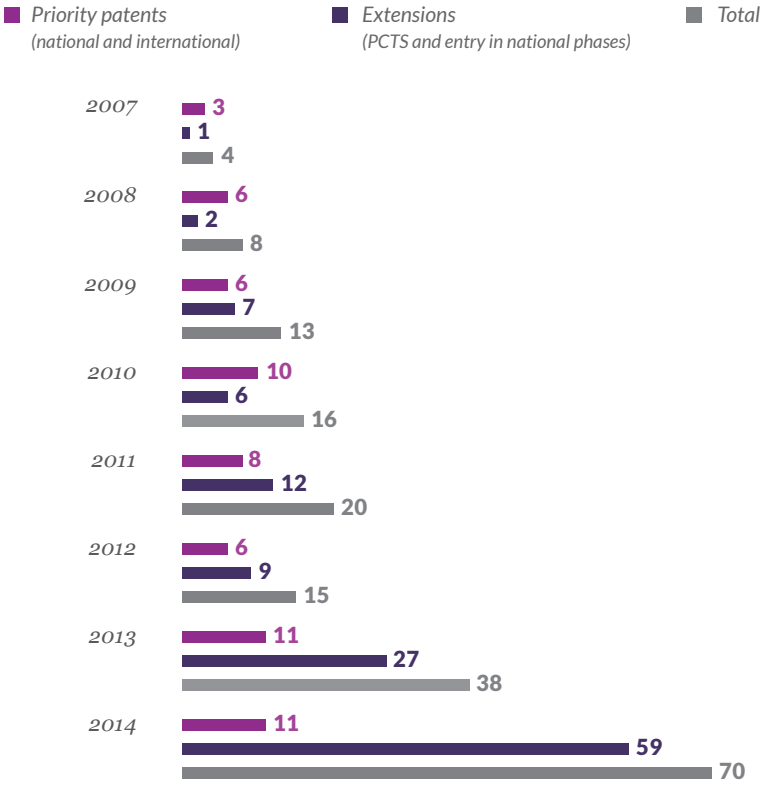
	♀	♂	Total
Afghanistan	3	0	3
Argentina	8	1	9
Bolivia	1	1	2
Brazil	3	1	4
Canada	0	1	1
Chile	2	1	3
China	1	1	2
Colombia	3	3	6
Croatia	2	0	2
Cuba	0	1	1
Denmark	0	1	1
Ecuador	3	0	3
France	3	2	5
Germany	0	2	2
Great Britain	1	1	2

	♀	♂	Total
India	1	1	2
Italy	18	6	24
Mexico	4	1	5
Netherlands	0	2	2
Norway	0	1	1
Panama	0	1	1
Paraguay	3	1	4
Peru	0	2	2
Portugal	4	0	4
Romania	1	0	1
Slovakia	1	0	1
Switzerland	1	0	1
United States	1	0	1
Uruguay	1	0	1
Venezuela	2	3	5

Innovation

Innovation requests	*Patents*	*Cooperative projects*
165	**11**	**129**

EVOLUTION OF PATENTS



EVOLUTION OF REVENUES FROM EXPLOTATION

SUMMARY

Staff	*No.*
Staff with professional relationship with the Institute	**1332**
- Research staff	1256
Principal researchers	*173*
PhD researchers	*85*
Collaborator researchers	*371*
Researchers subordinated to short term projects	*–*
Researchers in training	*204*
Scientific support staff	*366*
Core facilities staff	*57*
- Management and administration	60
- General services and maintenance	16
Researchers funded partially or totally through competitive tenders and research networks	**37**
Ratio Staff (Management and administration + General services and maintenance) **/ Principal Researcher**	**0.057**

Research Activity	*No.*
Research projects granted on 2014	**77**
Ongoing research projects	**285**
Ongoing clinical trials	**886**

Scientific production	*No.*
Total of publications	**803**
- Original articles published in indexed journals	743
- Total impact factor reached through indexed journals	4506.112
- Percentage of publications in the 1st decil	29.14%
- Percentage of publications in the 1st quartile	54.92%
Active clinical trials published	**49**
Clinical guides	**8**
Granted patents or utility models	**5**
Transferred patents or utility models	**18**
Start-ups o spin-offs created	**1**
Ratio Publications / Researchers (seniors, postdocs and in training)	**1.27**

Economic Figures	*No.*
Funds collected with a competitive origin (M€)	**13.6**
Funds collected with a non competitive origin(M€)	**23.5**
Direct grant from Generalitat de Catalunya (M€)	**2**
Total overheads from competitive and non competitive funded projects (M€)	**4.93**
Ratio (Competitive fund + non competitive fund) **/ Direct grants from Generalitat de Catalunya** (M€)	**19.5**

ORGANIZATION AND STAFF

RESEARCH AREAS AND GROUPS

FACTS AND FIGURES

VHIR HIGHLIGHTS

annualreport2014.vhir.org/highlights

SCIENTIFIC HIGHLIGHTS

JANUARY

22/01/2014

A clinical trial proves the inefficacy of antibiotics in patients with non-complicated acute bronchitis.

View the news in the media:

↗ 8 al Dia Josep Cuní

FEBRUARY

12/02/2014

Identified a biomarker that predicts survival in patients with the most frequent renal cancer.

View the news in the media:

↗ Telecinco

MARCH

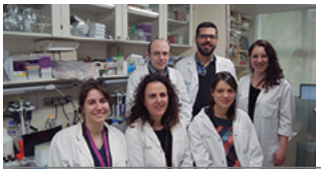
19/03/2014

Diabetes treatments don't increase the risk of cancer.

View the news in the media:

↗ El Punt Avui

APRIL



08/04/2014

Human protein may trigger Parkinson's Disease.

View the news in the media:

↗ La Vanguardia

MAY

15/05/2014

Vall d'Hebron leads the first clinical trial to test a new drug for ChaVgas Disease.

View the news in the media:

↗ BTV

JUNE

06/07/2014

New species detected in intestinal microbiota that make the difference between healthy and unhealthy individuals.

View the news in the media:

↗ Rac1

JULY

AUGUST

SEPTEMBER

OCTOBER

01/10/2014

People with irritable bowel syndrome present increased activation of immune defenses in their small intestine.

View the news in the media:

↗ **Els Matins TV3**

16/10/2014

VHIR researchers unveil the role of a key protein in the reparation of the damage caused by the solar radiation.

View the news in the media:

↗ **Europa Press**

NOVEMBER

12/11/2014

VHIR researchers discover why the individuals with Down Syndrome have more predisposition to suffer autoimmune diseases.

View the news in the media:

↗ **El Periódico**

24/11/2014

Researchers identify a gene associated with susceptibility to cervical artery dissection.

View the news in the media:

↗ **TVE**

DECEMBER

05/12/2014

The loss of the gene RHOA contributes to the progression of colorectal tumors and metastasis.

View the news in the media:

↗ **EFE**

10/12/2014

World experts in endoscopic surgery meet in Vall d'Hebron.

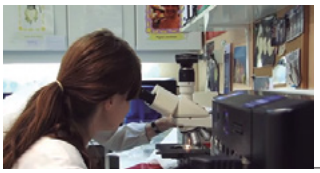
View the news in the media:

↗ **VHIR**

INSTITUTIONAL HIGHLIGHTS

JANUARY

FEBRUARY



13/02/2014

Eye drops to prevent diabetic retinopathy and a continuous automatic bladder irrigation system win the Innovation Contest.

View the news in the media:

↗ **Excelenciencia**

10/02/2014

Vall d'Hebron becomes a preferred investigation site of Bristol-Myers Squib.

MARCH

24/03/2014

VHIR launches a series of conferences on rare diseases.

View the news in the media:

↗ **SlideShare**

APRIL

MAY

JUNE

JULY

03/07/2014

VHIR and the Probitas Foundation install in Angola the first automatic system to diagnose multidrug-resistant tuberculosis.

View the news in the media:

↗ **Diario Médico**

AUGUST

SEPTEMBER

18/09/2014

VHIR holds a Multiple Myeloma patient education event.

View the news in the media:

↗ TV3

26/09/2014

Three VHIR professionals receive the Josep Trueta health merit medal 2014.

View the news in the media:

↗ 324.cat

OCTOBER

10/10/2014

VHIR inaugurates the Master's Degree in Translational Biomedical Research.

View the news in the media:

↗ UAB

30/10/2014

VHIR wins Best in Class 2014 to the best research and innovation center.

View the news in the media:

↗ Gaceta Médica

NOVEMBER

21/11/2014

VHIR celebrates 20 years of excellence in research.

View the news in the media:

↗ BCN.CAT

DECEMBER

12/12/2014

The editor-in-Chief of 'The Lancet' closes Vall d'Hebron 18th Annual Conference.

View the news in the media:

↗ YouTube

Vall d'Hebron
Institut de Recerca

20VHIR

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