Vall d'Hebron
Institute of Research
VHIR

Vall d'Hebron
Barcelona Hospital Campus

Annual Report

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Annual Report

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INTRODUCTION

We believe that our prestige, our reputation and our level of excellence depends on the level of our healthcare, learning and research.

Dr. Vicenç Martínez Ibáñez

General Manager of Vall d'Hebron University Hospital

Our researchers are performing an enormous effort to enhance the quality of their research work every year. Better research means better care for the patients. VHIR's contribution is critical to consolidate the Vall d'Hebron Barcelona Hospital Campus, which is a concept based on the integration of highly talented professionals. We believe that our prestige, our reputation and our level of excellence depends on the level of our healthcare, learning and research.

VHIR plus Vall d'Hebron Institute of Oncology (VHIO), plus the Centre of Multiple Sclerosis of Catalonia (CEMCAT) and, as the core resource, Vall d'Hebron University Hospital, together are stronger, more integrated and better positioned to better define their reality.

The project of a new building for Vall d'Hebron Institute of Research intends to consolidate the relevance of research for our Campus. It means more facilities for the researchers and also great encouragement for the beginners.

The new building is also associated with a new and complete urbanistic plan to improve the accessibility for our patients and our professionals.

Excellent professionals have to be surrounded by an excellent infrastructure.

Dr. Joan Comella

VHIR's Director

The image of this annual report, several hands united, is the perfect metaphor of what 2016 has represented for VHIR

The image of this annual report, several hands united, is the perfect metaphor of what 2016 has represented for VHIR. The year 2016 has pivoted around the union of our researchers, working together to make possible the new distribution of our research areas and collaborating together with other researchers from other centres. All this resulted in the improvement our scientific production, with some highlighted articles described in this multimedia report and represented by the 5 most voted publications according to our Principal Investigators.

This is a union that will for sure be strengthened in the future. A future together that will be illustrated by the project of the new building for our research center.

During 2016 we began the architectonical tender process to choose the best project to build our new spaces and, at the same time, to begin the transformation of the whole Vall d'Hebron. It won't happen easy, it won't happen quick, but it will happen. We already have a winning project and we will start it soon in order to have a new home in the near future.

This new building will represent the possibility of bringing our researchers closer together, of improving our research together, of welcoming new partners and of attracting new talent. A new place with a new face, the place where our researchers wish to be. It will be our new building.

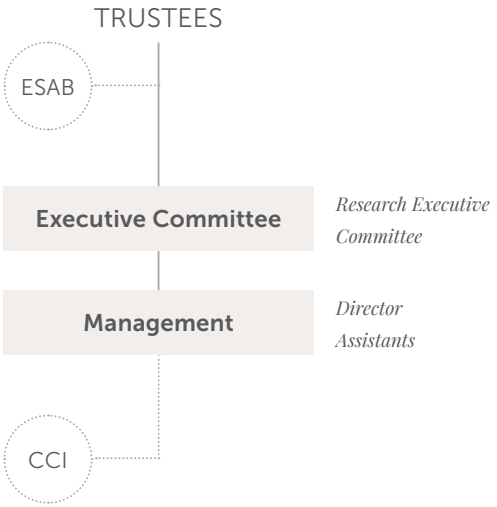
This project can not be conceived without the help from the other institutions of what we call Vall d'Hebron Barcelona Hospital Campus. The creation of our Campus was one of the best news of 2016. It allows us to be stronger, to be one, to be more Vall d'Hebron. Together with the hospital, VHIO and CEMCAT we are already improving our image and we are on our way to become one the most powerful Health Campus in Europe.

Organization chart

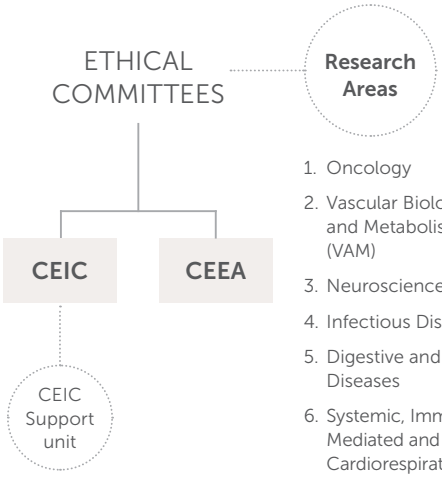
annualreport2016.vhir.org/organization-chart/

The research of today, the medicine of tomorrow

Governing bodies

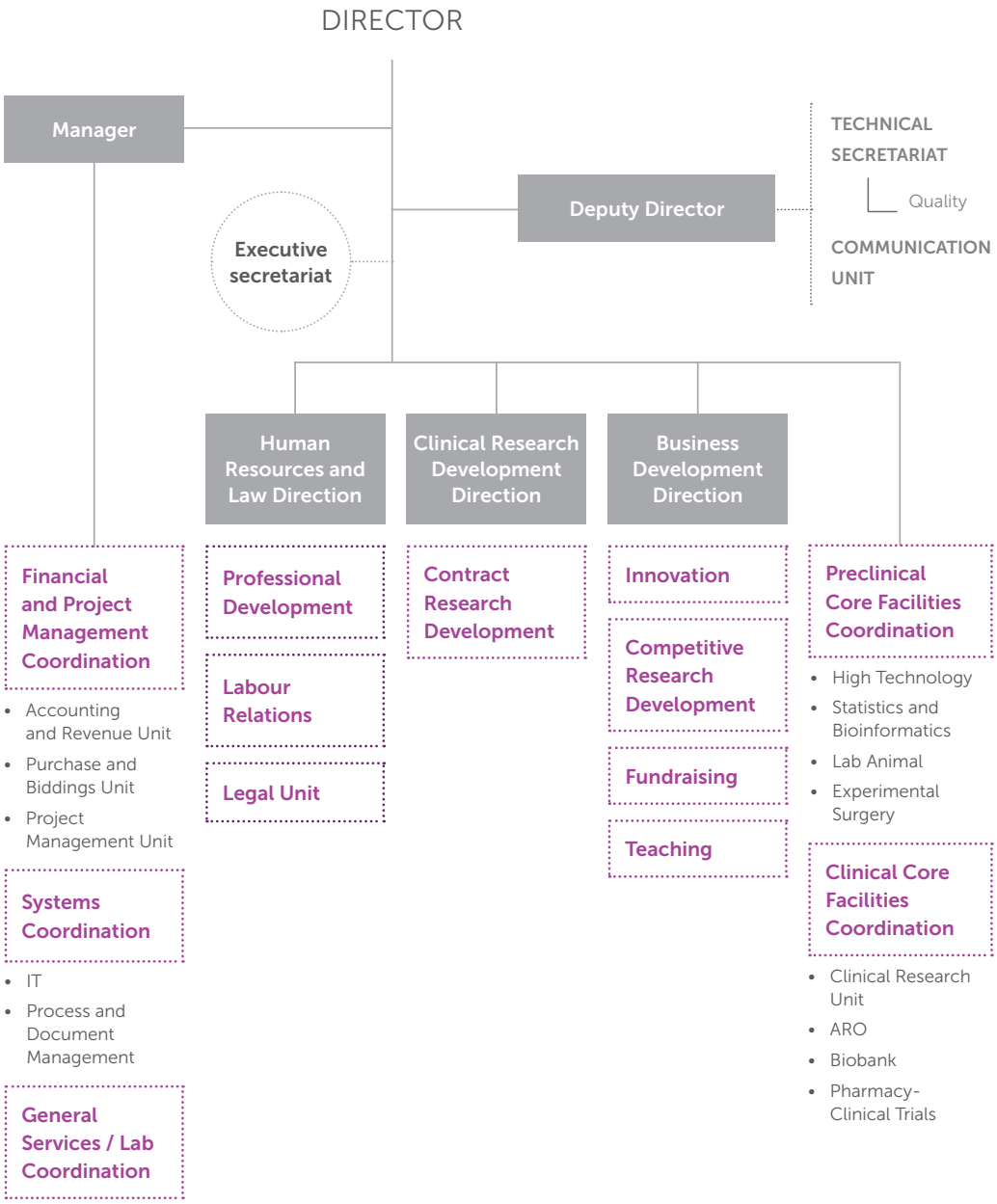


Research



1. Oncology
2. Vascular Biology and Metabolism (VAM)
3. Neurosciences
4. Infectious Diseases
5. Digestive and Liver Diseases
6. Systemic, Immune-Mediated and Cardiorespiratory, Pharmacology and Advanced Therapies (SICARDPATH)
7. Research in Surgery
8. Obstetrics. Pediatrics and Genetics

Administrative Structure



Research Areas

annualreport2016.vhir.org/research-areas

The historical ten research areas were reduced to eight

The beginning of 2016 marked the change of denomination and number of research areas in our institute. The historical division between longitudinal and transversal areas was eliminated and the ten research areas were reduced to eight.

The different groups belonging to the former CIBBIM-Nanomedicine and Epidemiology, Pharmacology, New Therapies & Clinical Research areas were distributed into the new 8 research areas.

Some of the main changes are the creation of the Vascular Biology and Metabolism (VAM) area and the heterogeneous SICARDPATH area, the reorganization of the Surgery and the Obstetrics, Pediatrics and Genetics areas, and the reinforcement of the Oncology, Neurosciences, Infectious and Digestive & Liver Diseases areas respectively. Furthermore, a couple of groups fused or were incorporated to another groups.

All these changes were applied after a long discussion between the direction of VHIR and the Internal and External Scientific Councils.

1. Oncology

Overview

The Oncology research area is composed by nine groups addressing the principal unsolved issues in cancer. Their research covers fields such as child and adolescent cancer, melanoma, Gynecology, Urology, cancer stem cells and the molecular mechanisms of the tumor pathologies.

There are also three groups from the CIBBIM-Nanomedicine. These groups study the use of nanotechnology in biomedical applications to improve therapeutic strategies and diagnostics.

Publications

112
TOTAL

563.294
IMPACT FACTOR

5.029
AVERAGE IF

1.1 **CIBBIM-Nanomedicine. Diagnostic Nanotools (DINA)**

Eva Baldrich

Publications

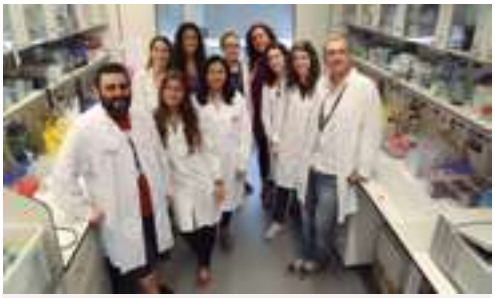
3	10.170	3.390
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

Cibbim-Nanomedicine Diagnostic Nanotools (DINA) was accepted as an **emerging group** by VHIR's Scientific Committee last **February 2016**. The group targets the development of new diagnostic tools for detection of circulating disease biomarkers. This embraces three main objectives: (1) the development of novel electrochemical bioassays and biosensors (more efficient and/or easier to carry out than classical enzyme-linked immunoassays), (2) production of ultrasensitive multiplexed assays by implementing signal amplification strategies, and (3) development of ultrafast assays via assay simplification and the exploitation of enzyme-less detection schemes. DINA participates in the Proyecto de Medicina Personalizada PMP15/00022 funded by ISCIII and leaded by Dr. Joan Montaner (production of a Point-of-Care device for fast detection of stroke biomarkers) and leads the Explora project Bio2016-79379 (production of a synthetic reagent for influenza surveillance).

1.2 **CIBBIM-Nanomedicine. Biomedical Research in Digestive Tract Tumors**

Diego Arango Corro



Publications

2	10.470	5.230
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

During 2016, our group continued to deepen our understanding of the molecular events underlying the tumorigenic process of the digestive tract. We have made significant discoveries aimed at the identification of novel molecular biomarkers capable of predicting the response of colorectal tumors to different chemotherapeutic agents and are currently investigating the role of a family of small GTPases in colorectal and gastric cancer using in vitro approaches, animal models and large cohorts of cancer patients. Over the past 12 months, we have obtained funding from the Instituto de Salud Carlos III for project that will contribute to personalize cancer treatment and from the European Commission as members of a pan-European consortium aimed at the utilization of both nanotechnology and immunotherapy for the treatment of colorectal cancer. In addition, one doctoral thesis was defended during 2016, achieving the highest marks (Excellent Cum Laude).

1.3 **Biomedical Research in Cancer Stem Cells**

Matilde E. LLeonart

Publications

6	33.210	5.530
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

The study of cancer stem cells (CSCs) has shown that tumors are driven by a subpopulation of self-renewing CSCs that retain the capacity to engender the various differentiated cell populations that form tumors. The characterization of CSCs has indicated that CSCs are remarkably resistant to conventional radio- and chemo-therapy. Clinically, the remaining populations of CSC are responsible for metastasis and recurrence in patients with cancer, which can lead to the disease becoming chronic and incurable. Therefore, the elimination of CSCs is an important goal of cancer treatments. Furthermore, CSCs are subject to strong regulation by the surrounding microenvironment, which also impacts tumor responses. We have suggested how different alternative molecular mechanisms are defective in CSCs, and how these ones influence ultimately in therapeutic and clinical outcomes.

1.4 **Biomedical Research in Gynaecology**

Antonio Gil Moreno

Publications

21	85.180	4.260
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

The Biomedical Research Group in Gynaecology promotes a high crosstalk between clinicians and researchers to cover the unmet clinical issues of gynaecological diseases. The most prominent research lines are the **clinical** and the **endometrial cancer research group**, led by **Dr. Antonio Gil**; The **ovarian cancer group**, led by **Dr. Anna Santamaria**; and The endometriosis group, led by Dr. Xavier Santamaria.

In 2016, we highlight our achievements in CEMARK project, a tool to diagnose endometrial cancer. We published Martinez-Garcia et al. Oncotarget; filed an european patent; participated in the Caixa Impulse Program; and were selected for the Mind-the-Gap Program. We unveiled the role of ALCAM in endometrial cancer (Devis et al. J Pathol). In ovarian cancer, we are leading a clinical study to ensure the security and efficacy of the M-Trap, to control the dissemination of ovarian cancer. Our research network has increased thanks to participation in CIBERonc network and in the Gynaecology Tracking Force, created in 2016.

1.5 **Biomedical Research in Melanoma**

Juan Angel Recio Conde and Vicente García-Patos Briones

Publications

3	11.650	3.880
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

Our group investigates the molecular causes of melanoma to design effective therapies against it, in close proximity to patients. Our goal is to translate our discoveries as fast as possible. We have recently described the mutations acquired dermal melanocytic tumors during progression. These results **show the tumor architecture and its genetic heterogeneity and helped to design effective therapies to patients** involved in the studies. In addition, there is an accumulative evidence for aberrant redox state in melanoma. Aldehyde Deshydrogenase (ALDH) isoforms play an important role in a wide variety of metabolic processes including the detoxification of endogenously generated aldehydes. Interestingly, melanoma cells had a consistent elevated activity of ALDH1, showing the stronger correlation between the amount of ROS and the ALDH1 activity, among other tumor types. We are conducting a preclinical study to evaluate antitumoral efficacy of specific ALDH1 inhibitors in melanoma using patient derived cells.

1.6 **Biomedical Research in Urology**

Joan Morote Robles

Publications

16	50.360	3.150
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

We studied the differential expression of miRNAs in Castration Resistant Prostate Cancer (CRPC) biopsies from patients with disseminated PC with different time-intervals-free of castration resistance. The implication of miRNAs in the development of CRPC was studied by the miRNA profile of a cellular model of androgen-independence.

The oncogene PTOV1 role was studied in the development of metastatic CRPC resistance to Docetaxel (D). Its overexpression allow PC cells to overcome toxicity to D, through the activation of genes involved in the resistance to D. PTOV1 is a promising therapeutic target in metastatic PC and a potential predictor of resistance to D.

Proliferative inflammatory atrophy (PIA) is a premalignant lesion of PC. The clinical impact of PIA in negative prostatic biopsies is unknown. We observed that this lesion is associated with lower rate and less aggressive PC, supporting that PIA is associated to lower probability of PC detection and less aggressive tumors.

1.7 **CIBBIM-Nanomedicine. Drug delivery and targeting**

Simón Schwartz Navarro

Publications

12	77.960	6.500
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

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

Several in vitro and in vivo cancer models have been generated by the group for preclinical testing of nanomedicines, including the generation of specific bioluminescent cancer stem cell models. Further, we have generated new polymer nanoconjugates against metastatic cancer showing no toxicity profiles, high in vivo efficacy and industrial transferability. A total of 14 patents have been issued by our group. Three patents from the group are either issued or advanced to National Fases.

1.8 **Translational Molecular Pathology**

Santiago Ramon y Cajal Agüeras

Publications

22	157.620	7.160
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

Our group is interested in identifying new factors that confer resistance to cellular stress in tumor cells. They can be inhibited and become novel therapeutic targets. We focused on the association between the phosphorylated form of the eukaryotic translation initiation factor (eIF4E), we published that confers resistance to nutrient deprivation, oxidative stress and cisplatin treatment. We worked on the design and production of new MNK1/2 inhibitors as novel therapeutic in collaboration with IQS. Also on the functional characterization of ITGB3 as therapeutic target. This Integrin was identified translationally upregulated in hypoxia, enhancing the TGFbeta pathway in breast tumoral cells. We are interested in the regulation of gap junctions in cancer and disease, especially in the study of the mechanisms which regulate the protein synthesis of the several isoforms. Finally, we are starting a new line of research to study intratumoral heterogeneity and its role on tumorigenesis and generation of metastasis.

1.9 **Translational Research in Child and Adolescent Cancer**

Josep Sánchez de Toledo

Publications

14	67.980	4.860
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

In 2016, the group of Translational Research in Child and Adolescent Cancer has consolidated their research lines: research on Soft Tissue Sarcomas (e.g. Rhabdomyosarcoma), Neural tumours (e.g. Neuroblastoma, Ependymoma) and the program of personalized medicine. This research yielded the publication of 14 new international papers (85% of them in first quartile). Moreover, the group was awarded with a grant from ACCIO and FEDER funds (RIS3CAT), in collaboration with 5 of 7 biotechnological industries included in the consortium. The group has continued with the consolidated collaborations with biotech companies to test and develop new therapeutic tools against the most aggressive pediatric solid tumors. During 2016, 2 new agreements were signed with biotech companies.Furthermore, the concession of a post-doctoral grant (Juan de la Cierva, MINECO) has strongly potentiated the recently established research line on cerebral tumors. Additionally, a predoctoral fellowship from AGAUR was also recently awarded.

2. Vascular Biology and Metabolism (VAM)

Overview

The Vascular Biology and Metabolism (VAM) area was created to enable a comprehensive, cooperative and multidisciplinary approach to research, development and transference of solutions for a group of diseases that are the leading cause of morbidity and mortality in the world: cardio- and neurovascular diseases, diabetes-metabolic syndrome and kidney failure.

This area also includes a group focused on Ophtalmology research and the Medical Molecular Imaging multidisciplinary group.

Publications

200
TOTAL

1,047.220
IMPACT FACTOR

5.236
AVERAGE IF

2.1 **Cardiovascular Diseases**

David García-Dorado García

Publications

94	533.597	5.680
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

The article *Targeting reperfusion injury...* published in the Eur Heart J, reflects the international leadership of our group in the field of ischemia-reperfusion injury.

The article of *losartan vs. atenolol*, published in the Eur Heart J., is an example of independent clinical trial that exemplifies the strength of our group in investigator driven clinical research.

The project PIE13/0027, with participation of 8 VHIR groups illustrates our leadership in cooperative translational research in the field of cardiovascular diseases.

The organization of the **Ischemic Conditioning Meeting,** with participation of the most important scientists in the field of reperfusion injury, demonstrates the international recognition of our group in the fields of cardioprotection.

We expect that **CARDIOCALP** patent will serve as a basis for the development of an oral treatment to attenuate adverse left ventricular remodeling secondary to myocardial infarction, or mechanical overload.

2.2 **Ophthalmology**

José García Arumí

Publications

3	14.830	4.940
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

The Ophthalmology Research group is focusing its research activity on the investigation of new therapies for the treatment of the main degenerative retinal diseases: diabetic retinopathy (DR), age-related macular degeneration (AMD) and retinitis pigmentosa (RP). During 2016, the group has published the results obtained in the project "Cell therapy with retinal pigment epithelium cells and photoreceptors differentiated from pluripotent stem cells in a rat model of RP", funded by "La Marató de TV3". Moreover, a new PhD student has been incorporated and is currently working on the generation and characterization of a new mouse model of AMD that will be used for the study of nanoparticle-based anti-oxidant therapies and stem-cell therapies during next years. Finally, in the clinical field, several clinical trials have been initiated in the Ophthalmology service, 4 in a phase I and 5 in a phase IV, in collaboration with international groups and supported by public and private companies.

2.3 **Diabetes and Metabolism**

Rafael Simó Canonge

Publications

27	118.280	4.380
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

The most important milestone in 2016 has been the demonstration that topical administration of somatostatin is able to arrest the progression of retinal neurodegeneration in type 2 diabetic patients. This is the main result of the EUROCONDOR project (FP7-278040, Coordinator: R. Simó). In addition, 24 manuscripts have been published, and the most important results have been presented in international meetings.

Projects. We have finished the EUROCONDOR project in due time. In addition, the following collaborative international projects are ongoing: e-Predice (FP7-279074), 2 projects granted by the EFSD (European Foundation for the Study of Diabetes), and MOPEAD (H2020-IMI2-115985). Moreover, we are implementing the following national projects: PI13/00603, DTS15/00151, LIRALUNG, PIE13/00027, and PIE14/0061. Furthermore, 3 new national projects have been founded (PI16/00541, SAF2016-77784, Fundació Marató TV3).

Innovation. We currently deal with 5 patents (4 have already entry in national phases).

2.4 **CIBBIM- Nanomedicine. Kidney Physiopathology**

Anna Meseguer

Publications

11	40.930	3.720
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

In 2016 we have consolidated projects in rare kidney diseases. Dr. Gema Ariceta is now leading the only Spanish center member of the European Reference Network for Rare Kidney Diseases (ERKNet), that will lead the future translational research on this area. In the renal cancer research line, we received the "2016 Kure it-AACR Research Grant for Immunotherapy in Kidney Cancer" from the American Association for Cancer Research and obtained two patents granted in USA and Europe that are ready to be executed. In the chronic kidney disease research line, we have obtained relevant information on the way kidney can modulate the effects of a high fat diet, preventing the metabolic syndrome, and identified sexually dimorphic patterns of gene expression in injured/regenerated pig and mouse kidney, upon ischemia/reperfusion events. The group has been included in three of the four Transversal Research Programs at VHIR and incorporated foreign Ph.D. students from Canada and Mexico.

2.5 **Medical Molecular Imaging**

Joan Castell Conesa

Publications

12	37.130	3.090
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

During the year it has been continued the work on cardiovascular and metabolic research lines, especially in the line of insulin resistance and inflammatory and infectious diseases. It has also been developed the program SMARTOOL: simulation modeling of coronary artery disease: a tool for clinical decision support. Moreover, pre-clinical molecular imaging studies have begun with PET-CT equipment in the general area and the image platform for animals project has been developed with the enlargement of the radioactive installation of nuclear medicine facilities in the Cellex building. It has been achieved a FIS grant, and in the area of clinical trials, activity remains in medical imaging and testing and participation has begun in radionuclide therapy trials.

2.6 **Nephrology**

Daniel Serón Micas

Publications

13	39.050	3.000
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

Number of transplants increased to 130 and research has focused on renal allograft histology. In a study with Oslo we characterized the relationship between early graft inflammation and de novo donor specific antibodies. We have continued a collaboration with Edmonton evaluating the use of microarrays in the diagnosis of renal allograft biopsies. A study evaluating the utility of immunoglobulins and rituximab to treat chronic humoral rejection has yielded negative results. The group is part of the National Renal Network (REDinREN) and participated in the Precised study to characterize subclinical cardiovascular disease in type 2 diabetes and works in projects related to endothelial dysfunction in kidney transplants, biomarkers in IgA nephropathy and focal segmental glomerulosclerosis. We have increased our biobank collection of renal transplants and hypertensive patients and we have participated in clinical trials in the areas of transplantation, diabetic nephropathy and renal anemia.

2.7 **Neurovascular Diseases**

Anna Rosell Novel

Publications

60	389.310	6.490
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

During 2016 we have initiated several multicentric national and international projects in prevention, biomarkers of stroke and its prognosis, in neurorehabilitation and in the diagnosis of cerebral amyloid angiopathy. We have completed the first four years of follow-up of the ISSYS extending our research into biological and imaging markers related to the presence and progression of the silent cerebrovascular disease and cognitive impairment. In the field of stroke genetics' we have completed a study with 2000 patients analyzed by GWAS identifying a gene associated with the functional recovery after stroke, highlighting the role of epigenetics. And we have shown safety and efficacy of combining simvastatin with tPA t in acute stroke treatment in humans.

At the preclinical level we have developed different strategies to restore the neurovascular function after stroke, to enhance neurorepair and to study the mechanisms involved in both ischemic and hemorrhagic stroke injury.

3. Neurosciences

Overview

The Neuroscience area is consolidating its position as one of the largest clusters of research labs working on neurological diseases across Europe. Thirteen groups are currently part of this area, working closely with top clinicians at the hospital. The area encompasses different aspects related to neuroscience, such as neural development, neurodegeneration, neuroimmunology, neurological pain, mental health, neurosurgery or pediatric neurology.

There are groups also focused on cell signaling and apoptosis and translational bioinformatics.

Publications

184

TOTAL

1,062.077

IMPACT FACTOR

5.722

AVERAGE IF

3.1 Clinical Neuroimmunology

Xavier Montalban Gairín

Publications

47	404.160	8.600
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

The Group worked in clarifying the role of the symptomatic lesion in the diagnosis and prognosis of multiple sclerosis (MS), data that may impact on the new diagnostic criteria. We found an association between early clinical and radiological activity during treatment and disability. We focused on MRI brain volumetry, the prognostic implications of pathological brain volume loss, and the clinical implications of retinal thinning. We found that radiological phenotypes with high neurodegeneration were associated with changes in B cell activation. We confirmed the prognostic value of NFl in clinically isolated syndromes and demonstrated their correlation with atrophy. We identified sema7A as MS therapeutic target and myeloid-derived suppressor cells as therapeutic strategy to induce tolerance in MS. We completed the recruitment of a single-centre phase I trial with alemtuzumab in progressive MS. We focused on the benefits of physiotherapy as add-on therapy to steroids in relapse treatment.

3.2 Cell Signalling and Apoptosis

Joan X. Comella Carnicé

Publications

5	29.550	5.910
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

Our work has mainly focused in the characterization of the physiological roles of the death receptor antagonist, FAIM-L. We have evidenced its interaction with other proteins, particularly XIAP and Siva-1. For the first time we confirmed that FAIM-L is involved in neuronal plasticity processes, such as pruning and long term depression, through stabilization of XIAP levels. These results, added to the previous finding of our group that FAIM-L controls neuroinflammation in Alzheimer's disease models by modulating TNF effects, allows to position FAIM-L as an interesting target for the treatment of the disease. We have also characterized new FAIM isoforms, one of them specific of neurons, which could be important for the control of FAIM-L levels and mode of action. As new ongoing projects, we are investigating the role of FAIM-L in other pathological situations, such as diabetic retinopathy, in collaboration with other VHIR groups, and developing new in vivo FAIM models.

3.3 **Gene Therapy at Nervous System**

Miguel Chillón Rodríguez

Publications

0	0	0
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

We are a group with a translational view of the research. Our three main research lines are:

1) Gene therapy strategies for neurodegenerative disorders; **2)** Gene Therapy strategies for Autoimmune Diseases; and **3)** Development of New Viral Vectors.
During year 2016 we have been granted with a Marató TV3 project, and have active the following grants: ISC-III (#PI15-01270); Comunitat RIS3CAT-Salut (COMRDI 15-1-0013-16); and ACCIÓ-TECDTP15-1-0007.
In addition, our group is running the Vector Production Unit (UPV), one of the most important gene therapy cores in Spain.

The research from our group (based on our recent patent EP15195470.8) allowed us to create in 2016 a start-up on Biomedicine (Kogenix Therapeutics, Inc), which is the first start-up company participated by public spanish institutions (UAB, ICREA and the University of Boston) and created in a foreign country.

Finally, during 2016 we have incorporated into our group one senior postdoc, one PhD student, and one Technician.

3.4 **Headache and Neurological Pain**

Patricia Pozo Rosich

Publications

7	49.160	7.020
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

During 2016, we have focused on studying migraine through different approaches: Genetics, Neurophysiology and Neuroimaging. Our research lines are about: Increase our understanding of brain adaptive processing and sensory networks; link genetics and epigenetics to brain adaptive function; develop non-invasive monitoring of migraine as a way of increasing self-awareness and co-responsibilization of sufferers; find novel therapeutic strategies to improve life quality of patients; study brain adaptation in children and teenagers in schools to understand non-cognitive traits and sensory-cognitive networks; and finally educate teenagers and adults in headache and its management.

We have started a strong research collaboration with UCLA and continued participating in the International Headache Genetics Consortium. We are finishing 6 phase III clinical trials, with 10-25 patients per trial, to study new treatments for migraine and chronic migraine, among others. We are also about to start 5 new clinical trials.

3.5 **Magnetic Resonance and Neuroradiology**

Alex Rovira Cañellas

Publications

32	179.610	5.610
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

Diagnostic criteria of multiple sclerosis with MRI. Our group participated in an international panel of experts who proposed modifications to MRI criteria for multiple sclerosis (MS) diagnosis, and provided new evidence that have an impact in the redefinition of these criteria.

Our group led a European initiative to provide guidelines for the implementation of MRI of the brain and spinal cord in the diagnosis and monitoring of MS.

MRI in monitoring treatment response in multiple sclerosis with MRI. Our group participated in a European study that analyze the value of MRI in predicting treatment response in MS patients.

MRI in assessing the neurodegenerative component of multiple sclerosis. We also participated in a study that analyzed the mechanisms leading to neurodegeneration.

Quantitative MRI as a biomarker in monitoring multiple sclerosis. Our group has worked in the development and implementation of automated tools in the assessment of brain lesion load in MS.

3.6 **Neuronal Development and Regeneration**

Eduardo Soriano García

Publications

10	65.800	6.580
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

During 2016, in collaboration with Dr. Jen Luders, we have demonstrated that microtubule organization in post-mitotic neurons depends on non-centrosomal nucleation mediated by augmin and by the nucleator γTuRC. Disruption of the complex reduces microtubule density and bunding, impairs neurite formation, axon specification and growth, and disrupts axonal trafficking. Thus, the augmin-γTuRC module is necessary to generate and maintain microtubule organization and polarity in neurons.

We have addressed the role of Reelin in adult-generated granule cells (GCs) synaptic contacts; crucial for learning, memory, and neuropsychiatric diseases. The Reelin pathway controls the shapes, sizes, and types of dendritic spines, the complexity of multisynaptic innervations and the degree of the astroglial ensheathment that controls synaptic homeostasis. These findings show a pivotal role of Reelin in GC synaptogenesis and provide a foundation for structural circuit alterations caused by Reelin in neurological disorders.

3.7 **Neurodegenerative Diseases**

Miquel Vila Bover

Publications

7	78.536	11.220
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

In 2016 we have continued our studies on the pathogenicity of α-synuclein and its potential role on neuron dysfunction/death in Parkinson's disease. We have also continued developing therapeutic tools to interfere with α-synuclein-mediated neurotoxicity. In addition, we have shown that transplantation of hematopoietic stem and progenitor cells (HSPCs) in the substantia nigra of Parkinson's mouse models ameliorates dopaminergic neuron loss and motor function. Transplanted HSPCs fuse with neurons and with glial cells in the ventral midbrain of Parkinson's disease mice. The hybrids can undergo reprogramming in vivo and long-term survival after transplantation, while acquiring features of mature astroglia. Newly generated astroglia were essential for the rescue of dopaminergic neurons. Glial-derived hybrids produced upon fusion of transplanted HSPCs in the substantia nigra can rescue the Parkinson's disease phenotype via a niche-mediated effect and can be an efficient cell-therapy approach for this disease.

3.8 **Neuromuscular and Mitochondrial Pathology**

Ramon Martí Seves

Publications

13	59.220	4.560
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

Our main achievements during 2016 can be summarized in three different areas:

- We demonstrated the long-term efficacy of our gene therapy strategy MNGIE in a preclinical model, both for the strategy based on a lentiviral vector (Torres-Torronteras et al, Hum Gene Ther, 2016), as well as for the AAV vector (Torres-Torronteras et al, manuscript in preparation).
- We achieved significant advances into the pathophysiology of McAredle disease by studying the mouse model generated in our laboratory, in collaboration with John Vissing's group (Krag et al, Am J Physiol 2016, and J Neuropathol Exp Neurol 2016). In this area, we have obtained Orphan Drug Designation for two potential treatments of McArdle disease.
- One of our patents (PCT/US16/038110 "Deoxynucleoside therapy for diseases caused by unbalanced nucleotide pools including mitochondrial DNA depletion syndromes") has been licensed to a company (Meves Pharmaceuticals) and it is currently under exploitation.

3.9 **Neurotraumatology and neurosurgery (UNINN)**

Joan Sahuquillo Barris

Publications

18	97.410	5.410
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

In 2016, we described the ionic profile of cerebral edema in acute brain injuries and we reported the range of reference of some biomarkers involved in brain ischemia. We also established the reference levels for energy metabolites in the extracellular fluid of the human brain, which is crucial to reconsider the traditional thresholds. Our group contributed to the results of the randomized clinical trial on the value of decompressive craniectomy in the treatment of refractory intracranial hypertension (RescueICP trial). We also participated in the consensus conference published from the COSBID consortium on the cortical spreading depolarizations presented by many neurocritical patients. In addition, we were able to establish an experimental model of focal ischemia in gyrencephalic mammal that opens new opportunities to explore the pathophysiology and therapeutic options in ischemic stroke. Our group has published several articles on neurooncology, neurovascular pathologies and Chiari malformation.

3.10 **Pediatric Neurology**

Alfons Macaya

Publications

18	82.910	4.610
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

We have focused our activity in the molecular characterization of ultrarare, genetically heterogeneous neurological phenotypes occurring in children, including early infantile epileptic encephalopathies, congenital ataxias, leukodystrophies and hereditary paraparesis. We have concentrated in developing optimal pipelines for genomic data analysis and identifying novel mutations and phenotypes. In the field of neuromuscular disorders, we have continued to apply NGS, supported by whole body MRI, to the molecular diagnosis of patients with early-onset neuromuscular disorders. Also in the field of neuromuscular disorders, we have identified specific molecular pathways by which estrogens reduce inflammation and improve muscle function in Dystrophin-deficient muscles and we started to analyze their potential benefit in some congenital myopathies that share pathogenic mechanisms. Also, we have demonstrated that functionalized silica nanoparticles are retained in dystrophic muscles after systemic administration in the mdx mice and after focal muscular injury, supporting its suitability as carriers for muscle drug delivery.

3.11 **Peripheral Nervous System**

Josep Gamez

Publications

4	11.920	2.980
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

In 2016, our research group has focused its main research to the determination of genetic risk factors in ALS and myasthenia gravis. We have been among the top-recruiting sites investigating the efficacy and safety of new masitinib drug in ALS (phase II/III trial), with promising preliminary outcomes and obtained positive results in a proof-of-concept trial in TTR familial amyloid polyneuropathy (68th AAN 2016 Meeting, Vancouver). These results have encouraged a future multicentric phase III study with SOM0226 in TTR FAP. In June 2016, the group commemorated the International ALS Day meeting that gathered patients, relatives and professionals with the aim of expanding disease knowledge and remarking the importance of funding microdonations. In December 2016, results on our neuropsychological study protocol in ALS were exposed in the 27th International MNDA Symposium in Dublin. Dr Gamez (ALSuntangled member), has actively participated in the publication of scientific research data on MND off-label treatments.

3.12 **Psychiatry, Mental Health and Addictions**

Miquel Casas Brugué

Publications

47	140.510	2.990
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

Our group is a multidisciplinary team that over the past 12 years has focused on the research of pathogenetic, clinical and therapeutic aspects of:

- Neuro-psycho-development disorders (emphasis on Attention Deficit Hyperactivity Disorder)
- Personality Disorders (emphasis on borderline personality disorder)
- Addictive Behaviors (emphasis on Dual Pathology and smoking)
- Transcultural Psychiatry

These pathologies are characterized by deficits in basic mental functions, high impulsiveness, learning difficulties, behavioral disorders and addictive behaviors that, appearing in the infant stage and having a maximum emergence in adolescence, extend into adulthood and old age, conditioning most of the maturational and adaptive processes that characterize the human being and limiting the possibility to enjoy an autonomous, cooperative and healthy life, contemplating the various peculiarities that differences between races, cultures and religions imprint the pathoplasty of these disorders.

3.13 Translational Bioinformatics

Fco. Xavier de la Cruz Montserrat

Publications

5	22.200	4.440
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

The applicability of Next-Generation Sequencing (NGS) is limited by the inability of computational tools to identify causative mutations among the many variants carried by patients. This is very serious, for example, in the case of Rare Disease patients, who hope NGS will reduce their "diagnostic odysseys". To solve this problem, we are making an effort to develop better bioinformatics tools to increase the medical value of NGS. In this context, we have discovered (Riera et al., Hum. Mutat. 37:1013-1024) a key principle in the interpretation of causative mutations. An immediate consequence of this principle is that it can improve the design of strategies specific for every healthcare stakeholder. The value of our results has been recognized by the editor of Human Mutation who highlighted our work saying that (vol. 37, p989): "... The results are important both for method developers and users. By knowing what kind of method to apply, one will obtain more reliable and applicable results..."

4. Infectious Diseases

Overview

The aim of the seven groups of this area is to improve the outcomes of patients with infectious diseases. The Epidemiology and Public Health group is mainly focused on the epidemiology and prevention of healthcare acquired infections, transmissible infections and on the new preventive vaccines. The Infectious Diseases group focuses on improving the strategies of clinical problems observed in clinical practice. Microbiology studies mechanisms of resistance to antimicrobials, pathogenicity, taxonomy and epidemiology, and infectious diseases diagnostics.

The CRIPS group focuses on the most prevalent aspects of infections in the intensive care unit (ICU), while SODIR group works in the areas of shock, organ dysfunction and resuscitation.

There is also a group focused on infection in immunocompromised pediatric patients, and a group from the CIBBIM-Nanomedicine interested in the synthesis, characterization and applications of engineered inorganic nanoparticles in the field of medicine.

Publications

162

TOTAL

675.589

IMPACT FACTOR

4.170

AVERAGE IF

4.1 **Clinical Research/Innovation in Pneumonia and Sepsis (CRIPS)**

Jordi Rello Condomines

Publications

29	91.760	3.160
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

In 2016, the CRIPS research group has achieved a high degree of multidisciplinary work and internationalization, in collaboration with foreign centers. We also implemented mentoring in research from ESCMID and ESICM. We reported long period studies, such as a phase II RCT with a vaccine to prevent *Pseudomonas* infections. Seven doctoral thesis were ongoing. The project of SR & MA on nebulized antibiotics had a third literature search in July 2016 and the final report plus two ESCMID Position Papers are expected to be published in 1Q-2Q 2017. All these research projects, as well as the participation in the DMC of an IMI-Program from Horizon 2020, in collaboration with InterImmune, are part of the milestones for the new CIBERES ICP of Pneumonia. We analyzed the data from the PLUTO project, involving ICUs from the 7 hospitals performing Lung transplant in Spain with, to be reported in 1Q 2017. Finally, we progressed in developing different theragnostic paradigms, contributing to personalized medicine in pneumonia.

4.2 **Epidemiology and Public Health**

Magda Campins Martí

Publications

16	49.280	3.080
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

During 2016, the group presented three doctoral theses and began its participation in a clinical trial to study the effectiveness of maternal immunization against RSV. We continue working in other important projects related to vaccines, as the european consortium for the development of a universal vaccine against flu (Flutcore), the study of influenza vaccination coverage and influenza-associated morbidity in pregnant women, the cost-benefit evaluation of two vaccination strategies to prevent pertussis, the study of incidence and hospitalization due to herpes zoster in Catalonia and the clinical evaluation of a new vaccine against herpes zoster in immunocompromised patients.

Among other lines of work, we highlight: the update of the Study of Prevalenceof Nosocomial Infections in Spain (Epine 2016) involving 294 hospitals, and the collaboration with the Multiple Sclerosis Center of Catalonia in the study of incidence and prevalence of multiple sclerosis based on the epidEMcat registry.

4.3 **Infection in Immunocompromised Pediatric Patients**

Pere Soler Palacin

Publications

22	74.340	3.380
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

The group has made an important step forward this 2016. We have incorporated new members and we are currently leading national and European projects on Zika infection in children and Primary Immunodeficiencies. The consolidation of the group has allowed our involvement in eight currently active clinical trials and a significant increase in the number of publications and its resulting impact factor. During 2016, the Federation of Clinical Immunological Societies (FOCIS), the European Reference Network (ERN-RITA), the European Society of Immunodeficiencies (ESID) and the Jeffrey Modell Foundation (JMF) have recognized the excellence of our group. Moreover, we have five-fold increased our funding from the 2008-2013 to 2014-2016 period. Finally, our close relationship with the patients' associations and regional foundations brings a central role to patients and their families in conducting responsible research.

4.4 **Infectious Diseases**

Benito Almirante Gragera

Publications

65	285.090	4.390
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

During 2016 our Group has developed projects related to new therapeutic options for multi-resistant bacterial infections. Among which we highlight: electric stimulation to eradicate microorganisms in the biofilms of prosthetic devices and epidemiology and therapy of tropical diseases in our country (with prognosis of infections in immunocompromised patients and assessment of new strategies for antiretrovirals). We have published 79 articles in indexed biomedical journals and obtained 3 projects with competitive funding (800.00€ of amount awarded).

We established synergies with various national and international groups, through 3 Cooperative Research Networks from the Health Institute Carlos III (REIPI, RIS and RICET). Collaboration agreements with organizations such as IBEC international research groups, and agreements about international health. We also developed a new line of research in the field of basic and translational research related to HIV eradication in patients infected with this virus.

4.5 **Microbiology**

Tomàs Pumarola

Publications

37	166.290	4.490
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

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

Our main research lines are:

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

4.6 **CIBBIM- Nanomedicine. Pharmacokinetic Nanoparticles**

Victor Franco Puntes

Publications

15	94.330	6.290
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

During 2016 the group has started working in multimodality in the framework of the EU Funded project INNOCENT, *Innovative Nanopharmaceuticals: Targeting Breast Cancer Stem Cells by a Novel Combination of Epigenetic and Anticancer Drugs with Gene Therapy (2017-2019).* This is related to our new US patents on 2016, Thermotherapy method to treat Antimicrobial Resistant Infections, where we apply the principles of *multimodal* NanoOncology to multiresistant bacteria. Thus, in order to reinforce the multimodal approach, we started a new research line on NPs for radiotherapy and X-ray imaging in collaboration with the CIBBIM preclinical platform and incorporating a physicist with the Juan de la Cierva program. Connecting the radio and the biochemical approaches we are studying CeO2 NPs which are good contrast agents for radio therapy and imaging and which have outstanding antioxidant properties that we observed in the treatment of cirrhotic livers.

4.7 **Shock, Organ Dysfunction and Resuscitation (SODIR)**

Ricard Ferrer Roca

Publications

23	93.210	4.050
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

The line of research in sepsis (J.C. Ruiz-Rodriguez) has participated in the Surviving Sepsis Campaign guidelines for the treatment of sepsis and septic shock (R. Ferrer) and has created in collaboration with the Microbiology Group the Sepsis Bank (J.C. Ruiz-Rodríguez). Also, SODIR is interested in research of early identification of the microorganism responsible of sepsis.

The line of research in acute respiratory failure (O. Roca) studies the involvement of the interleukin 33 and its ST2 receptor in acute lung injury and its role as a possible therapeutic target. Another issue of interest is the use of high flow nasal cannula supportive therapy (JAMA 2016;315:1354-1361) and the use of esophageal pressure to guide mechanical ventilation settings in patients with acute respiratory distress syndrome.

SODIR has incorporated a line of clinical research on acute renal failure (M. Pérez) and has created the Clinical Research Unit (R. Ferrer) to professionally promote the group's participation in clinical trials promoted by the industry."

5. Digestive and Liver Diseases

Overview

The Digestive & Liver Diseases research area is composed by four groups, whose main goal is the study of the Digestive System diseases. In the Physiology and Pathophysiology of the Digestive Tract group, the gastroenterology line investigates the integrated function of the intestinal tract including secretion, motility and absorption in health and disease. It also studies the interactions of intestinal inflammation with some aspects of enteric flora in inflammatory bowel disease. The liver diseases group deals with viral hepatitis and liver cirrhosis and its complications. And the digestive transplants group studies mostly liver transplantation and the quality of life after it.

This area includes as well the health care research group. The aim of this group is to generate knowledge in the specific area of activity of nurses and collaborate with other health professionals to improve care given to patients.

Publications

91
TOTAL

547.770
IMPACT FACTOR

6.019
AVERAGE IF

5.1 **Digestive Transplants**

Ramón Charco

Publications

4	22.290	5.570
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

Our research is focused on immunosuppression in adult and paediatric liver transplantation and treatment of hepatocarcinoma on cirrhosis. The new research lines are microbiota on liver transplantation and molecular profiling in resectable colorectal liver metastases.

Our group has been a leader in the use of new immunosuppressants in liver transplantation and evaluating their effects in the follow-up. We are the only Spanish center participating in a clinical trial within the Pediatric area. We are also investigating patient's evolution after more than 20 years of transplantation.

We aim to understand the types of intestinal microbiota in cirrhotic patients until the 1st year post-transplant, detecting the presence of bacterial DNA in blood and lymph splanchnic as confirmation of its alleged role in liver function through enteroportal circulation.

Molecular profiling in colorectal liver metastases including KRAS, BRAF, PIK3CA, MET, HER2 and MSI aims to assess prognosis in the preoperative setting compare to clinical and histological factors.

5.2 **Health Care Research**

Carme Fuentelsaz-Gallego

Publications

2	6.890	3.445
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

In 2016, the research group in health care has worked mainly in the preparation of manuscripts of finished projects. Also has worked in the elaboration of PhD thesis. One of them has done Esperanza Zuriguel-Pérez, whit a project: "assessment of critical thinking in hospital nurses, according to the circular model of Alfaro-LeFevre"; has obtained the title of doctor of Nursing Sciences at the University of Barcelona.

5.3 **Liver Diseases**

Rafael Esteban Mur

Publications

57	391.090	6.860
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

One of the most relevant features of 2016 for the group has been the consolidation of our international role both in viral hepatitis and advanced chronic liver disease, participating and coordinating several international consortia in these fields. Also the increasing participation of members of the group in H2020 projects and the remarkable success in obtaining human resources in national competitive grants.

5.4 **Physiology and Pathophysiology of the Digestive Tract**

Fernando Azpiroz Vidaur

Publications

31	150.630	4.860
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

The research activity has produced important milestones, as follows. Demonstration of somatic manifestations of functional gut disorders, particularly in relation to the pathophysiology of abdominal distension and rumination. Discovery of structural alterations in the intestine of patients with irritable bowel syndrome; these data sustain our working hypothesis that considers "functional gut disorders" as idiopathic organic diseases. Discovery of microbial signature in specific gastrointestinal disorders: our group has contributed to the construction of the largest human microbiome gene catalogue, which consisted of 10 millions of non-redundant genes extracted from 1200 individuals. These research milestones have attracted much interest of the social media (internet, TV, radio, magazines). Furthermore, the group has a strong representation in Scientific Societies and International Organizations.

6. SICARDPATH

Overview

The Systemic, Immune-mediated and Cardiorespiratory Diseases, Pharmacology and Advanced Therapies (SICARDPATH) is an heterogeneous area composed by both translational and clinical research groups which cover fields such as immunology, respiratory and systemic diseases, pharmacology, molecular diagnosis, heart repair and advanced therapies. Its main strength derives precisely from this heterogeneity and the complementarity of the scientific interests and expertise of the different groups, many of which are currently joining efforts and synergizing in a variety of collaborative research projects.

Publications

143

TOTAL

581.328

IMPACT FACTOR

4.065

AVERAGE IF

6.1 **Cell and Gene Therapy**

Jordi Barquinero Mañez

Publications

3	13.340	4.480
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

In collaboration with the group of Clinical Neuroimmunology we found that *ex vivo* generated myeloid-derived suppressor cells (MDSCs) transduced with a self-antigen induced tolerance and participated in the therapeutic effects previously described in mice with experimental autoimmune encephalomyelitis, the model of multiple sclerosis. These cells induced apoptosis *in vitro* in $CD4^+$ T cells from EAE mice and increased the proportions of B cells with a regulatory phenotype *in vivo* (*Exp Neurol*, 2106). As a continuation of this work we investigated novel methods of generating human MDSCs *in vitro*. We demonstrated that they can be efficiently produced from peripheral blood mature ($CD14^+$) monocytes and $CD34^+$ hematopoietic progenitors. These MDSCs had a reduced allogenicity, expressed PD-L1 and were immunosuppressive in vitro. These results were published in *Immunol Cell Biol*. Finally, we generated an iPSC-based cellular model of the Royal disease.

6.2 **Clinical Pharmacology**

Luisa Ibáñez Mora

Publications

16	76.250	4.770
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

The main achievement in 2016 has been the contribution to "The European Consortium "EU PE&PV Network" (European Pharmacoepidemiology and Pharmacovigilance Network)". Its maintained contribution to the ENCePP (European Network of Centers for Pharmacoepidemiology and Pharmacovigilance) and to the Spanish Pharmacoviglance system chairing its Technical Committee since May 2016. The research lines have been reorganized into Effectiveness, outcomes and benefit/risk of the use of medicines in clinical practice; Pharmacovigilance; Patterns, epidemiology and treatment of painful conditions. Some of the project outputs have been spread through @ FundacioICF twitter account. The group has had international training activities through its participation in the European master of pharmacoepidemiology (Eu2P) and fellow researchers. All the group participated in the organization of the XXIX Congress of Spanish Society of Clinical Pharmacology held in Barcelona in October. The group coordinator has been renewed.

6.3 **Diagnostic Immunology**

Ricardo Pujol Borrell

Publications

11	52.890	4.810
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

The application of advanced molecular genetics and functional analysis is revealing that autoimmunity and immunodeficiency coexist and mechanisms are being identified. There is also a confluence of these areas within our groups. During year 2016 this was reflected in the publications, e.g. Colobran R et al *AIRE genetic variants and predisposition to polygenic autoimmune disease: The case of Graves' disease and a systematic literature review. Hum Immunol. 2016:643-51 and Colobran R et al. Clinical and structural impact of mutations affecting the residue Phe367 of FOXP3 in patients with IPEX syndrome. Clin Immunol. 2016; 163:60-5.* This confluence was also discussed in by the team at the Spanish Society of Immunology Meeting in Alicante. Frustration subsists because so far, most of the identified mechanisms only apply to the men Delian autoimmune diseases that are very rare; the new group projects are focused on dissecting immune regulatory mechanisms underlying both types of diseases.

6.4 **CIBBIM - Nanomedicine Immune Regulation and Immunotherapy**

Joan Sayós Ortega

Publications

1	4.890	4.890
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

In 2016 we have been working in the conclusion of two projects related with the role of the CD300 molecules in demyelinating diseases and the molecular and functional characterization of CD300f physiological ligand. In this year our Group has engaged in new research projects, focusing its interest in diverse aspects of the Immune response, including tumor immunology and the role of innate immune system in diabetes and metabolic disorders. In collaboration with Dra. Anna Meseguer, head of the Renal Physiology Group we requested and obtained funding for a project of the American Association for Cancer Research (AACR). The project entitled "Could TIM-1 constitute a new target for renal carcinoma immunotherapy" was funded with 250,000 $ over a period of two years, which we distributed to 50% between the two groups. Our group aim is to determine whether TIM1 may play a role in inhibiting immune system anti tumor response and thus be a target for immuno-therapeutic treatments.

6.5 **Molecular Diagnosis and Therapy**

Francisco Vidal

Publications

3	15.740	5.250
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

During 2016, we highlight a new funding for the project that will allow: recruitment of 400 new patients of the VWD Spanish registry, in-depth genetic data analysis, the improvement of registry platform and diagnosis and a better management of VWD. The application of the NGS technology is allowing shed light on the pathophysiological mechanisms of VWD, correlating the clinical phenotype with molecular defects.

Furthermore, we conclude the study rewarded by the 2013 European ASPIRE Hemophilia Awards that has allowed the development of optimized molecular tools for functional studies in cells derived from hemophilic iPSc.

Finally, we validated a custom panel of 23 essential genes involved in congenital bleeding disorders. Moreover, we started an intramural project to study, by means of NGS clinical exome analysis, the association between collagen abnormalities and bleeding diathesis. The ultimate goal will be the refinement of genotype-phenotype correlation and the prediction of hemorrhagic risk.

6.6 **Pneumology**

Mª Jesús Cruz Carmona and Jaume Ferrer Sancho

Publications

70	233.540	3.340
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

The group is a Consolidated Research Group (AGAUR), is one of the Ciberes Groups and has joined during this period the network "Barcelona research network (BRN)". About asthma, the Group coordinates the area of asthma of Ciberes. In occupational and environmental diseases there are various active projects for the study of interaction between air pollution and asthma. In lung transplant, the group is participating in a European-wide consortium of 13 lung transplant centers in 10 countries. In sleep apnea and ventilation, projects include several multicenter studies to find out the impact of sleep apnea on the pediatric population, or the evaluation of the use of a simplified system of diagnosis of OSAS by primary medicine. Regarding COPD, the group will coordinate a multicenter project to know the effectiveness of palliative cures in the final phases of the COPD. In relation to clinical trials, in the period 2012-2016, the group has participated in 66 studies promoted by the industry.

6.7 **CIBBIM-Nanomedicine. Reparative Therapy of the Heart**

Manuel Galiñanes Hernández

Publications

9	25.480	2.830
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

Our laboratory participates in highly relevant European projects such as: **"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. In addition, within this project, we investigate the role of oxidative and nitrosative stress as effectors of deterioration of bioprosthetic heart valves. The results may strongly impact the treatment of heart valve diseases by extending the duration of the bioprostheses implanted, improving morbid-mortality in patients and allowing the indication of bioprosthetic heart valves in younger patients. We also made important progress to understand the mechanisms of ischaemic injury and protection in human myocardium. It is expected that the knowledge obtained from these studies will lead to personalised cardioprotective strategies and a reduction in the morbidity and mortality after an ischaemic insult.

6.8 **Systemic diseases**

Miquel Vilardell

Publications

48	219.120	4.570
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

We have found that the gene coding for DUSP23 is overexpressed in patients with SLE. We think that DUSP23 may act as a negative regulatory mechanism which silences the transcription of epigenetically regulated genes. A new IFL staining pattern associated to statin-associated autoimmune myopathy has been described. Awareness of this new IFL pattern can help to detect anti-HMGCR autoantibodies in statin-treated patients. As a part of the "EULAR-Sjögren Task" program we have participated in the definition and validation of a new activity disease index for this syndrome (ESSDAI); it has been accepted by the international scientific community as a useful score for clinical trials and research projects. We have also identified SLC8A3 as a susceptibility locus for rheumatoid arthritis (RA) patients with anti-citrullinated protein antibodies. Finally, in a meta-analysis of genome-wide association studies for systemic sclerosis and RA we have found that IRF4 is a new susceptibility locus.

7. Research in Surgery

Overview

The area of Research in Surgery includes more than 50 investigators distributed in five groups of research focused respectively on general and thoracic surgery, cranio-maxillofacial surgery, spinal disorders, skeletal reconstructive surgery and musculoskeletal tissue engineering. Their activity combines basic and clinical research together with robotics and virtual surgical planning. Their aims are to advance in the understanding of the causes and mechanisms underlying surgical pathologies, to deliver new knowledge and better integrated patient-centered solutions, improving surgical care and outcomes.

Publications

50
TOTAL

180.306
IMPACT FACTOR

3.606
AVERAGE IF

7.1 General Surgery

Manuel Armengol Carrasco

Publications

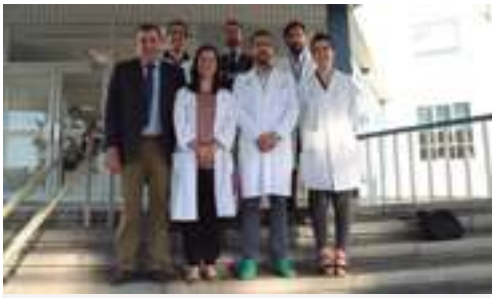
20	65.750	3.290
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

During 2016, the credited **General Surgery** group (2014-SGR-1075) has increased the number of international and multicentre projects and publications. It has participated in 3 clinical trials, and 13 Doctoral Thesis have been defended. The group has continued advancing in the characterization of pathway-based mechanisms adopted by the tissue microenvironment in different high-risk subpopulations, to find markers triggering incisional hernia development (tissue and primary fibroblasts cultures are used; cells are cultured in substrates of variable stiffness to explore mechanotransduction-related features). Some of the outputs emerge from a multidisciplinary approach and alliances with partners such as the Barcelona School of Industrial Engineering (UPC), the Institute of Photonic Sciences (ICFO), and medical device industry (collaboration agreement). Two new research lines have been initiated: morbidly obese patients submitted to bariatric surgery; female patients with pelvic organ prolapses.

7.2 Musculoskeletal Tissue Engineering

Màrius Aguirre Canyadell



Publications

6	16.880	2.810
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

Our research group has joined the Accelerating Development of Advanced Therapies in Catalonia (ADVANCE(CAT)) consortium in 2016. This consortium is led by the UB and formed by 5 companies and 13 research centres. The aim of the consortium is to create a collaborative network organization in the field of cell therapy, gene therapy and tissue engineering (regenerative medicine) to promote research and accelerate the development of new products that may have a qualitative impact on healthcare systems.

We have been going on working in the evaluation of bone regeneration therapies in preclinical and clinical studies. We are evaluating mesenchymal stem cells expanded "ex vivo" associated with different scaffolds in ovine experimental models and also in an early phase clinical trial. We are also working in the osteoproductive, revitalizing and osteointegrative capacity of vascularized periosteal flaps in a rat animal model.

7.3 CIBBIM- Nanomedicine. New Technologies and Craniofacial Microsurgery

Coro Bescós Atin

Publications

5	47.710	9.540
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

The most important paper during 2016 was: **Targeting metástasis-initiating cells through the fatty acid receptor CD36.** Published in Nature (IF 38,138). It identifies the metastatic initiating cells with CD36 protein, located on tumoral cells and responsible of taking fatty acids into the cell. We signed the Project **"Customized solutions in facial reconstruction and their impact in the quality of life of the patients".** Presented on the European Association for Cranio Maxillo-Facial Surgery Congress in London, and on Materialise Mimics Innovation Conference, in Lovaina. We started a new line: **"Study of biomarkers associated with high risk of oral cancer to develop a non-invasive early detection test".** To create a screening test for oral cancer to substitute surgical biopsy.

We will develop a new clinical trial with MundiPharma: **"A randomized, double- blind, multicenter, placebo and active comparator-controlled study to evaluate efficacy and safety of MR308 in the treatment of acute pain after third molar tooth extraction (STARDOM1).**

The **union with CIBBIM** (Nanotechnology) will allow to design new biocompatible tissues and biomaterials.

7.4 Reconstructive Surgery of the Locomotor System

César Galo García Fontecha

Publications

15	40.260	2.680
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

Our research group was created in January 2015 with 4 lines of research: pediatric orthopedics, pathology of the knee, musculoskeletal injury, and bone septic disease. During 2016, pathology of the hip has been added as a new line of research with 8 researchers involved in it. In our second year of activity we have been conducting 27 research projects, 7 clinical assays, 7 multicenter studies, and 3 in the area of innovation. During this year, we have produced a total of 32 publications in peer review journals and book chapters. One of the most relevant projects we are conducting is the HEALTH study, a multicenter randomized trial to evaluate hip arthroplasty versus hemiarthroplasty in adults over 50 years with hip fracture; in collaboration with the MacMaster University of Canada, our team has recruited the greatest number of patients, 1500 so far.

7.5 Spine Research Unit

Ferrán Pellisé Urquiza

Publications

15	36.690	2.650
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

The Vall d'Hebron Spine Research Unit is a growing multidisciplinary group of professionals devoted to Spinal Disorders with an increasing impact in terms of number of publications, associated impact factor and research funding. Since 2010, we have increased the yearly published manuscripts by 80%.

In 2016 we won 3 important research awards: 2nd best podium presentation at the Spanish Spine Society Meeting; Best podium presentation at the British Association of Spinal Surgeons, and the Whitecloud Award for Best Clinical Paper. We were also nominated for Best Clinical Paper Hibbs Award at the Annual Scoliosis Research Society Meeting. One of our research projects was granted by the FIS and we started the first national Phase 1 study to assess the safety and effectiveness of stem cells in acute spinal cord injury patients.

Two of our research lines were renewed with the novelty of an interest in spinal cord injury and degenerative conditions and a new emphasis in new surgical techniques.

8. Obstetrics, Pediatrics and Genetics

Overview

The Obstetrics, Pediatrics and Genetics area is focused on the research on the congenital malformations and pediatric diseases. The Fetal Maternal Medicine group creates synergies through the combined work of basic science researchers and clinical investigators in the preclinical basis of placental insufficiency complications and congenital heart disease. The Bio-Cell Fetal group, recently incorporated, studies basic pathophysiological mechanisms of fetal and pediatric congenital malformations, while the Growth and Development group does research on pediatric endocrine diseases. There is also a Genetics Medicine group that combines genetic diagnosis and research and is pioneer in Spain.

Publications

44
TOTAL

294.194
IMPACT FACTOR

6.686
AVERAGE IF

8.1 **CIBBIM-Nanomedicine. Bioengineering, Cell Therapy and Surgery in Congenital Malformations**

Vicenç Martínez Ibáñez

Publications

7	75.350	10.190
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

The research group of Bioengineering, Cell Therapy and Surgery of Congenital Malformations consists of clinical researchers (paediatric surgeons, neonatologists and obstetricians) and basic researchers (biochemists, biotechnologists and biologists), forming a large multidisciplinary team with extensive experience in biomedical and clinical research.

The main objective of the different lines of research carried out is to study the causes of human congenital malformations, especially spina bifida and congenital diaphragmatic hernia, and the development of new therapies based on advanced surgical techniques. Also, use of the cellular therapy to promote the regeneration of tissues for therapeutic purposes and generate new treatments to be able to alleviate or cure these serious pathologies. Our team develops a research with a great translational spirit to the human clinic, which has allowed our hospital to become a European reference centre for prenatal spina bifida repair.

8.2 **Fetal Maternal Medicine**

Lluís Cabero and Elena Carreras

Publications

22	234.600	10.660
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

In 2016 we continued to work on the prediction and prevention of preeclampsia and intrauterine growth restriction; the relationship between congenital heart disease and abnormal angiogenesis in maternal blood from the first trimester of pregnancy; and in our breast cancer during pregnancy program.

We either kept on working in preterm delivery both in singletons and twins, and we continued to develop a network of hospitals in Europe to perform studies for the prediction and prevention of preterm labor.

We improved our relationship with European partners, with collaborations in the field of monochorionic complications and congenial diaphragmatic hernia.

We consolidated the use of new molecular techniques in both invasive and non-invasive prenatal diagnosis and the research project in prenatal mielomeningocele repair.

After the Zika virus outbreak in South America our group developed a protocol for the follow-up of pregnant women and fetuses/neonates with suspicion of zika virus infection.

8.3 **Genetics Medicine**

Eduardo Fidel Tizzano Ferrari

Publications

9	21.380	2.380
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

Participation in a MultiCenter Clinical Trial with an antisense oligonucleotide (Nusinersen) therapy which improves the treatment of spinal muscular atrophy (in collaboration with the Neuromuscular Unit and Rehabilitation Service of the HVH). The motor milestones achieved in these patients resulted in the regulatory approval in the United States by FDA in December 2016 and EMA in June 2017. The team also earned the Clinical Research Site Award from the INC Research company for the accomplishment of the goals of the trial. The PI contributed as corresponding author of the Chapter *Developmental aspects and pathological findings in Spinal Muscular Atrophy* in the first book devoted to SMA which has been addressed by most of the worldwide referents of the disease. The group has intensively elaborated in collaboration with other VHIR groups the bases and objectives of the PTR program on rare disease in Campus VH to expand the impact of translational research in these diseases and is currently collaborating in two Personalized Medicine projects for rare disorder.

8.4 **Growth and Development**

Antonio Carrascosa Lezcano and Antonio Moreno Galdó

Publications

15	42.930	2.860
TOTAL	IMPACT FACTOR	AVERAGE IF

Summary

During 2016 our group has finished a 19 years' growth longitudinal study. Results will be published in 2017 and will allow implementing a new way of assessing growth in children.

The group activity has been oriented mainly towards translational medicine on rare diseases. Of major impact has been the publications related to disorders of sex development, rickets and vitamin D, intrauterine growth, and metabolic abnormalities in HIV. Also we have contributed in an international multicentre study to establish reference values for interpreting lung function studies in infants.

As part of our research line in rare paediatric respiratory diseases we have been awarded two competitive grants from *Instituto de Salud Carlos III*, one about molecular characterization of primary ciliary dyskinesia and one European trial about treatment of surfactant protein deficiencies.

Our group has won a CIBERER contract and Dr Núria Camats has been selected to have this 3 years' contract from December 2016.

Facts and figures

annualreport2016.vhir.org/facts-and-figures

The facts and the figures that explain our research activity and statistics during 2016

These are the facts and the figures that explain our research activity and statistics during 2016. In this summary you will find the most important data of our publications, research projects and networks, clinical trials, events and seminars, thesis, our Master and WIDER Barcelona.

You can also take a look at the economic summary, the activity of the core facilities and the numbers of the innovation, human resources and media.

All this information helps to understand the potential of VHIR and its leadership in, for instance, the number of clinical trials.

2016 was a year in which the Institute progressed in most of the results shown here, where you can also check the comparison with the previous years.

Publications

	NO. OF PUBLICATIONS	TOTAL IF
Papers in international journals	746	3,917.571
Papers in national journals	82	135.067
Clinic Assays	7	22.674
Letters with IF	3	20.978
Editorials in international journals	31	143.559
Editorials in national journals	2	2.534
Clinical Guides	15	294.038
Reviews in international journals	17	111.923
Reviews in national journals	9	28.286
Reviews or editorials in international journals	1	18.187

912

NO. OF PUBLICATIONS

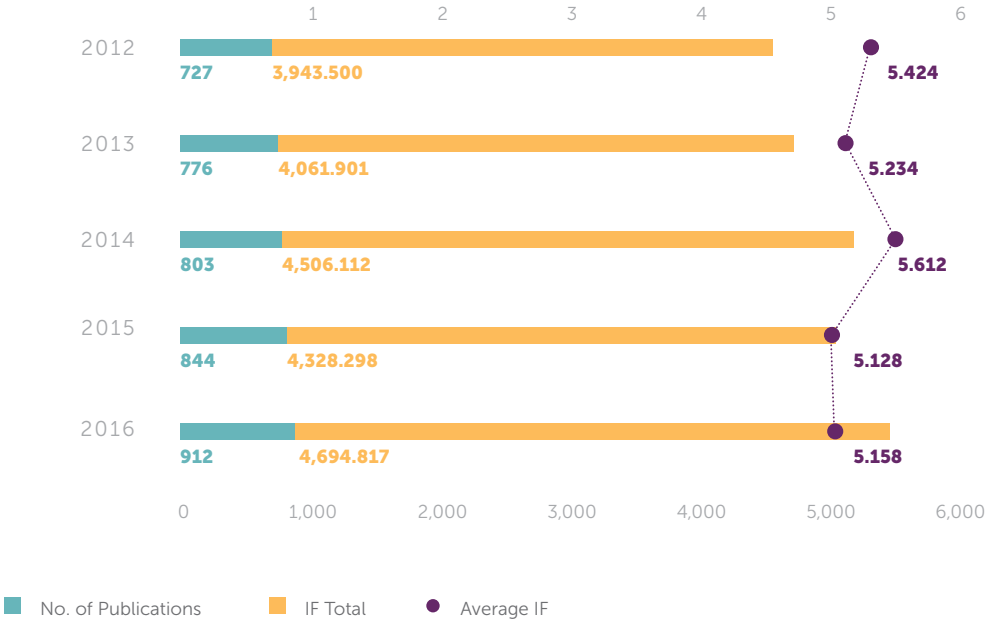
4,694.817

TOTAL IF

5.158

AVERAGE IF

Evolution in the last 5 years



Impact factor and number of publications per Research Areas

	NO. OF PUBLICATIONS	TOTAL IF	AVERAGE IF
Oncology	112	563.294	5.029
Vascular Biology and Metabolism (VAM)	200	1,047.220	5.236
Neurosciences	184	1,062.077	5.722
Infectious Diseases	162	675.589	4.170
Digestive and Liver Diseases	91	547.770	6.019
SICARDPATH	143	581.328	4.065
Research in Surgery	50	180.306	3.606
Obstetrics. Pediatrics and Genetics	44	294.194	6.686

Distribution of publications per quartiles and first deciles

55.59%
QUARTILE 1

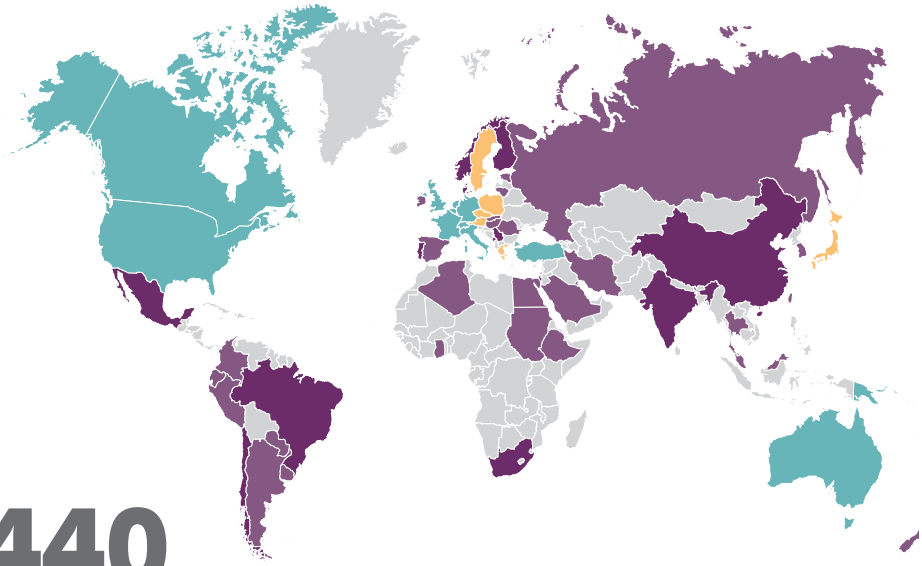
24.95%
DECILE 1

20.44%
QUARTILE 2

24.07%
QUARTILES 3 + 4

	NO. OF PUBLICATIONS	TOTAL IF	AVERAGE IF	%	% OF 1ST QUART
Q1	507	3,821.180	7.537	55.59	
Q2	186	521.494	2.804	20.44	
Q3 + Q4	219	350.330	1.606	24.07	
TOTAL	912	4,693.004	5.158		
D1	227	2,629.790	11.585	24.95	44.95

International collaborations

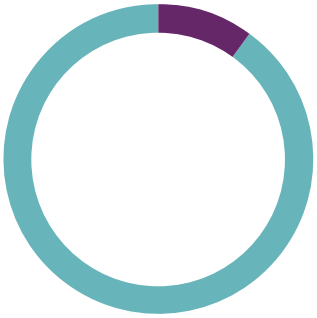


1,440
TOTAL

< 5 | 5-15 | 16-30 | > 30

Distribution of national and international journals

	NO. OF PUBLICATIONS	TOTAL IF	AVERAGE IF
Papers in international journals	746	3,917.571	5.251
Papers in national journals	82	135.067	1.647
Clinic Assays	7	22.674	3.239
Letter with IF	3	20.978	6.993
Editorial in International Journal	31	143.559	4.631
Editorial in national journal	2	2.534	1.267
Clinical Guides	15	294.038	19.603
Reviews in international journals	17	111.923	6.584
Reviews in national journals	9	28.286	3.143
Reviews or editorial in international journals	1	18.187	18.187
TOTAL	**912**	**4,694.817**	**5.158**



10.20%
NATIONALS

89.80%
INTERNATIONALS

	NO. OF PUBLICATIONS	TOTAL IF	AVERAGE IF	%
Nationals	93	165.887	1.784	10.20
Internationals	819	4,528.93	5.543	89.80
TOTAL	**912**			

Number of Publications in high IF Journals (>15)

	NO. OF PUBLICATIONS	IF OF THE JOURNAL	TOTAL IF
The New England Journal of Medicine	8	59.558	476.464
The Lancet	4	44.002	176.008
Nature	2	38.138	76.276
JAMA-Journal of the American Medical Association	2	37.684	75.368
Nature Reviews Cancer	1	34.244	34.244
Nature Genetics	2	31.616	63.232
The Lancet Oncology	1	26.509	26.509
The Lancet Neurology	1	23.468	23.468
Journal Of Clinical Oncology	3	20.982	62.946
Nature Reviews Clinical Oncology	1	18.786	18.786
Nature Reviews Neurology	1	18.418	18.418
Gastroenterology	5	18.187	90.935
Journal of the American College of Cardiology	3	17.759	53.277
Annals of Internal Medicine	1	16.440	16.440
The Lancet Diabetes & Endocrinology	2	16.320	32.640
European Heart Journal	1	15.064	15.064

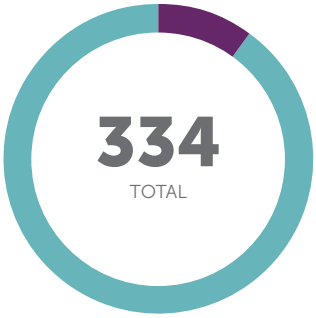
Number of citations and publications in 2016

	PUBLICATIONS	CITATIONS
Oncology	112	367
Vascular Biology and Metabolism (VAM)	200	1,005
Neurosciences	184	803
Infectious Diseases	162	551
Digestive and Liver Diseases	89	378
SICARDPATH	143	606
Research in Surgery	50	236
Obstetrics, Pediatrics and Genetics	44	277

Research projects and networks

ACTIVE PROJECTS

Ongoing projects in 2016



266
NATIONALS

68
INTERNATIONALS

NATIONAL PROJECTS

Instituto de Salud Carlos III	155
Ministerio de Economía y Competitividad	27
Ministerio Sanidad Servicios Sociales e Igualdad	11
Fundació La Marató de TV3	20
Asociación Española Contra el Cáncer	7
Fundació Catalana de Pneumologia	4
Col·legi Oficial d'Infermers/es de Barcelona	2
Gilead Sciences SL	3
Societat Catalana de Pneumologia	1
Sociedad Española de Neumología y Cirugía Torácica	3
Fundación de Investigación Médica Mutua Madrileña	2
Agència Competitivitat Empresa Catalana ACCIO	3
Asociación Española Coloproctología	2
Associació Catalana de Diabetis	2
Bankia, S.A.	1
Duchenne Parent Project España	1
Fundació "La Caixa"	1
Fundació Privada Daniel Bravo Andreu	1
Fundació Santiago Dexeus Font	4

Fundación Genzyme	1
Fundación Merck Salud	2
Fundación Sdad Española Alergología e Inmunología	1
Fundación Sdad.Española Endocrino.Pediatrica	1
Fundación SENEFRO	1
Fundación Tatiana Pérez de Guzmán el Bueno	1
Grupo Español Investigación Sarcomas (GEIS)	1
L'Oréal España	1
Mutual Mèdica de Catalunya i Balears	1
Sociedad Española de Cardiologia	2
Sociedad Española de Neurologia	2
Societat Catalana de Cardiologia	1
Societat Catalana d'Endocrinologia i Nutrició	1

INTERNATIONAL PROJECTS

European Commission	34
National Institutes of Health (NIH)	6
Brain and Behavior Research Foundation	1
Canadian Institutes of Health Research	3
American Association for Cancer Research	1
CSl Behring	1
European Foundation for the Study of Diabetes	3
European Society of Clinical Microbiology and Infectious Diseases	2
European Society for Immunodeficiencies	1
Executive Agency for Health Consumers (EAHC)	2
Gilead Sciences International Ltd	2
Michael J. Fox Foundation	2
Migraine Research Foundation	1
Pfizer Ltd	1
The Movember Group Pty Ltd	1
The World Health Organization (OMS)	1
The Innovative Medicines Initiative	5
European Society of Cardiology (ESC)	1

Ongoing research projects according to Research Area

Oncology	43
Vascular Biology and Metabolism (VAM)	72
Neurosciences	74
Infectious Diseases	42
Digestive and Liver Diseases	38
SICARDPATH	40
Research in Surgery	13
Obstetrics. Pediatrics and Genetics	10
Others	2
TOTAL	**334**

NEW RESEARCHERS

Research positions granted

SENIOR RESEARCHERS

Miguel Servet Programme II	4
Strengthening of research activity Programme - Instituto de Salud Carlos III	3
Juan Rodés Programme	2

POST-MIR RESEARCHERS

Río Hortega Programme	3

PREDOCTORAL RESEARCHERS

Agència de Gestió d'Ajuts Universitaris i de Recerca (AGAUR)	3
VHIR predoctoral grants	7
TOTAL	**22**

CIBER

List of CIBER (Network Biomedical Research Center) projects with VHIR involvement

TITLE	PROJECT MANAGER	RESEARCH GROUP
CIBER-BBN	Schwartz Navarro, Simó	CIBBIM-Nanomedicine Drug Delivery and Targeting
CIBERESP	Ferreira González, Ignacio	Cardiocirculatory Pathology
CIBEREHD	Esteban Mur, Juan Ignacio	Liver Diseases
CIBEREHD	Esteban Mur, Rafael	Liver Diseases
CIBEREHD	Guarner Aguilar, Francisco	Physiology and Pathophysiology of the Digestive Tract
CIBEREHD	Azpiroz Vidaur, Fernando	Physiology and Pathophysiology of the Digestive Tract
CIBEREHD	Genescà Ferrer, Joan	Liver Diseases
CIBERRES	Muñoz Gall, Xavier	Pneumology
CIBERRES	Rello Coromines, Jordi	Clinical Research / Innovation in Pneumonia & Sepsis (CRIPS)
CIBERER	Carrascosa, Antonio	Growth and Development
CIBERER	Martí Seves, Ramón	Neuromuscular and Mitochondrial Pathology
CIBERDEM	Simó Canonge, Rafael	Diabetes and Metabolism
CIBERNED	Comella Carnice, Joan X.	Cell Signaling and Apoptosis
CIBERNED	Vila Bover, Miquel	Neurodegenerative Diseases
CIBERSAM	Casas Brugué, Miquel	Psichiatry, Mental Health and Addictions
CIBER Cardiovascular Diseases	García-Dorado García, David	Cardiovascular Diseases
CIBERONC	Ramon y Cajal Agüeras, Santiago	Translational Molecular Pathology

NETWORKS

List of ISCIII thematic network centers that the vhir is involved in

NETWORK	PROJECT MANAGER	DURATION
Red Temática de Investigación Cooperativa en Cáncer (RTICC)	Ramon y Cajal Agüeras, Santiago	01/01/2013-30/06/2017
Red Temática de Investigación Cooperativa en Cáncer (RTICC)	Sánchez de Toledo Codina, Josep	01/01/2013 - 30/06/2017
Red de Investigación Renal (REDinREN)	Serón Micas, Daniel	01/01/2013-31/12/2016
Enfermedades vasculares cerebrales (Ictus). Red INVICTUS	Montaner Villalonga, Joan	01/01/2013-31/03/2017
Red Española de Investigación en Patología Infecciosa (REIPI)	Almirante Gragera, Benito	01/01/2013-31/12/2017
Red de Investigación en SIDA (RIS)	Ribera Pascuet, Esteve	01/01/2013-30/09/2017
Red de Investigación Cooperativa en Enfermedades Tropicales (RICET)	Molina Romero, Israel	01/01/2013-30/09/2017
Red Española de Esclerosis Múltiple (REEM)	Montalban Gairín, Xavier	01/01/2013-31/12/2016
Prevención, detección precoz y tratamiento de la patologia ocular prevalente, degenerativa y crónica	García Arumí, José	01/01/2013-30/09/2017
Red Temática de Investigación Cooperativa en Cáncer (RTICC)	Reventós Puigjaner, Jaume	01/01/2013-30/06/2017
Red de Investigación Cardiovascular (RIC)	García-Dorado García, David	01/01/2013-30/06/2017
Red de Salud Materno Infantil y del Desarrollo (SAMID)	Cabero Roura, Lluís	01/01/2013-30/06/2017
Plataforma de biobancs	Isabel Novoa García	01/01/2014-31/12/2017
Plataforma d'unitats de recerca clínica i assaigs clínics	Fuentes Camps, Inmaculada	01/01/2014-31/12/2017
Plataforma d'innovació en tecnologies mèdiques i sanitàries	Comella Carnice, Joan Xavier	01/01/2014-31/12/2017

GENCAT

List of VHIR research groups recognized by the "Generalitat de Catalunya"

CG - Consolidated Group EG - Emergent Group

FILE	PROJECT MANAGER	DURATION
Chronic Fatigue (EG)	Alegre Martin, José	01/01/2014-30/04/2017
Infectious Diseases (CG)	Almirante Gragera, Benito	01/01/2014-30/04/2017
Molecular Oncology (CG)	Arango Corro, Diego	01/01/2014-30/04/2017
General Surgery (CG)	Armengol Carrasco, Manuel	01/01/2014-30/04/2017
Research Unit of the Digestive System (CG)	Azpiroz Vidaur, Fernando	01/01/2014-30/04/2017
Translational Research in Hemathology Unit (CG)	Bosch Albareda, Francesc	01/01/2014-30/04/2017
Pediatric Endocrinology (CG)	Carrascosa Lezcano, Antonio	01/01/2014-30/04/2017
Maternal Fetal Medicine (CG)	Carreras Moratonas, Elena	01/01/2014-30/04/2017
Psychiatry, Mental Health and Addictions (CG)	Casas Brugué, Miquel	01/01/2014-30/04/2017
Apoptosis and Neurodegeneration (CG)	Comella Carnice, Joan Xavier	01/01/2014-30/04/2017
Hepatobiliary Diseases (CG)	Esteban Mur, Rafael	01/01/2014-30/04/2017
Infection in Immunocompromised Pediatric Patients (EG)	Soler Palacin, Pere	01/01/2014-30/04/2017
Cardiocirculatory Pathology (CG)	García-Dorado García, David	01/01/2014-30/04/2017
Bioengineering, Orthopedics and Pediatric Surgery (CG)	García Fontecha, César Galo	01/01/2014-30/04/2017
Fundació Institut Català de Farmacologia (CG)	Laporte Roselló, Joan-Ramon	01/01/2014-30/04/2017
Oncology and Molecular Pathology (CG)	Lleonart Pajarin, Matilde	01/01/2014-30/04/2017

Pediatric Neurology (CG)	Macaya Ruíz, Alfons	01/01/2014-30/04/2017
Neuromuscular and Mitochondrial Pathology (CG)	Martí Seves, Ramón	01/01/2014-30/04/2017
Cellular Pathology (CG)	Meseguer Navarro, Anna	01/01/2014-30/04/2017
Clinical Neuroimmunology. Centre d'Esclerosi Múltiple de Catalunya - CEMCAT (CG)	Montalban Gairín, Xavier	01/01/2014-30/04/2017
Neurovascular Diseases (CG)	Montaner Villalonga, Joan	01/01/2014-30/04/2017
Pneumology (CG)	Morell Brotad, Ferran	01/01/2014-30/04/2017
Transcription, Translation and Mithosis in Therapy-resistant Prostate Cancer. TRAMIT-CAP (EG)	Paciucci Barzanti, Rosanna	01/01/2014-30/04/2017
Microbiology (CG)	Pumarola Suñé, Tomàs	01/01/2014-30/04/2017
Pathological Anatomy (CG)	Ramon y Cajal Agüeras, Santiago	01/01/2014-30/04/2017
Multidisciplinary Research Group in Melanoma (CG)	Recio Conde , Juan Angel	01/01/2014-30/04/2017
Clinical Research / Innovation in Pneumonia & Sepsis (CRIPS) (CG)	Rello Condomines, Jordi	01/01/2014-30/04/2017
Biomedical and Translational Oncology Research Unit (CG)	Reventós Puigjaner, Jaume	01/01/2014-30/04/2017
Neurotraumatology and Neurosurgery Research Unit (UNINN) (CG)	Sahuquillo Barris, Joan	01/01/2014-30/04/2017
Translational Research in Child Cancer (EG)	Sánchez de Toledo Codin, Josep	01/01/2014-30/04/2017
Immunobiology (CG)	Sayós Ortega, Juan	01/01/2014-30/04/2017
Drug Delivery and Targeting (CG)	Schwartz Navarro, Simó	01/01/2014-30/04/2017
Diabetes and Metabolism (CG)	Simó Canonge, Rafael	01/01/2014-30/04/2017
Autoinmunity and Thrombotic Diseases (CG)	Vilardell Tarres, Miguel	01/01/2014-30/04/2017

Granted Projects

NATIONAL

Instituto de Salud Carlos III (TOTAL)	24
> Proyectos de Investigación en Salud	20
> Acciones Complementarias	4
Ministerio de Economía y Competitividad	11
Fundación Merck Salud	1
Agència Competitivitat Empresa Catalana ACCIO	3
Fundació La Marató de TV3	1
Soc.Española Neumologia Cirugia Toracica	1
Fundación Sdad.Española Endocrino.Pediatrica	1
Sociedad Española de Cardiologia	2
Societat Catalana de Cardiologia	1
Asociación Española Coloproctología	1
Asociación Española Contra el Cáncer	2
Bankia, S.A.	1
Fundació "La Caixa"	1
Gilead Sciences SL	2
Grupo Español Investigación Sarcomas (GEIS)	1
TOTAL	**53**

INTERNATIONAL

The Innovative Medicines Initiative	2
Pfizer Limited	1
Michael J. Fox Foundation	1
Executive Agency for Health Consumers (EAHC)	2
European Society of Cardiology (ESC)	1
European Soc.Clinical Microbiology and Infect Dise	1
European Commission	8
American Association for Cancer Research	1
TOTAL	**17**

6,059,564.73 €
NATIONAL FUNDING

3,354,768.16 €
INTERNATIONAL FUNDING

9,4 M€
TOTAL FUNDING

Clinical trials

Clinical trials submmited to CREC in 2016

339
TOTAL

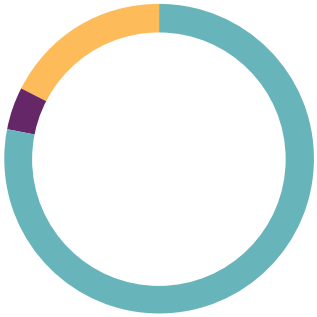
316
APPROVED

4
DENIED

19
CANCELLED

Clinical trials approved by CREC, classified according to the trial phase

Clinical trials classified according to promoter

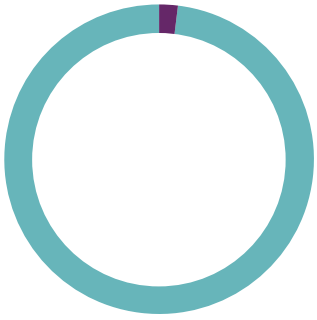


247 | 78%
INDUSTRY

14 | 4%
VHIR RESEARCHERS

55 | 17%
OTHER HOSPITALS / FOUNDATIONS

Clinical trials according to participants



6 | 2%
UNICENTER

310 | 98%
MULTICENTER CEIC R

0 | 0%
MULTICENTER CEIC I

CEIC

346 | 52%
RESEARCH PROJECTS

316 | 48%
CLINICAL TRIALS AND PAS

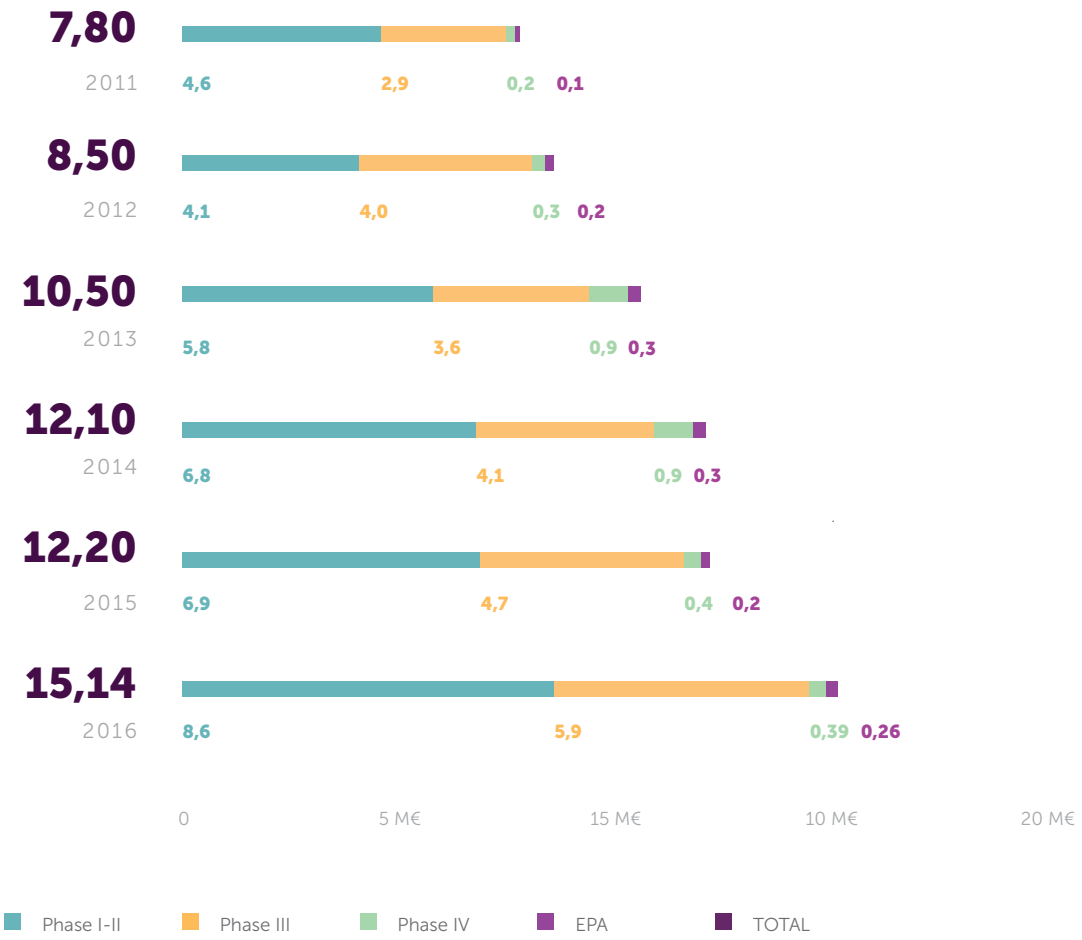
0 | 0%
CLINICAL TRIALS AND PAS AMMENDMENTS

Clinical trials by HUVH services

SERVICE	No. CLINICAL TRIALS
Allergology	8
Anesthesia	3
Cardiac Surgery	0
Cardiac Pediatrics	0
Cardiology	6
Pediatrics Cardiology	0
Dermatology	0
Image Diagnosis	0
Digestive	2
Endocrinology	6
General Surgery	1
Gynecology and Obstetrics	3
HDMI Genetics	0
Hematology	35
Hemodynamics	0
Hemophilia	0
Infectious Diseases	13
Intensive Care Unit	2
Internal Medicine	17
Internal Medicine-Hepatology	4
Maxillofacial Surgery	1
Nephrology	11
Neuroimmunology	4
Neurology	24
Neurophisiology	1
Neurosciences	0

SERVICE	No. CLINICAL TRIALS
Neurotraumatology	0
Oftalmology	4
Oncology	116
Onco-genetics	0
Onco-hematology	0
Onco-pediatrics	0
Onco-radiotherapy	0
Others	4
Pediatrics	12
Pediatrics Surgery	0
Pedriatrics Onco-hematology	4
Plastic Surgery and Burned	0
Pneumology	17
Pneumology Pediatrics	0
Pneumology Surgery	0
Preventive Medicine	0
Psiquiatry	6
Radiotherapy	0
Rehabilitation	1
Traumatology	2
Urology	1
Pharmacology	2
Pharmacy	5
Vascular surgery	1
TOTAL	**316**

Funding evolution, including overheads (M€)



Events and Seminars

232
TOTAL

2
EXTRAORDINARY CONFERENCES

37
COURSES

193
SEMINARS AND SESSIONS

Extraordinary Conferences

CONFERENCES/SYMPOSIA VHIR/HUVH	
The 20th VHIR Anniversary. Academic ceremony	1
10th VHIR Scientific Conference	1
TOTAL	**2**

Courses

VHIR COURSES	
VHIR Courses/Workshops/Contests	2
UAT Courses/ Seminars /Sessions	3
VHIR/HUVH training courses	8
UEB courses	4
Occupational hazard prevention courses	20
TOTAL	**37**

Seminars and Sessions

SEMINARS

External activity of interest	9
Opening Ceremony of the academic course 2016-2017. Master's Degree in Traslational Biomecanical Research (VHIR)	1
CIBBIM (Nanomedicine) seminars	12
HUVH seminars	7
VHIO seminars	1
Neurovascular Diseases seminars	1
VHIR Seminars	24
Master Seminars	2
VHIR briefings	4
TOTAL	**61**

THESIS

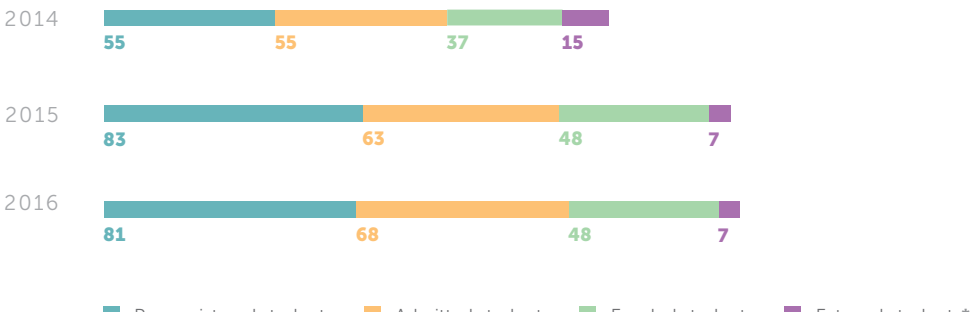
TOTAL	**37**

SESSIONS

General clinical sessions of Cardiology	31
Gastroenterology sessions	37
Hematology sessions	17
Haemostasis and Thrombosis sessions	10
TOTAL	**95**

Master's Degree in Translational Biomedical Research

Enrolment to the studies



*Master's degree in biochemistry, molecular biology and biomedicine in UAB

	2014-15	2015-16
Average grade	8,5	8,59
Graduation rate	97%	94%

Grants

	2015-16	2016-17	2017-2018
COMPANY	NO. OF GRANTS		
Santander	2	0	0
VHIR-Fundació Catalana per la Recerca i Innovació	1	0	0
Roche	1	1	1
Fundació Banc Sabadell	0	4	4
Ferrer	2	2	1
TOTAL	**6**	**7**	**6**

Student background

	2014	2015	2016
Biology	8	7	10
Biochemistry	4	12	8
Biomedicine	13	7	8
Biotechnology	6	10	13
Genetics	3	2	1
Medicine	1	2	1
Veterinary Medicine	1	0	2
Pharmacy	1	0	0
Microbiology	0	5	2
Nanoscience and nanotechnology	0	0	3
Other	0	3	0
TOTAL	**37**	**48**	**48**

Thesis

The full list can be found at:
annualreport2016.vhir.org/facts-and-figures/thesis

37
DOCTORAL THESIS READ (UAB)

WIDER - Barcelona

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

During November 20 and 21, 2016, NOTES-WIDER celebrated the 10th edition, with more than a hundred professionals who received training and participated in discussion forums about the latest techniques in the field of transluminal endoscopic surgery. Last year the more highlighted activities were conferences about techniques and technologies of gastrointestinal tumor resection, bile ducts and pancreas and new techniques of endoluminal suture, treatment for gastroesophageal reflux, non-invasive methodologies, therapeutical applications of endoscopy in biliodigestive and pancreatic pathologies.

The congress also presented live transmissions and discussions from the Laboratory Animal Service of VHIR, where the experts performed practical demonstrations of anesthetic techniques, intubation, catheterization, ways of approach, anastomosis, transgastric or transvaginal cholecystectomy, pancreatectomy, appendectomy and access wound closure techniques, among others.

Economic Summary

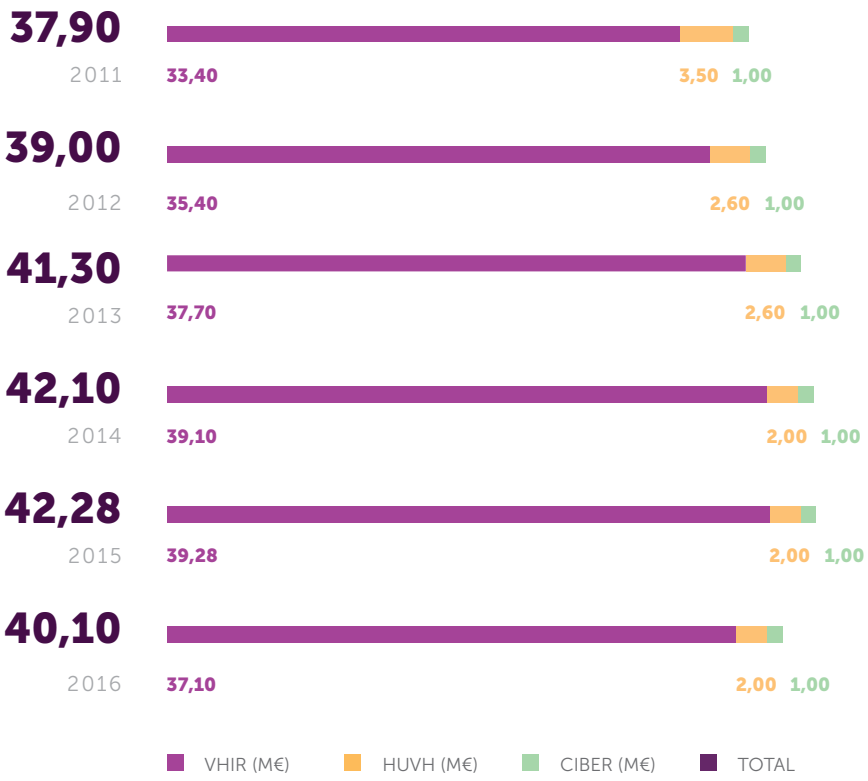
40,10
TOTAL (M€)

37,10
VHIR (M€)

2,00
HUVH (M€)

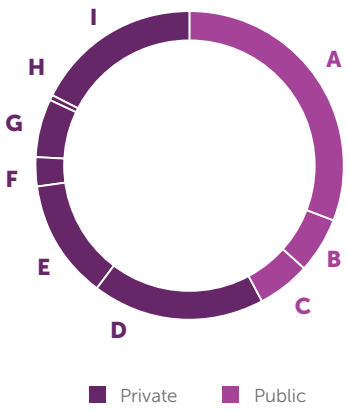
1,00
CIBER (M€)

Total income in millions of euros

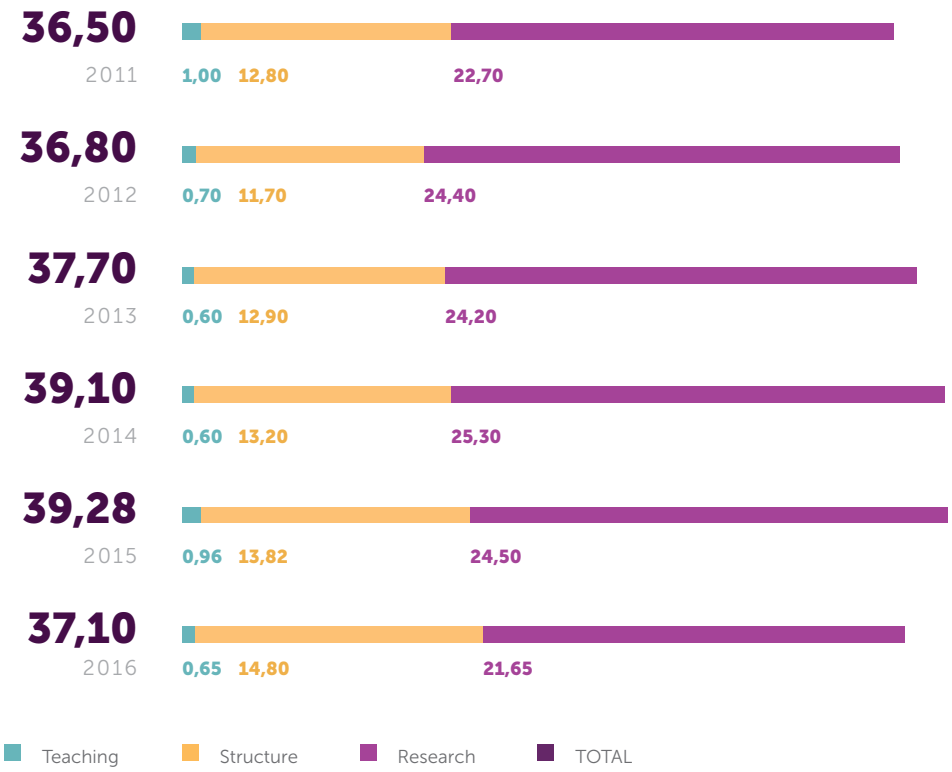


2016 VHIR Income breakdown (M€)

A National Grants/Networks	11.53
B International Grants/Networks	2.08
C Public Funding	2.10
D Clinical Trials	6.68
E Donations	4.63
F Teaching	1.14
G Research Services	2.30
H Financial Incoming	0.19
I Agreements Industry	6.45
TOTAL	**37,10**



VHIR Total income in millions of euros



Core Facilities

LAB ANIMAL SERVICE

Animals used in research

14,100
TOTAL

12,936
MICE

581
RATS

452
RABBITS

26
SHEEP

105
PIGS

Annual average of cages and individuals/week

2,396
MICE-RATS

26
RABBITS

7
SHEEP

5
PIGS

Active projects/ procedures per species

90
MICE

18
RATS

9
RABBITS

2
SHEEP

14
PIGS

Active projects/procedures per area and species

ANIMAL SPECIES	MICE	RAT	RABBIT	SHEEP	PIG
Oncology	45				2
Vascular Biology and Metabolism (VAM)	15	4	1		2
Neurosciences	14	1			1
Infectious Diseases	6		1		
Digestive and Liver Diseases	1	6			
SICARDPATH	4				
Research in Surgery	2	2	2	1	2
Obstetrics, Pediatrics and Genetics		1		1	1
Others	1	4	5		6
TOTAL	88	18	9	2	14
NUMBER OF PROJECTS / PROCEDURES			131		

Preclinical imaging platform activity per group - IVIS spectrum

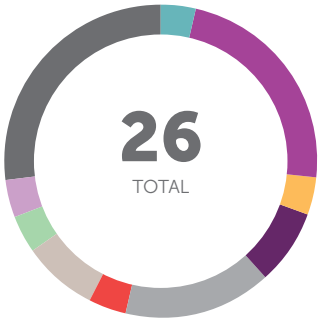
RESEARCH GROUPS	Image acquiring hours	Image quantification and analysis hours
Functional Validation and Preclinical Research	54,50	
Cell and Gene Therapy		
Neurodegenerative Diseases	5,25	20,75
Pediatric Neurology	1,75	
Translational Research in Child and Adolescent Cancer	0,50	
Biomedical Research in Melanoma	6,50	
Biomedical Research in Gynecology	8,50	
Experimental Hematology	57,50	
Pneumology		
Infectious Diseases	3,50	
General Surgery		
Others	6,00	
VHIO	621,00	
TOTAL	765,00	20,75

Preclinical imaging platform activity per group- mCT

RESEARCH GROUPS	FULL SERVICE
VHIR	449
VHIO	806

BIOBANK

Number of Projects which have asked for sample processing services



1 FETAL TISSUE BANK

6 CARDIOLOGY BANK

1 IMID

2 IMMUNOLOGY BANK

4 NEPHROLOGY BANK

1 PEDIATRIC ENDOCRINOLOGY

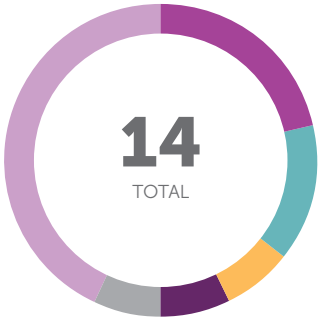
2 PULMONARY BANK

1 SEPSIS BANK

1 TUMOR BANK

7 OTHERS

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



3 CARDIOLOGY BANK

2 FETAL TISSUE BANK

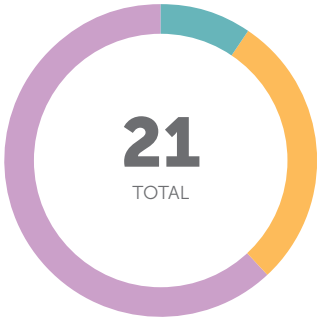
1 IMID

1 IMMUNOLOGY BANK

1 NEPHROLOGY BANK

6 TUMOR BANK

Number of publications which have used BIOBANK sample collections



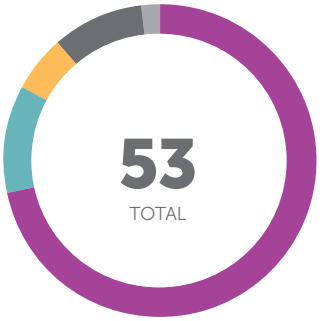
2 FETAL TISSUE BANK

6 IMID

13 TUMOR BANK

UAT (High Technology Unit)

User groups



38
VHIR

6
VHIO

3
EXTERNS (CIBER, UAB)

5
EXTERNS (OPIS)

1
EXTERNS (PRIVATE)

Services performed

368
MOLECULAR DIAGNOSIS

5,710
GENOMICS

3,348
MICROSCOPY

1,428
CYTOMICS

1,067
METABOLOMICS

5
COURSES ORGANISED

Courses organised

TITLE	CATEGORY
Introduction to the Incucyte ZOOM in vivo cell analysis system	Microscopy Platform
Flow citometry-theoretical and practical applications	Citometry Platform
Digital PCR	Genomics Platform
Escolab students' visits	UAT staff participation
VHIR's Master	UAT staff participation

Current agreements with external services providers

NAME	SERVICES PROVIDED
Centro de Investigaciones Biomédicas Alberto Sols	Human cell line authentication
Centre for Genomic Regulation	Institutional agreement to improve core-facilities sharing
Universitat Autònoma de Barcelona	Institutional agreement to improve core-facilities sharing
Centro Nacional de Análisis Genómico	Next Generation Sequencing
Macrogen	Sanger Sequencing
OWL	Lipidomics
Anaxomics	System Biology Solutions

Public Private

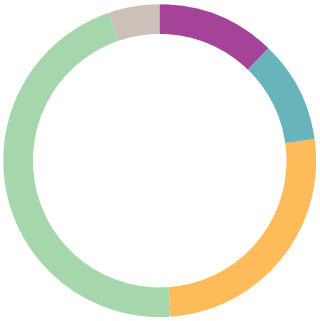
New internal services

PLATFORM	SERVICE
Cytomics	Data analysis from multicolour panels
Microscopy	Spectral scanning for the simultaneous detection of 6 fluorochromes
Molecular Diagnosis	miRNA library preparation for NGS
Molecular Diagnosis	Clariom S arrays processing
Metabolomics	Validation of a LC-MS/MS Bioanalytical Method for the Analysis of Benznidazol in Dried Blood Spot (DBS)

USIC (Clinical Research Support Unit)

Services performed by the USIC

USIC-SCReN Platform (Spanish Clinical Research Network)



7
REGULATORY SUPPORT FOR AUTHORIZATIONS/AMENDMENTS

6
PROJECT MANAGEMENT

15
PROJECT MONITORING

26
CENTRES MONITORING

3
FV CLINICAL TRIALS

USIC-Healthcare Platform

% CLINICAL TRIALS USIC-HEALTHCARE AREA/ ACTIVE CLINICAL TRIALS IN HUVH	17,9%
% of the use of healthcare spaces	44,9%
Request of studies for medical consultation	143
Request of studies for day hospital	19
Request of studies for support of research nurse	103
No. of visits	4,526
No. intravenous treatments	122
No. principal investigators	0
Services/Units of HUVH	28
Clinical trials/studies active during 2016	158
Petitions of public funded studies	28
Petitions of private funded studies	130
No. spaces used for monitoring/auditories/center selection visits, start-up and close-out visits	2,628

UEB (Statistic and Bioinformatics)

UEB services by type

	TOTAL (€)	TOTAL (hours)
Teaching activities (Courses & Personalized)	11,614.0	447.0
Advanced Data Analysis		
High Throughput Data Analysis (Bioinformatics)	28,753.0	1,106.0
Data Analysis for Clinical Research (Biostatistics)	47,280.0	1,818.0
Statistical & methodological consultancy services		311.0
Scientific results communication		
Database & applications development	210.0	8.0
Report writing and Documentation development writings		
Booking of UEB resources	360.0	55.0
TOTAL	**88,217.0**	**3,745.1**

UEB results by user type

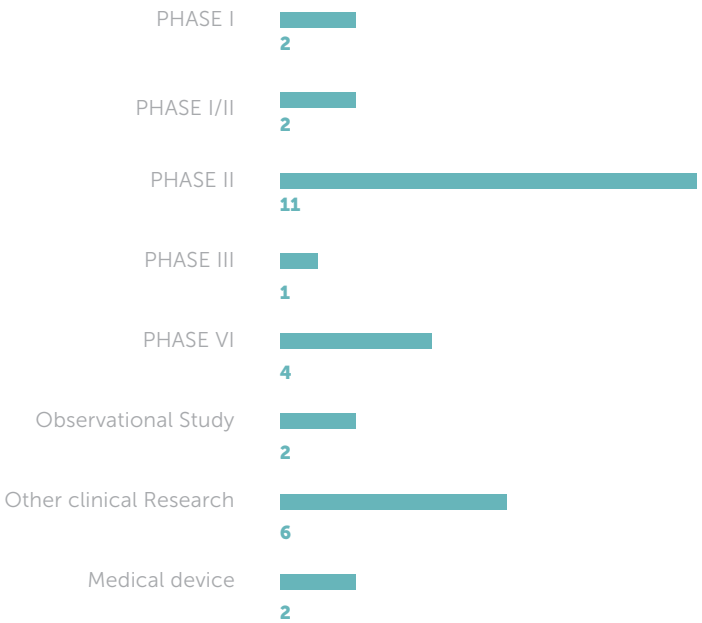
	TOTAL (€)	TOTAL (hours)
Internal	48,375.0	1,860.6
UAB	2,555.0	82.3
OPIs	10,811.0	332.6
External-Private	14,862.0	381.1
Support Units		77.0
TOTAL	**76,603.0**	**2,733.6**

ARO (Academic Research Organization)

Services we have worked with

Oncology	9
Digestive System	3
Rheumatology	1
Anesthesia	1
Ophtalmology	1
Neurology	2
Infectious Diseases	4
Hematology	1
Hepatology	2
Colorectal surgery	1
Allergology	1
Ginecologic Oncology	1
Transplant	2
Rehabilitation	1
TOTAL	**30**

Phases of the studies



Development area

19 NATIONALS

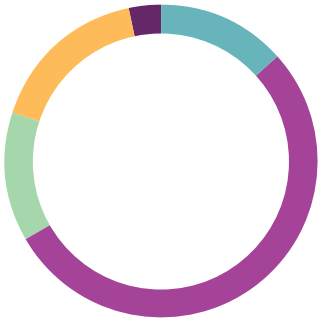
11 INTERNATIONALS

Centers participating

17 UNICENTRIC

13 MULTICENTRIC

Promoter



4 | 13.3%
MEDICAL SOCIETY

15 | 16.6%
HOSPITAL

16 | 53.3%
VHIR

1 | 3.3%
UNIVERSITY

4 | 13.3%
PHARMACEUTICAL LABORATORIES

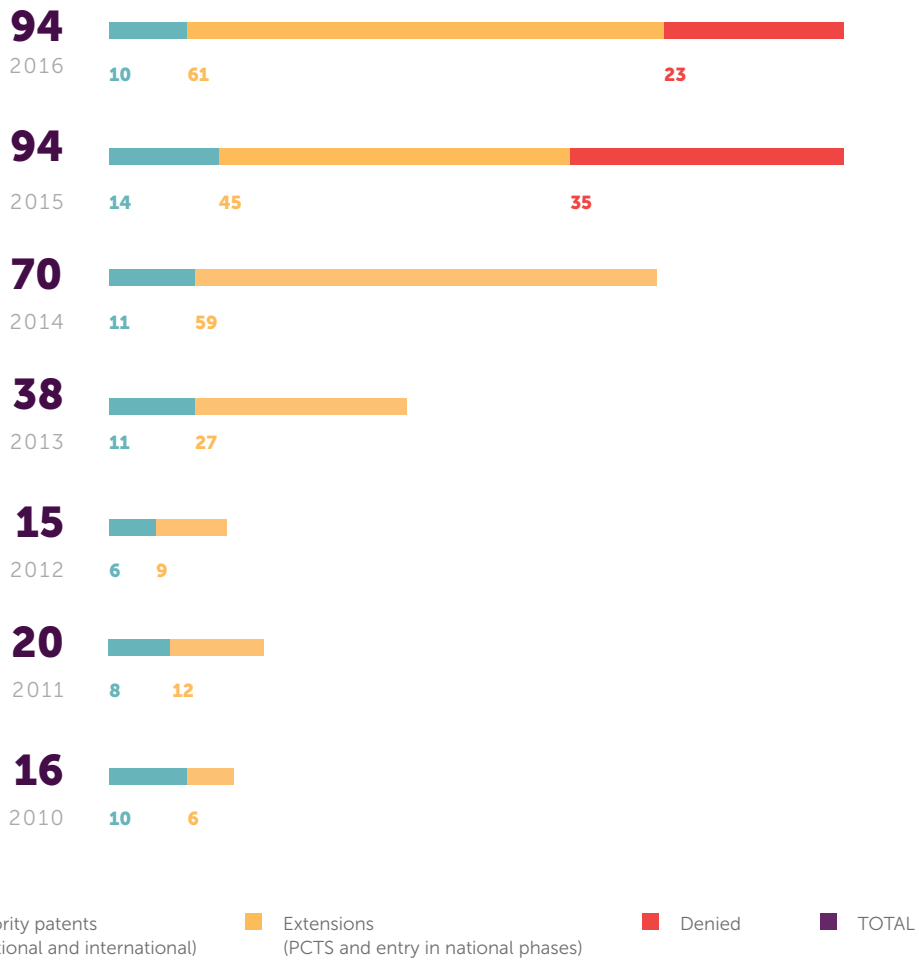
Innovation

135
INNOVATION REQUESTS

94
PATENTS

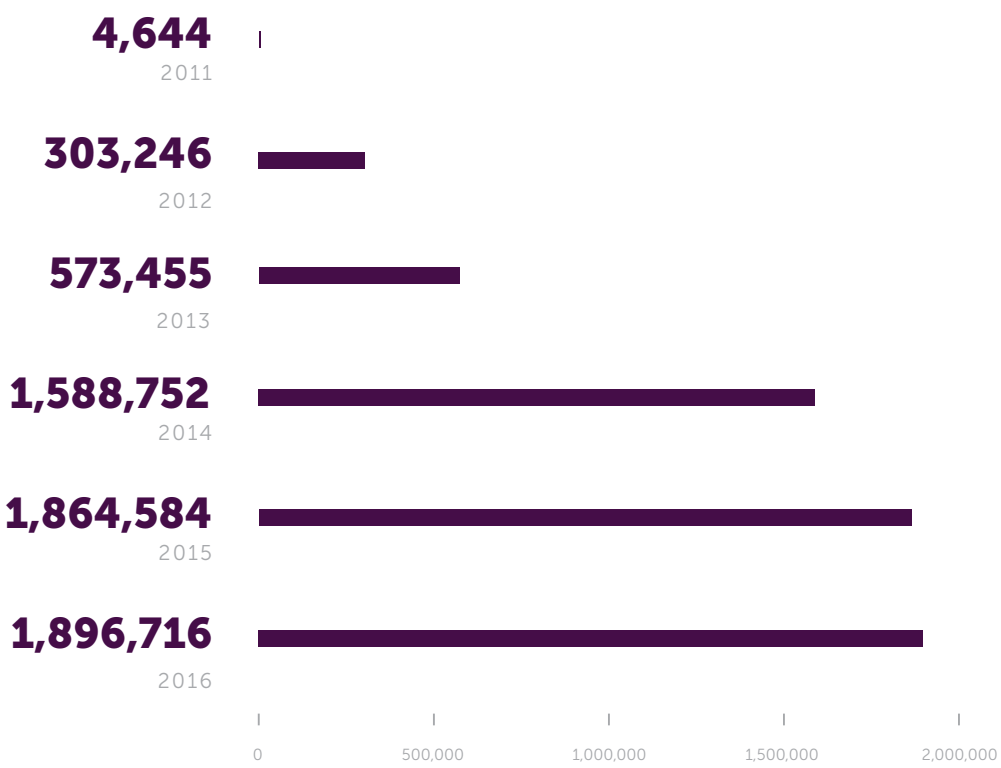
28
COOPERATIVE PROJECTS

*Evolution of patents **



* From 2015, patents are separated by active (Priority and Extensions) and the denied ones.

Evolution of committed revenues without royalties from explotation (M€)



Human Resources

Staff

1,487
TOTAL

999
RESEARCH

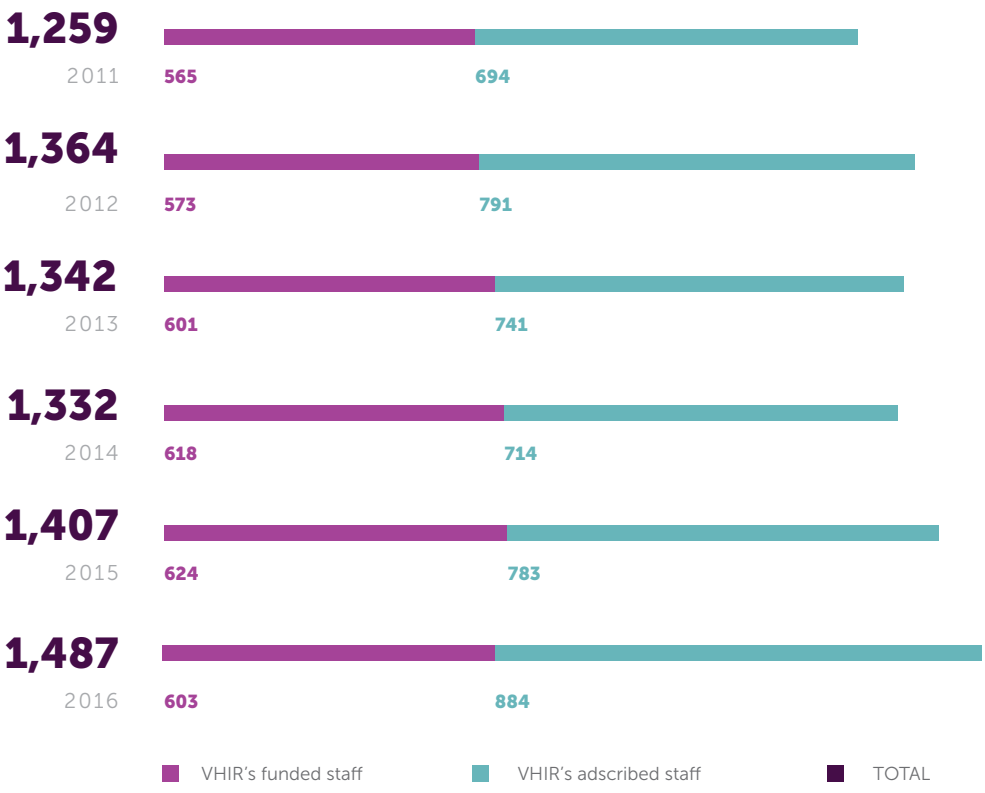
488
SUPPORTING RESEARCH

Evolution of the staff

RESEARCH STAFF	999
Researchers	713
Predocs	200
Postdocs	86

SUPPORT	486
Laboratory	92
Administrative	58
Graduates	173
Nurses	103
Others	60

Evolution of the staff

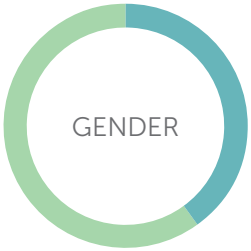


INTERNATIONALIZATION

	♀	♂	TOTAL
Italy	8	4	12
France	3	1	4
Argentina	3	0	3
Portugal	0	3	3
Chile	1	1	2
Colombia	2	0	2
Ecuador	2	0	2
Venezuela	1	1	2
Bolivia	1	0	1
Brazil	1	0	1
Canada	0	1	1
Croatia	1	0	1
Cuba	0	1	1
Slovakia	1	0	1
Germany	1	0	1
India	0	1	1
Kazakhstan	1	0	1
Mexico	0	1	1
Netherlands	1	0	1
Norway	0	1	1
Palestine	0	1	1
Peru	1	0	1
United States	1	0	1
TOTAL	29	16	45

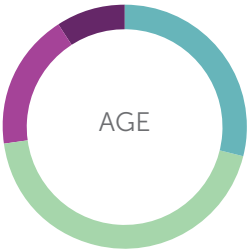
CONTRACTING ENTITIES

VHIR and HUVH staff by gender, age and nationality:



40% MALE

60% FEMALE



29% <30

44% 30-40

18% 41-50

9% > 50

558 NATIONALS

45 INTERNATIONALS

Media

Website vhir.org

1,014,818 VISITED PAGES

622,672 SINGLE USERS

715,220 VISITS

174 NEWS ON THE WEB

Social Media

5,748 PAGE LIKES

6,471 FOLLOWERS

5,118 FOLLOWERS

207,669 ACCUMULATED VIEWS

Summary

Summary 2016

Staff

Staff with professional relationship with the institute *Part of the staff can belong to two or more categories	**1,487***
Principal Investigators (PI)	230
PhD researchers	598
Collaborator researchers	925
Researchers subordinated to short term projects	316
Researchers in training	187
Scientific support staff	463
Core facilities staff	88
Management and administration	85
General services and maintenance	19
Researchers funded partially or totally through competitive tenders and research networks	**186**
Staff Ratio (Management and administration + General services and maintenance) **/ Principal Researcher**	**0.45**

Research Activity

Research projects granted on 2016	70
Ongoing research projects	336
Ongoing clinical trials	877

Scientific production

Total of publications	**1,022**
Original articles published in indexed journals	910
Total impact factor reached through indexed journals	4,687.927
Percentage of publications in the 1st decil	24.9%
Percentage of publications in the 1st quartile	55.5%
Ongoing clinical trials	**877**
Clinical guides	**7**
Granted patents or utility models	**30**
Transferred patents or utility models	**32**
Ratio published articles / researchers (senior, postdoc, in training)	**0.71**

Economic Figures

Funds collected with a competitive origin (M€)	12.2
Funds collected with a non-competitive origin (M€)	21.4
Direct funds from Generalitat de Catalunya (M€)	2.1
Total overheads from competitive and non-competitive funded projects (M€)	7.3
Ratio (competitive + non-competitive funds) / Direct funds from Generalitat de Catalunya (M€)	16.0

Highlights

annualreport2016.vhir.org/highlights

Headlines and news of our website and some of the media where they were published

This part of the annual report is dedicated to summarize the most important news of VHIR, both in the scientific and in the institutional field. Here you can find the headlines and the news in our website, and also you can check of some of the media where they were also published, as an example of how our advances are explained to society through journalists.

There are news talking about great discoveries in the best publications made by our researchers, both leading or in collaboration and part of basic, translational and clinical studies, some of them based in clinical trials.

During 2016 we also explained some individual or group prizes and recognitions of our professionals and our institution, in addition to academic, solidarity and outreach events hold in our hospital and research institute or outside as a part of our alliance with strategic partners.

Scientific Highlights

JANUARY

07/01/2016

Cell autophagy, a key process in muscle regeneration during ageing

View the news in the media

AGENCIA EFE

25/01/2016

Identified a new mechanism of antitumor action

View the news in the media

Jano

FEBRUARY

10/02/2016

VHIR hosts successful EATRIS combined platform meeting

MARCH

16/03/2016

The use of old antibiotics with new nebulizers emerges as a strategy in the fight against resistant organisms in severe respiratory infections

View the news in the media

Correo Farmacéutico

22/03/2016

Vall d'Hebron incorporates a system to detect preeclampsia with a blood test

View the news in the media

TV3

31/03/2016

Vall d'Hebron takes part in the biggest international genomic study into strokes

View the news in the media

Telecinco

APRIL

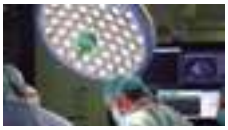
01/04/2016

VHIR's study identifies a new therapeutic tool for child cancer

View the news in the media

El Periódico

MAY



11/05/2016

World's leading expert in ischemic heart disease meet at Vall d'Hebron

View the news in the media

ABC

JUNE

21/06/2016

Large-scale genetic study provides new insight into the causes of migraine

View the news in the media

ARA

27/06/2016

Cultural differences of immigrants influence the diagnosis of mental illness in the emergency room

View the news in the media

El Punt Avui

JULY

07/07/2016

Vall d'Hebron will test a technology to improve high-precision personalized medicine in infectious and oncological diseases

View the news in the media

TVE (13')

OCTOBER

13/10/2016

Pioneering treatment of ADHD with virtual reality in Vall d'Hebron

View the news in the media

Betevé

24/10/2016

Vall d'Hebron proves that almost 70% of patients treated for heroin addiction in Spain has at least one psychiatric disorder associated

View the news in the media

Cadena SER

NOVEMBER

02/11/2016

VHIR participates in a European consortium to combat Zika and other emerging infectious diseases

View the news in the media

BioTech

DECEMBER

13/12/2016

A new method allows to analyze the genotype of the Hepatitis C virus in less than 3 hours

View the news in the media

BioTech

22/12/2016

Vall d'Hebron leads a study that proves the efficacy of a drug in primary progressive multiple sclerosis

View the news in the media

La Vanguardia

Institutional Highlights

JANUARY

29/01/2016

VHIR will have a Business Advisory Board looking for new strategic opportunities

FEBRUARY

15/02/2016

Leo Messi supports cancer research in childhood and adolescence in Vall d'Hebron

View the news in the media

Europa Press

MARCH

04/03/2016

VHIR becomes partner of the Barcelona Global platform

17/03/2016

Presentation of the Vall d'Hebron Campus

View the news in the media

TV3

JUNE

03/06/2016

Dr. Salvador Augustin Wins Young Investigator Award of the ICS

28/06/2016

Great success of the campaign 'Bombolles de Colors' for a predoctoral grant

View the news in the media

YouTube

JULY

12/07/2016

María José Buzón ranked as one of 'Las Top 100 Mujeres Líderes'

View the news in the media

ABC

14/07/2016

The Fundació Banc Sabadell gives four grants for the Master's Degree in Translational Biomedical Research

View the news in the media

Fundació Banc Sabadell

19/07/2016

The solidarity fashion market of Intropia supports the first year of a predoctoral grant at VHIR

View the news in the media

El Periódico

21/07/2016

Successful visits to VHIR laboratories of La Marató

AUGUST

01/08/2016

VHIR participates in three projects of the RIS3CAT call

30/08/2016

Asdent donates more than 120,000 euros to raise funds for the Dent's disease at Vall d'Hebron

View the news in the media

Asdent

SEPTEMBER

07/09/2016

Vall d'Hebron will coordinate the genetic identification of relatives of the missing persons during the Civil War and Franco dictatorship

View the news in the media

El País

20/09/2016

The Jeffrey Modell Foundation recognizes Vall d'Hebron as a centre of excellence

26/09/2016

Dr. María Blasco inaugurated VHIR's Master in Translational Biomedical Research

OCTOBER

14/10/2016

Beat Chagas presents 'Las palabras no dan miedo', a song to win against the silence associated with disease

View the news in the media

IMMédico Hospitalario

25/10/2016

More than 200 visitors enjoyed the 48H Barcelona Open House at VHIR

View the news in the media

La Vanguardia

NOVEMBER

20/11/2016

VHIR celebrates GivingTuesday

View the news in the media

Betevé

DECEMBER

09/12/2016

Look at the winning images of the VHIR Scientific Photography Contest (6th Edition)

View the news in the media

Facebook

16/12/2016

The chief editor of Nature gives the 20th Annual Conference of Vall d'Hebron

20/12/2016

Vall d'Hebron is the Spanish Hospital with more European networks of reference for rare diseases

View the news in the media

Vilaweb

Vall d'Hebron
Institute of Research
VHIR

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Vall d'Hebron
Barcelona Hospital Campus