ANNUAL SCIENTIFIC REPORT 2020
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The Girona Biomedical Research Institute (IDIBGI) is a CERCA research center of the Generalitat de Catalunya whose purpose is to promote, develop, transfer, manage and disseminate biomedical research, scientific and technological knowledge, teaching and training in the areas of life and health sciences, mainly in the Girona area.

Despite having its origins in 1995 as Fundació Privada Dr. Josep Trueta the institute was founded as a public institution in 2005, when the Generalitat de Catalunya (Catalan Government) entered into its governing bodies. IDIBGI became formally a research institution from the public sector and CERCA center in 2010.

IDIBGI is structured with own research groups and research personnel in the field of health and biomedical research, and researchers from the Dr. Josep Trueta University Hospital (HUJT), the Institut Català de la Salut (ICS), the Institut d’Assistència Sanitària (IAS), the Institut de Diagnòstic per la Imatge (IDI), the Institut Català d’Oncologia (ICO), the Banc de Sang i Teixits (BST), the Universitat de Girona (UdG), the Escola Universitària de la Salut i Esports (EUSES) and the Institut d’Investigació en Atenció Primària (IDIAP) Jordi Gol in Girona.

The IDIBGI facilities at the Parc Hospitalari Martí i Julià in Salt host part of the research laboratories and personnel who, along with the rest of the researchers from the associated institutions, form multidisciplinary teams with different expertise, focused on finding synergies and solutions to the societal health challenges through translational research.
Organization

Jordi Barretina, PhD
Director of IDIBGI

Cristina Vives
Executive Assistant and Research Support
secretaria.direccio@idibgi.org
T. +34 872 987 087

Miriam Gironès
Deputy Director

Anna Ribas
Managing Director

RESEARCH SUPPORT STAFF

Marta Riera
Doris Olaya
Clinical Research and Investigational Drugs Ethics Committees (CEIM)

Maria Buxó
Statistical & Methodological Assessment

Lluis Gallart
Biobank

Begoña Martin (UIC-ICO)
Cristina Martínez (ICS)
Clinical Research Units

Ester Quintana
Laboratories and operations

Albert Antolin
Innovation and transference

Maria Gifre
Silvia Xargay
International Projects

Albert Antolin
Saray Godo
National Projects

MANAGEMENT AND ADMINISTRATION STAFF

Mireia Flo
Administration and Finance

Marta Mozo
Public Procurement and Purchasing

Josep Pairolí
Purchasing

Júlia Gil
Accounting

Ekram El Fachtali
Clinical Trials Administration

Laura Ribera
Communication

Ferran Pedró
Fundraising

Silvia Vilar
Verònica Valle
Human Resources

Verònica Valle
Reception and Management of Courses

Israel Umbert
Occupational Health and Safety

Xavier Vilanova
Hicham Bouznakari
IT

Javier Pérez
Concierge
# Board of trustees

<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
<th>Role and Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>President</td>
<td>Alba Vergés Bosch</td>
<td>Minister for Health – Generalitat de Catalunya</td>
</tr>
<tr>
<td>1st Vice-President</td>
<td>Ramon Tremosa</td>
<td>Minister for Economy and Knowledge – Generalitat de Catalunya</td>
</tr>
<tr>
<td>2nd Vice-President</td>
<td>Joaquim Salvi Mas</td>
<td>Dean – Universitat de Girona (UdG)</td>
</tr>
<tr>
<td>Members</td>
<td>Robert Fabregat Fuentes</td>
<td>General Director of Research and Health Innovation, Generalitat de Catalunya.</td>
</tr>
<tr>
<td></td>
<td>Montserrat Llavayol Giralt</td>
<td>Deputy Director of Research and Health Innovation.</td>
</tr>
<tr>
<td></td>
<td>Miquel Carreras Massanet</td>
<td>Regional Delegate, Departament de Salut, Generalitat de Catalunya.</td>
</tr>
<tr>
<td></td>
<td>Francesc Xavier Grau i Vidal</td>
<td>Secretary for Universities and Research, Departament d’Empresa i Coneixement, Generalitat de Catalunya.</td>
</tr>
<tr>
<td></td>
<td>Iolanda Font de Rubinat</td>
<td>Deputy Director of Research, Departament d’Empresa i Coneixement, Generalitat de Catalunya.</td>
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<tr>
<td></td>
<td>Lluís Rovira Pato</td>
<td>Director of CERCA, Departament d’Empresa i Coneixement, Generalitat de Catalunya.</td>
</tr>
<tr>
<td></td>
<td>Maria Pla de Solà Morales</td>
<td>Vice-dean of Research and Knowledge Transfer, Universitat de Girona</td>
</tr>
<tr>
<td></td>
<td>Joaquim Casanovas Lax</td>
<td>Managing Director, Institut Català de la Salut (ICS) and Institut d’Assistència Sanitària (IAS)</td>
</tr>
<tr>
<td></td>
<td>Glòria Padura Esnarriaga</td>
<td>Director at the Hospital Universitari Dr. Josep Trueta</td>
</tr>
<tr>
<td></td>
<td>Joan Profitós Tuset</td>
<td>President at the Institut d’Assistència Sanitària (IAS) Girona</td>
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<tr>
<td></td>
<td>Anna Clopés</td>
<td>Deputy to the Directorate General for Knowledge Management, Drugs, Innovation and Research of the Institut Catala d’Oncologia (ICO)</td>
</tr>
<tr>
<td>Secretary</td>
<td>Mª Jesús Jiménez Hernández</td>
<td>Head of the Legal-Administrative Area of the Direcció General de Recerca i Innovació</td>
</tr>
</tbody>
</table>
Executive board

**PRESIDENT**

Robert Fabregat Fuentes  
General Director of Research and Health Innovation, Departament de Salut, Generalitat de Catalunya.

**MEMBERS**

Joan Gómez Pallarès  
General Director of Research, Departament d’Empresa i Coneixement, Generalitat de Catalunya.

Lluís Rovira Pato  
Director of CERCA, Departament d’Empresa i Coneixement, Generalitat de Catalunya.

Josep Gómez Pallarès  
Managing Director, Universitat de Girona

Josep Calbó Angrill  
Vice-dean of strategic projects, Universitat de Girona

Joan Profitós Tuset  
President Institut d’Assistència Sanitària (IAS) Girona

Joaquim Casanovas Lax  
Managing Director (Girona Region) at Institut Català de la Salut (ICS) and Institut d’Assistència Sanitària (IAS)

Montserrat Llavayol Giralt  
Deputy Director of Research and Health Innovation.

Anna Clopés Estela  
Deputy to the Directorate General for Knowledge Management, Drugs, Innovation and Research of the Institut Catala d’Oncologia (ICO)

**SECRETARY**

Mª Jesús Jiménez Hernández  
Head of the Legal-Administrative Area of the Direcció General de Recerca i Innovació

Jordi Barretina Ginesta  
Director, IDIBGI

Anna Ribas Gubau  
Managing Director, IDIBGI

Miriam Gironès  
Deputy Director, IDIBGI
Scientific advisory board

CHAIR
Carlos Kase
Department of Neurology, Emory University School of Medicine

MEMBERS
Silva Arslanian
Pediatric Clinical & Translational Research Center Children’s Hospital of Pittsburgh
Angelo Barbato
IRCCS- Istituto di Ricerche Farmacologiche Mario Negri, Milano
Walter A Rocca
Department of Quantitative Health Sciences, Department of Neurology, and Women’s Health Research Center Mayo Clinic, Rochester, Minnesota - USA
Angel Carracedo
Genomic Medicine, University of Santiago de Compostela
Luis Martí-Bonmatí
Director of the Clinical Area of Medical Imaging La Fe University and Polytechnic Hospital Valencia
Marisol Soengas
Molecular Pathology Programme, Spanish National Cancer Research Centre, Madrid

Internal scientific committe

CHAIR
Jordi Barretina
IDIBGI Director

MEMBERS
José Manuel Fernández-Real
Nutrition, eumetabolism and health
Lluís Ramió
Neurodegeneration and neuroinflammation
Abel López-Bermejo
Paediatric obesity and cardiovascular risk
David Gallardo
Haematology
Rafel Marcos-Gragera
Descriptive epidemiology, genetics and cancer prevention
Javier Menéndez
Metabolism and cancer
Ramon Brugada
Cardiovascular Genetics
Jordi Cid
Mental health and addictions
Josep Garre
Aging, disability and health
Salvador Pedraza
Medical Imaging
Rafel Ramos
Girona Heart Registry
Montserrat Vendrell
Respiratory
Begoña Martin
Clinical Research Unit - ICO
Dolors Juvinyà
Health and health care - University of Girona
Pilar Solé
Nursing - Hospital Dr. Josep Trueta

SECRETARY
Míriam Gironès
IDIBGI Deputy Director
Research areas and groups

IDIBGI is composed of 21 research groups organized in 6 different areas.

AREA 1
CARDIOVASCULAR AND RESPIRATORY
Cardiovascular genetics
Research in vascular health
Respiratory

AREA 2
MEDICAL IMAGING
Medical imaging

AREA 3
MENTAL HEALTH
Mental health and addictions
Neurodevelopment disorders

AREA 4
METABOLISM AND INFLAMMATION
Digestive disorders and microbiota
Infections, sepsis and multiorgan dysfunction of the patient
Internal medicine
Metabolic and maternofoetal
Nephrology
Nutrition, eumetabolism and health
Obesity and cardiovascular risk in paediatrics

AREA 5
NEUROSCIENCE
Aging, disability and health
Cerebrovascular pathology
Neurodegeneration and neuroinflammation

AREA 6
ONCO-HAEMATOLOGY
Chromosomal replication
Descriptive epidemiology, genetics and cancer prevention
General and digestive surgery
Haematology
Metabolism and Cancer
## Staff

### IDIBGI STAFF

<table>
<thead>
<tr>
<th>Role</th>
<th>Women</th>
<th>Men</th>
<th>Total</th>
</tr>
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<tbody>
<tr>
<td>GROUP LEADER (R4)</td>
<td>1</td>
<td>20</td>
<td>21</td>
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<tr>
<td>ESTABLISHED RESEARCHERS (R3)</td>
<td>15</td>
<td>18</td>
<td>33</td>
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<td>POST-DOCTORAL RESEARCHERS (R2)</td>
<td>29</td>
<td>10</td>
<td>39</td>
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<td>TECHNICIANS</td>
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<td>37</td>
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<td>NON-SCIENTIFIC RESEARCH SUPPORT STAFF</td>
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<tr>
<td>COLLABORATORS</td>
<td>91</td>
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<tr>
<td>CLINICAL TRIALS STAFF</td>
<td>9</td>
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<td>11</td>
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<tr>
<td>CORE FACILITIES &amp; SCIENTIFIC PLATFORMS STAFF</td>
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<tr>
<td>MANAGEMENT STAFF</td>
<td>14</td>
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| Total Staff                             | 241   | 154 | 395   |

### UNIVERSITY OF GIRONA STAFF

<table>
<thead>
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<th>Role</th>
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<th>Administration and support staff</th>
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<tr>
<td>NON-SCIENTIFIC RESEARCH SUPPORT STAFF</td>
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</tr>
<tr>
<td>COLLABORATORS</td>
<td>5</td>
<td>4</td>
</tr>
</tbody>
</table>

| Total Staff                             | 61             | 58                             | 119               |
SCIENTIFIC OUTPUTS
Scientific publications

**324**
ORIGINAL ARTICLES

**22**
REVIEWS

**3**
EDITORIALS

**2**
CLINICAL GUIDELINES

**1**
CASE REPORT

**10**
LETTERS

**TOTAL 362**

INDICATORS OF TOTAL PUBLICATIONS

<table>
<thead>
<tr>
<th>NUMBER</th>
<th>TOTAL IF</th>
<th>MEAN IF</th>
<th>%Q1</th>
<th>%D1</th>
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<tr>
<td>TOTAL</td>
<td>362</td>
<td>2128.77</td>
<td>5.9</td>
<td>57%</td>
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</table>

**Total publications**: Total number of documents published in scholarly journals indexed in the ISI Web of Science.

**%Q1**: % of publications published in journals ranked in the first quartile (top 25%) of their category as ranked by the 2019 Journal Citation Reports.

**Mean IF**: Mean impact factor (2019 Journal Citation Reports) of all the scientific publications.

**%D1**: % of publications published in journals ranked in the first decile (top 10%) of their category as ranked by the 2019 Journal Citation Reports.
EVOLUTION OF NUMBER, MEAN IF, %Q1 AND %D1 OF TOTAL PUBLICATIONS

Number of total publications:

<table>
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<tr>
<th>Year</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
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<tbody>
<tr>
<td>Value</td>
<td>253</td>
<td>291</td>
<td>351</td>
<td>374</td>
<td>362</td>
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Mean IF:

<table>
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<tr>
<th>Year</th>
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<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
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<tbody>
<tr>
<td>Value</td>
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<td>4.4</td>
<td>5.4</td>
<td>4.3</td>
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%Q1:

<table>
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<th>Year</th>
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<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
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<tbody>
<tr>
<td>Value</td>
<td>49%</td>
<td>41%</td>
<td>48%</td>
<td>50%</td>
<td>57%</td>
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%D1:

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<tr>
<th>Year</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
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</thead>
<tbody>
<tr>
<td>Value</td>
<td>20%</td>
<td>16%</td>
<td>18%</td>
<td>16%</td>
<td>20%</td>
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</table>
Original articles, Clinical Guidelines and Reviews were taken into consideration. Publications resulting from collaboration between teams from different areas have been counted once for each area, so the sum of the articles per area is higher than the total.

* Other publications from IDIBGI researchers not belonging to IDIBGI research groups or UdG associated groups.
### ORIGINAL ARTICLES IN THE HIGHEST IMPACT FACTOR JOURNALS (IF>10)

<table>
<thead>
<tr>
<th>JOURNAL</th>
<th>IF</th>
<th>TOTAL ORIGINAL ARTICLES</th>
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<tr>
<td>New England Journal of medicine</td>
<td>74,699</td>
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<tr>
<td>Lancet</td>
<td>60,392</td>
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<tr>
<td>Nature</td>
<td>42,778</td>
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<tr>
<td>Nature Genetics</td>
<td>27,603</td>
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<tr>
<td>The Lancet Diabetes and Endocrinology</td>
<td>25,340</td>
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<tr>
<td>JAMA Oncology</td>
<td>24,799</td>
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<td>Circulation</td>
<td>23,603</td>
<td>1</td>
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<tr>
<td>Cell metabolism</td>
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<tr>
<td>Journal of the american college of cardiology</td>
<td>20,589</td>
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<tr>
<td>Journal of hepatology</td>
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<tr>
<td>Annals of oncology</td>
<td>18,274</td>
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<tr>
<td>Alzheimer’s &amp; Dementia</td>
<td>17,127</td>
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<td>The Lancet Gastroenterology and Hepatology</td>
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<td>Journal of Thoracic Oncology</td>
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<td>Microbiome</td>
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<td>Genome medicine</td>
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<td>Neuro-Oncology</td>
<td>10,247</td>
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<td>Annals of Surgery</td>
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<td>Clinical cancer research</td>
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<td><strong>TOTAL</strong></td>
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## SCIENTIFIC OUTPUTS

### Number of Originals with IDIBGI main contribution

<table>
<thead>
<tr>
<th>AUTHORS</th>
<th>TITLE</th>
<th>REFERENCE</th>
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# DOCTORAL THESES

<table>
<thead>
<tr>
<th>THESIS AUTHOR</th>
<th>TITLE</th>
<th>THESIS DIRECTORS</th>
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<tbody>
<tr>
<td>Èric Cortada Almar</td>
<td>Trafficking and Function of the Voltage-Gated Sodium Channel Beta2 Subunit</td>
<td>Ramon Brugada, Marcel Vergès</td>
</tr>
<tr>
<td>Pedro Enrique Guerrero Barrado</td>
<td>Altered glycosylation in pancreatic cancer: development of new tumor markers and therapeutic strategies</td>
<td>Esther Llop, Rosa Peracaula</td>
</tr>
<tr>
<td>Jèssica Latorre Luque</td>
<td>Relevance of the epigenetic regulation exercised by hepatic microminas in the fatty liver arena: from the bedside to the bench</td>
<td>José Manuel Fernández-Real, Francisco José Ortega</td>
</tr>
<tr>
<td>Jaime Aboal Viñas</td>
<td>Creació i validació d’un model de predicción per al càlcul del temps d’angioplasticà primària en pacients amb infart agut miocardi que són traslladats a un hospital amb disponibilitat d’hemodinàmic</td>
<td>Rafel Ramos, Ramon Brugada</td>
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<td>Mostafa Abobakr Abdelmajed Salem</td>
<td>Deep learning methods for automated detection of new multiple sclerosis lesions in longitudinal magnetic resonance images</td>
<td>Joaquim Salvi, Xavier Lladó</td>
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<tr>
<td>Omar Aitor Andrés Navarro</td>
<td>Indicació selectiva de “shunt” en l’endarteriectomia carotídia, un nou métode</td>
<td>Joaquín Serena, Yolanda Silva</td>
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<tr>
<td>Ma. del Carmen Auñón Sanz</td>
<td>Estudi epidemiològic poblacional de la incidència, tendència i supervivència de les neoplàsies limfoides a la província de Girona durant un període de 20 anys (1996-2015)</td>
<td>Rafael Fuentes, Rafael Marcos, Maria Aranzazu</td>
</tr>
<tr>
<td>Elisabet Balló Peña</td>
<td>Validesa del Sistema d’Informació pel Desenvolupament de la Investigació a Atenció Primària (SIDIAP) en l’estudi de malalties vasculars i estudi de la efectivitat de les estatines en la reducció de mortalitat i malalties vasculars en la població major de 74 anys</td>
<td>Rafael Ramos</td>
</tr>
<tr>
<td>Aleix Beneyto Tantíña</td>
<td>Robust and fault-tolerant strategies for controlling blood glucose in patients with type 1 diabetes</td>
<td>Josep Vehi</td>
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<td>Jose Bernal Moyano</td>
<td>Deep learning for atrophy quantification in brain magnetic resonance imaging</td>
<td>Xavier Lladó, Arnaú Oliver</td>
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<td>Pablo de Loma-Osorio Ricón</td>
<td>Projecte “Girona Territori Cardioprotegit”: Avaluació del funcionament dels desfibril-ladors publics</td>
<td>Ramon Brugada</td>
</tr>
<tr>
<td>Iván Galván Femenia</td>
<td>Compositional methodology and statistical inference of family relationships using genetic markers</td>
<td>Jan Graffelman, Carles Barceló</td>
</tr>
<tr>
<td>Jordi Hernández Surinach</td>
<td>Efectes d’un programa d’intervenció psicoeducativa en les actituds i coneixements. Sexuals i afectius de persones amb discapacitat intel·lectual que assisteixen a un servei de teràpia ocupacional</td>
<td>Montserrat Planes, Ana Belén Gómez, Esther Sánchez</td>
</tr>
<tr>
<td>Kaisar Kushibar</td>
<td>Automatic segmentation of brain structures in magnetic resonance images using deep learning techniques</td>
<td>Arnaú Oliver, Xavier Lladó, Sergi Valverde</td>
</tr>
<tr>
<td>Eduardo Maldonado Manzano</td>
<td>Depresió, ansiedad y calidad de vida percibida en pacientes fumadores con ictus agudo</td>
<td>Rosa Suñer, Joaquín Serena, Maria Eugènia Gras</td>
</tr>
<tr>
<td>Cristina Planella Farrugia</td>
<td>Efectes de l’exercici de resistència de baixa intensitat i del suport nutricional sobre la sarcopènia i la inflamació crònica de baix grau en persones de 60-75 anys</td>
<td>José Manuel Fernández-Real, Wifredo Ricart</td>
</tr>
<tr>
<td>Mireia Vila Currius</td>
<td>Avaluació de la utilitat del monitoratge farmacocinètic dels fàrmacs anti-TNF en pacients amb malaltia inflamatorià intestinal en dos hospitals amb diferent grau d’especialització.</td>
<td>Xavier Aldeguer</td>
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Knowledge transfer and innovation

CLINICAL GUIDELINES

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<th>TITLE</th>
<th>REFERENCE</th>
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<th>Q/D1</th>
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NON-INDEXED

ICO-ICS PRAXIS. Para el tratamiento médico y con irradiación de cancer colorectal. Marga Osorio. 2020 junio

ICO-ICS PRAXIS. Para el tratamiento de la mielofibrosis. Montserrat Negre. 2020 abril.


Merchan-Ruiz M, González-del-Rio M, Ramió-Torrentà L, Del Olmo M, Vilalta T. Guia Sala de tractaments UNIEM-TG. Institut d’Assistència Sanitària. 2020
Clinical trials performed at the IDIBGI-associated hospitals are an example of translation and return to the patient, in terms of improved patient care and access to cutting-edge therapies or technologies.

In 2020, 65 new clinical trials were opened and 274 clinical trials were active, all promoted either a) by the pharmaceutical industry, b) non-profit organizations or c) internally. Most of the active trials correspond to phase III (55%).

The data below summarize the number of active clinical trials in 2020.

Active clinical trials promoted by the (A) pharmaceutical industry, (B) non-profit organisations and (C) internally.

By scientific areas most of the active trials are performed in the area of onco-haematology (41%)

IDIBGI currently manages 9 patent families, which represent about 40 patents, 2 of which are utility models.

During 2020, 4 new patent applications were filed: 2 PCT, 1 EP, 1 US patents. The total number of license agreements in 2020 was 3.

IDIBGI researchers have founded 2 spin-offs since the foundation of the institute, 1 of which is still active.

Spin-off from IDIBGI researchers where IDIBGI participates as shareholder:

GOODGUT
https://www.goodgut.eu/

Dr. Xavier Aldeguer

GoodGut is a biotechnology start-up that emerged from the IDIBGI Digestive Diseases and Microbiota research group led by Dr. Xavier Aldeguer and the Universitat de Girona (UdG). GoodGut is engaged in the research and development of non-invasive systems that support the diagnosis and treatment of digestive diseases based on intestinal microbiota as a determining factor.

1 Clinical Trials promoted by the pharmaceutical industry, by non-profit organizations and internally

Area 1: Cardiovascular and Respiratory
Area 2: Medical Imaging
Area 3: Mental Health
Area 4: Metabolism and Inflammation
Area 5: Neuroscience
Area 6: Onco-haematology
Funding

ANNUAL BUDGET

FUNDING SOURCES AND EXPENSES

FUNDING SOURCES

- Generalitat de Catalunya transfer
- Philanthropy
- Core Facilities
- Research funds
- Other sources

EXPENSES

- Projects
  1. Research Staff
  2. Research Consumables & external works
  3. Research Publications & academic training
  4. Research Travelling costs & others services
  5. Research Transfers to other public institutions
  6. Research Equipment
- Support
  7. Administration Running costs
  8. Administration & Research support Staff

Graphs showing the distribution of funding sources and expenses over the years from 2015 to 2020.
SCIENTIFIC OUTPUTS

Projects

COMPETITIVE PROJECTS

NEW COMPETITIVE PROJECTS IN 2020: 25
ACTIVE COMPETITIVE PROJECTS IN 2020: 85

TYPE OF FUNDING:
- Research projects: 18 (61)
- Human Resources: 7 (24)

FUNDING ORIGIN:
- International: 3 (10)
- Spanish: 20 (42)
- Catalan: 2 (33)
HUMAN RESOURCES STRATEGY FOR RESEARCHERS

On the 31st of March 2015 the Girona Biomedical Research Institute (IDIBGI) received the "HR Excellence in Research Award". This award and its logo reflect the IDIBGI’s commitment to continuously improve its human resources policies and practices in line with the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers (Charter & Code).


In 2019 the Action Plan 2014-2018 concluded and a new gap analysis and Action Plan for 2020-2023 was developed by the HRS4R Working Group. The OTM-R checklist was reviewed as well. The Action Plan 2020-2023 was sent to the European Commission on November 2020 for their revision and renewal of the “HR Excellence in Research Award”.

During 2020 some actions were concluded such as:
1. The document ‘Award renewal: interim assessment & Action Plan 2020-2023’ was designed and implemented
2. The drafting of the document “IDIBGI Training plan” was initiated
3. The document ‘IDIBGI’s biosafety manual’ was designed and implemented
4. IDIBGI recruited a Laboratory and Operations Manager
5. The document ‘Labour Risks Documentation and Plan’ was designed and implemented
6. A survey on training needs among IDIBGI’s personnel was performed

Most of these actions were possible thanks to the engagement of many researchers and other IDIBGI staff belonging to specific working groups or committees.

GO-HERO

https://goherohealth.com/

Internationalization is a strategic and transversal goal of the IDIBGI present in the current IDIBGI’s strategic plan.

In 2019, the International Projects Office, along with the respective units of the Biomedical Research Institutes of Tarragona (IISPV) and Lleida (IRBLleida), joined forces on the GO-HERO project (Health European Research Offices). GO-HERO consortium priorities:

• Reinforce international project departments
• Design and implement a training plan for the internationalization of research
• Increase the international visibility of the institutes.

Highlighted 2020 activities:

• Organization of the 4-day training “Step-by-step strategies for developing successful grant applications for European Research and Innovation Collaborative Projects” by Nikolaos Floratos, international coach and expert on Horizon 2020
• Crowdhelix membership (Open Innovation platform with international researchers and innovating companies, focused on Horizon Europe partnerships)
• “Introduction to EU calls” and “Impact in European Projects” by Sara Hurst and “Open Science” by Ignasi Labastida workshops.

ISO 9001:2015 CERTIFICATION

The ISO 9001 Standard is the most widespread quality management tool in the world. Its main goal is to increase customer satisfaction through continuous improvement processes. It is designed to ensure that organizations guarantee their ability to offer services that meet the demands of their clients. This international standard promotes the adoption of a process-based approach when developing, implementing, and improving the effectiveness of a quality management system. The main benefits derived from the ISO 9001 certification for organizations are: systematization of operations, improvement of the internal organization, generation of a greater level of confidence internally and externally, an increase in competitiveness and compliance with legislation and regulations related to products and services, among others. In 2019 IDIBGI obtained the ISO 9001:2015 certification for a) Research support services: Quality policy and Quality procedures and b) Biobank’s Quality policy. In 2020 IDIBGI passed the first follow-up audit successfully.
Networks

SPANISH BIOMEDICAL NETWORKS

ISCIII NETWORKS

<table>
<thead>
<tr>
<th>CBER</th>
<th>RETICS</th>
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<tbody>
<tr>
<td>3 IDIBGI researchers are group leaders within CIBER networks:</td>
<td>3 IDIBGI researchers are group leaders within RETICS networks:</td>
</tr>
<tr>
<td>CIBER-OBN: Obesity and nutrition</td>
<td>INVICTUS + ISCIII: Cerebral Vascular Diseases</td>
</tr>
<tr>
<td>CIBER-CV: Cardiovascular</td>
<td>REEM ISCIII: Multiple Sclerosis</td>
</tr>
<tr>
<td>CIBER-ESP: Public Health and Epidemiology</td>
<td>REDIAPP ISCIII: Prevention actions and health promotion</td>
</tr>
</tbody>
</table>
Core facilities

BIOBANK

https://idibgi.org/en/biobanc/
biobanc@idibgi.org

José Manuel Fernández-Real, MD, PhD  Luís Gallart, PhD
Scientific director  Coordinator

The IDIBGI Biobank is the research core facility responsible for the management of human biological samples and associated data for research. This management includes collection, processing, storage, and transfer of samples to promote quality biomedical research. It is managed by the Institut d’Investigació Biomèdica de Girona Dr Josep Trueta (IDIBGI) and is linked to two hospitals: the University Hospital of Girona Dr. Josep Trueta (HUGJT) and the Santa Caterina Hospital at Institut d’Assistència Sanitària (IAS).

Its goal is to contribute to the development of biomedical research of excellence, making available to the scientific community biological samples under certain legal, technical, organizational guarantees and respecting the rights of the donors.

The IDIBGI Biobank was authorized by the Department of Health in October 2013 and is enrolled in the Carlos III Health Institute National Register of Biobanks. All the procedures performed at the Biobank are carried out under ISO 9001:2015 certification.

The IDIBGI Biobank Catalogue of samples comprises the samples organized into two nodes:

- **Central Node**, which contains several sample collections collected by IDIBGI researchers and HUJT and Santa Caterina Hospital services, as well as a COVID collection
- **Tumour bank Node**, which contains tumour tissue and non-peripheral tumour tissue samples

A summary of IDIBGI’s 2020 Biobank activities and indicators is shown in the table below:

<table>
<thead>
<tr>
<th>BIOMARKER SAMPLES</th>
<th>SAMPLE TRANSFERS</th>
<th>NR. COLLECTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>250.653</td>
<td>3.347</td>
<td>49</td>
</tr>
</tbody>
</table>

| 2020: |
|----------------|----------------|----------------|
| NR. DONATIONS TO BIOMARKER | NEW COLLECTIONS | NEW DONORS |
| 2.367 | 4 | 1.477 |
| NEW INTERNAL USERS | NEW EXTERNAL USERS | COVID-19 DONORS AND DONATIONS |
| 4 | 3 | 502 / 842 |

Activity during 2020 was severely affected by the health crisis caused by the SARS-CoV-2 pandemic. In March and April 2020 the Biobank adapted its facilities and equipment to Biosafety level-2 requirements and became IDIBGI’s reference laboratory for the processing of human primary samples and COVID samples. Staff was trained and biosafety protocols were implemented to safely handle all human samples.

The COVID collection was created and approved by the Clinical Ethics Committee in April 2020 in collaboration with the Clinical Laboratory of the Girona Health Region. The first samples were collected in May 2020. In June 2020 the Biobank resumed its usual activity.
OUTREACH ACTIVITIES
Courses, conferences and seminars

COURSES ORGANIZED BY IDIBGI DURING 2020:

Curso de Ecocardiografía Básica para médicos no Cardiólogos
Dr. Sergio Moral
December, 18 - March, 6

Programa docente de ruta asistencial de un paciente con insuficiencia cardíaca
Dr. Aleix Fort
February, 2

Jornades Actualització Malaltia Inflamatòria i Fetge
Dr. Xavier Aldeguer
February, 10

Masterclass: Keys for entrepeneurship in life sciences life beyond postgraduate
Dr. Jordi Naval
February, 18

XVII Curso de Formación en Cirugía Esofagogástrica para Médicos Residentes de CGAD 4º y 5º año
Dr. Marcel Pujadas
March, 25-26-27

III Jornada Immunoteràpia i Teràpies del Càncer
Dr. Joaquim Bosch
June, 11 to 25 and July 2

Jornada Webinar Esclerosis múltiple i COVID19: on estem i què podem esperar?
Dr. Lluís Ramió
July, 2

Jornada Cirurgia Tiroides
Drs. Jordi Gironés and José Ignacio Rodríguez
September, 15

Curs actualització en farmàcia hospitalaria 2020
Dr. Rosa Sacrest
October - December

Jornada Cirugia Hepática
Dr. Santiago López Ben
December, 14

Jornades Gironines del Mediterrani en EM Virtual 2020
Dr. Lluís Ramió
December, 15-16-17

Webinar dirigit a persones i families amb esclerosis múltiple: ”Esclerosis Múltiple progressiva: on estem i cap a on anem”
Dr. Lluís Ramió
December, 18

Programa para la coordinación en el manejo de la insuficiencia cardíaca entre la atención primaria y especializada
Dr. Marco Paz Bermejo
December 2020 - March 2021

Programa adaptació de la Unitat de Insuficiència Cardíaca al Momentum Digital.
Dr. Aleix Fort
December, 14

Formació Continuada Hematologia
Dr. David Gallardo and Dr. Tuset

CONFERENCES ORGANIZED BY IDIBGI DURING 2020:

How is the UE fostering a higher impact for our research?
Dr. Rosina Malagrida
January, 14

Dominant ataxias: a paradigm of the impact of genetics on neurodegenerative diseases.
Dr. David Genis
March, 3
## Communication and public engagement

### MEDIA RELATIONS

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>24</td>
<td>Press releases</td>
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<tr>
<td>9</td>
<td>Interviews scheduled</td>
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</tbody>
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### VISITS

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<tbody>
<tr>
<td>3</td>
<td>Secondary Schools 96 students</td>
</tr>
<tr>
<td>8</td>
<td>Meetings and donors 32 people</td>
</tr>
<tr>
<td>6</td>
<td>Institutions</td>
</tr>
<tr>
<td>8</td>
<td>IDIBGI Friends</td>
</tr>
</tbody>
</table>

### SOCIAL MEDIA

<table>
<thead>
<tr>
<th>Platform</th>
<th>Followers/Subscribers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Twitter</td>
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<td>Instagram</td>
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<td>LinkedIn</td>
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<tr>
<td>Youtube</td>
<td>52</td>
</tr>
</tbody>
</table>

### ACTIVITIES ORGANISED

<p>| | |</p>
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<tbody>
<tr>
<td>2</td>
<td>Fundraising events 500 visitors</td>
</tr>
<tr>
<td>6</td>
<td>Solidarity campaigns</td>
</tr>
</tbody>
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### FUNDRAISING

<p>| | |</p>
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<tbody>
<tr>
<td>6</td>
<td>Agreement signatures</td>
</tr>
<tr>
<td>2</td>
<td>Material donations</td>
</tr>
</tbody>
</table>

### FEATURED NEWS

- **February**
  - Launch of an IDIBGI study on the lifestyle of 1,000 Girona residents to identify risk factors and healthy habits
  - Having breast cancer predisposes you to developing gynaecological cancer

- **March**
  - The company HIPRA (Amer) hands over biotechnology laboratories and equipment to the health authorities

- **May**
  - IDIBGI research discovers antibodies that block virus infection in cells

- **June**
  - The Girona Biomedical Research Institute, an European reference against obesity
  - Development of a system to improve prediction of breast cancer survival

- **July**
  - ICO Girona and IDIBGI investigate whether a substance from milk thistle is useful against the coronavirus

- **October**
  - IDIBGI researchers demonstrate the link between intestinal microbes and recent memory
RESEARCH AREAS AND GROUPS
CARDIO- VASCULAR AND RESPIRATORY
CARDIOVASCULAR GENETICS RESEARCH IN VASCULAR HEALTH RESPIRATORY GROUP
Cardiovascular genetics

Recognised as a consolidated research group by AGAUR (Generalitat de Catalunya) - 2017SGR804.

MEMBER OF
CIBER-CV

KEYWORDS
Sudden Cardiac Death; Arrhythmia; Ion channels, Genetics; Cell Biology; Cell Biology; Epigenomics; iPSCells

GROUP LEADER - R4
Ramon Brugada

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Sara Pagans
Guillermo Pérez
Fabiana Scornik
Marcel Verges
Elisabet Selga
Carles Ferrer
Alexandra Pérez

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Mònica Coll
Mel-lina Pinsach
Marta Puigmulé
Bernat del Olmo

PRE-DOCTORAL RESEARCHERS - R1
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Anna Fernández
David Carreras
Rebecca Martínez
Marta Vallverdú
María Yajaira Alvarado
Eloi Arias
Adrià Pérez

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Xavier Albert Bertran
María Berenguel
Daniel Bosch
Mérida Cardenas
Núria Comas
Paula Fluvià
Aleix Fort

Markus Linhart
Pablo Loma-Osorio
Sergi Moral
María Núñez
Marco Paz
Elisabet Pujol
Daniel Rivero
Coloma tiron
Emilce Trucco

TECHNICIANS
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Laura López
Núria Neto
Adrià Simon
Mónica Corona
Marina Moliner
Alejandro Pérez
Isabel Ramí
Marcel Tarragó

NON SCIENTIFIC RESEARCH SUPPORT STAFF
Elisabet Canals
Laia Nogué
Anna Iglesias
OVERVIEW

The aim of this point is to explain briefly the research group Cardiovascular Genetics Centre (www.gencardio.org)

The CGC is a research laboratory created in 2008 and dedicated to the investigation of sudden cardiac death. The CGC is hosted by the Institute of Biomedical Research of Girona (IDIBGI, Spain), which embraces all the biomedical research groups at the University of Girona and Trueta and Santa Caterina Hospitals.

CGC’s research aims to improve understanding of the basic mechanisms associated factors and causes of heart disease and sudden death and improve diagnostic tools, prevention and treatment.

This scientific area is divided into an area of research in an area of clinical and basic research.

CLINICAL RESEARCH

The clinical research program leverages collaboration of hospitals and health centers to study the risk factors, possible treatments and prevention methods.

BASIC RESEARCH

Studies to better understand the biological basis of diseases associated with sudden death. The laboratory is involved in several projects to understand the pathophysiological basis of sudden death from six major areas: genetics, epigenetics, histology, electrophysiology, membrane traffic and proteomics.

DIAGNOSIS

The diagnostic laboratory of cardiovascular genetics is the reference laboratory in its field in Catalonia, since 2015. The laboratory provides tools to help clinicians in the diagnosis of inherited cardiovascular diseases

RESEARCH TOPICS

INHERITED CARDIOVASCULAR DISEASES
1. GenCardio has several projects involving the identification of genetic causative and modulating factors associated with the risk of inherited cardiac diseases. Several of these diseases are associated with sudden cardiac death in the young. We work both with structural heart disease (cardiomyopathies), as well as pure electrical diseases (channelopathies). At present we are also investigating the genetic factors associated with predisposition to myocarditis, to myocardial infarction, to thrombosis as well as to predisposition to cardiac insufficiency from chemotherapy. The group has developed several genetic panels to perform these studies.
2. MOSCAT. Sudden death in Catalonia. Since 2012 we are performing the genetic analyses in all sudden cardiac deaths before the age of 50, in collaboration with the Institute of Legal Medicine. This project, a systematic approach to diagnosis of unexplained sudden death, is unique in the world.
3. Sudden death in the neonate. In collaboration with Sant Joan de Deu Hospital we aim at unravelling the genetic basis of sudden infant death syndrome.
4. Sudden death in epilepsy. In collaboration with the Catholic University of Rome, we work on the identification of the genetic basis of sudden death in patients with epilepsy.

GENETIC VARIABILITY IN REGULATORY REGIONS
6. We are characterizing the genetic variability in regulatory regions in genes associated with Brugada syndrome. This work will provide important information in causality as well as modulation of symptoms in this lethal disease.

FUNCTIONAL STUDIES
7. Animal model of arrhythmogenic cardiomyopathy. We have developed a mouse model of AC in order to understand the role of exercise and age in the progression of the disease.
8. Cardiomyocyte-derived IPs for the study of inherited arrhythmias. The basic electrophysiology team is currently using CM-IPs to investigate the functional effects of genetic variation in sudden cardiac death in several genetic diseases (Brugada syndrome, Catecholaminergic polymorphic ventricular tachycardia, etc)
9. Molecular biology of AC. Using CRISPR technology we are investigating the role of several desmosomal variants in the development of the disease, as well as the pathophysiological mechanisms which cause the cascade of events towards fibrofatty replacement of myocardial tissue.
10. Protein trafficking to membrane. Some of the genetic variants will not enable the ion channel to reach the membrane. This trafficking defect has been associated with sudden cardiac death. We are investigating the role of channel beta subunits in the trafficking of the ion channels.

CLINICAL PROJECTS
11. Girona Vital Project. We have developed one of the most important public access defibrillation programs in Europe to evaluate the benefits of this program in the prevention of sudden cardiac death. Cardiac rehabilitation Projects. We have several projects evaluating the role of cardiac rehabilitation in the prevention of further cardiac events.
12. Resuscitated cardiac arrest: we investigate the pathophysiology of post cardiac arrest syndrome including, temperature management, acute hemodynamic features and factors associated to neurological outcome.
13. Acute coronary syndromes. Since 2012 we study the clinical characteristics, risk profile and outcomes of patients presenting to ER with acute chest pain, and evaluate the safety and diagnostic accuracy of an early discharge protocol based on high sensitivity troponins.

14. ST elevation acute myocardial infarction (STEMI): we have developed a predictive model to calculate STEMI diagnosis-guire cross time.

15. Non ST elevation acute coronary syndrome: a registry to evaluate the bleeding risk related with antithrombotic therapy in these patients.

16. New technologies applied to the acute myocardial infarction (AMI) network: we are working to improve the AMI network with new technologies.

17. Cardiac insufficiency associated with chemo and radiotherapy. We are investigating imaging parameters which can predict development of cardiac failure in its early stages to adopt preventive mechanisms.

18. Leadless pacemaker and tricuspid function: We analysed tricuspid valve function pre and post pacemaker implant.

19. Anticoagulation in flutter: We ablate typical flutter and perform follow up of trombo embolics events in patient with and without atrial fibrillation.

PUBLICATIONS

INDEXED/ I.F. 191.52


NON-INDEXED


GRANTS

Project: Muerte Súbita Inexplicada en población joven: estudio genético, traslación clínica y prevención familiar
Funding agency: Instituto de Salud Carlos III (PI17/01690)
Duration: 01/01/2018 to 31/05/2020
Coordinator: Ramon Brugada / Oscar Campuzano
Principal Investigator: Ramon Brugada / Oscar Campuzano

Project: Ajuda de personal FI AGAUR
Funding agency: AGAUR
Duration: 01/03/2018 to 15/07/2021
Coordinator: Ramon Brugada
Principal Investigator: Ramon Brugada

Project: Paper de les variants desmosòmiques en la predisposició a miocarditis
Funding agency: PERIS (SLT006/17/00192)
Duration: 26/02/2018 to 31/12/2020
Coordinator: Ramon Brugada
Principal Investigator: Ramon Brugada
**MEMBERSHIP OF COLLABORATIVE RESEARCH STRUCTURES (NATIONAL & INTERNATIONAL)**

**SPANISH**
- CIBER-CV (Enfermedades Cardiovasculares) - CB16/11/00329

**DOCTORAL THESIS**

**Title:** Trafficking and Function of the Voltage-Gated Sodium Channel Beta2 Subunit  
**Student:** Eric Cortada Almar  
**University:** Universitat de Girona  
**Directors:** Dr. Ramon Brugada Tarradellas, Marcel Verges Aiguaviva  
**Date:** 24/11/2020

**Title:** Creació i validació d’un model de predicció per al càlcul del temps d’antigio plàstica primària en pacients amb infart agut miocardi que són traslladats a un hospital amb disponibilitat d’hemodinàmic  
**Student:** Jaime Aboal Viñas  
**University:** Universitat de Girona

**AWARDS / RECOGNITION**
- Medalla Narcís Monturiol al mèrit científic i tecnològic. Generalitat de Catalunya  
- Premi Joan Codina Altés, Societat Catalana de Cardiologia  
- Best Oral communication. Societat Catalana de Cardiologia "Mort sobtada arritmogènica en població juvenil. Autopsia molecular i transformació familiar"
Research in vascular health

Recognised as a consolidated research group by AGAUR (Generalitat de Catalunya) - 2017SGR1146

MEMBER OF redIAPP ISCIII

KEYWORDS
Atherosclerosis, cardiovascular risk, primary prevention

GROUP LEADER - R4
Rafel Ramos

ESTABLISHED RESEARCHERS - R3
Maria del Mar Garcia
Ruth Martí Lluch
Anna Ponjoan Thàns

POST-DOCTORAL RESEARCHERS - R2
Lia Alves
Miquel Quesada
Didac Parramon
Lourdes Camós
Mar Serrat

PRE-DOCTORAL RESEARCHERS - R1
Jaime Aboal
Elisabet Balló
Laura Guerrero
Èrica Homs
Elizabeth Guzman
Margarita Matas
Esther Lazaro
Ester Fages

COLLABORATORS
Carlos Cerezo
Pascual Solanas

TECHNICIANS
Marc Comas
Jordi Blanch

NON SCIENTIFIC RESEARCH SUPPORT STAFF
Josep M. Ramos
OVERVIEW

The group Investigació en Salut Vascular (ISV) of Girona is multidisciplinary and encompasses all perspectives of the proposed research lines. In this group, experts in epidemiology and methodology of research work along with physicians and clinical researchers. Thus, interpretation and discussion of the projects are grounded and take into account the needs and considerations of clinical practice. The group is linked with three institutions: Institut de Recerca Biomèdica de Girona (IDIBGI), Institut d’Investigació en Atenció Primària (IDIAP), and Universitat de Girona (UdG). The group consists of family physicians (M.Quesada, D.Parramon, P.Solanas, C. Cerezo, R.Ramos), an epidemiologist (M.Garcia), mathematicians (J.Blanch, M.Comas), a laboratory medicine specialist (L.Alves-Cabratos), nurses (L.Camos) and biologists (A.Ponjoan, R.Marti).

The multidisciplinary of the team has been key to achieve the results obtained so far, and will be crucial to keep such trend in the future. Expertise areas in our group are related to primary care, disease prevention, epidemiology, study of lipids, cardiovascular diseases, statistics, and analysis of large clinical databases.

Research in ISV group is focused on the study of the epidemiology of vascular diseases, detection of cardiovascular disease in its asymptomatic stage, mathematical modelling of risk prediction (construction of prediction tools to be applied in Primary Care), and evaluation of interventions to prevent vascular disease, particularly the effectiveness of lipid-lowering drugs.

The group is organised to adapt to its strategic objectives. The leading researcher and general coordinator of the group is Dr Rafel Ramos, who is a Family Physician. There is a scientific group supervised by Dr Ramos and By Dr Maria García -who is an expert in research methodology and statistics. Both coordinate the supervision of the projects, the prioritisation of the objectives, and the analyses performed by the postdoctoral researchers. They are also responsible, along with Dr Ruth Martí, for the supervision of the PhD students’ works. To accomplish the scientific and strategic objectives of the group, three platforms have been organised:

1. The platform for tuition, coordinated by Maria García, Ruth Martí, and Rafel Ramos, is in charge of the internal tuition for the group members (proposing and selecting courses for the researchers and technicians, organising the internal instruction of the researchers particularly of the PhD students, and the group sessions). They also organise the lectures in research methodology that the group members address to other health professionals. Currently, this platform is directing 10 doctoral theses in primary care and cardiovascular epidemiology. There are 4 members in the group who are associate teachers within the Departament de Ciències Mèdiques en Universitat de Girona (UdG), and they lecture in the Medical Degree, in the Master in Health Promotion, and in the Master in Molecular Biology and Biomedicine from UdG. They lecture in multiple courses and seminars about research given to health professionals at the unitat Docent de Medicina de Família de Girona. The group ISV also hosts residents in medicine and in nursing for a period of research instruction during their internship.

2. The platform for data management and statistical analysis. This structure is strategic for the group, since the expertise in the management of large clinical databases supports the tree strategic objectives of the group. The coordinator of this platform is Dr García and the technicians are M. Comas and J. Blanch, who are both mathematicians. In recent years, this platform has gained great expertise in the management of clinical databases, essentially through collaboration with other international research groups. This platform supports 8 projects that are under competitive funding. Dr Maria García has been recently appointed director of SIDIAP system (www.sidiap.org).

3. Platform for patient recruitment and follow-up. This structure is specialised in patient enrolment and follow-up, with tuition in sample extraction, clinical measurements, and questionnaire administration. In recent years, more than 9000 participants have been recruited for the various projects this platform supports (HERMES study, MARK study, REGICOR study). Dra. Martí is the coordinator of this platform.

Project management and follow-up are carried out by R. Ramos, M. García, R. Martí, and A. Ponjoan.

RESEARCH TOPICS

The ISV research group offers a broad spectrum of expertise in both methodologies and topic areas in primary care. Its research is focused on three principal research lines, with which we aim to continue during the next three years. These lines are 1) evaluation of preventive interventions and study of the effectiveness of drugs used in primary prevention, using the Information System for Research in Primary Care (SIDIAP). The SIDIAP database was created in 2010 under the auspices of the Catalan Institute of Health (CIH) and the Primary Care Research Institute Jordi Gol (IDIAP). It is an anonymized database that generates reliable and standardized clinical information of nearly 5 million patients – about 80% of the Catalan population, and 10% of the Spanish – attended by 3414 general practitioners (GPs) in the 274 primary care practices managed by the CIH. The main aim of the SIDIAP platform is to promote the development of research based on data from these medical records. 2) Epidemiology of cardiovascular diseases, especially asymptomatic. 3) The design of decision-making support tools using mathematical modelling of risk prediction.
The above-mentioned three main research lines can be concreted in the following 5 objectives:

1. To assess the effectiveness and efficiency of different interventions for prevention and control of atherosclerotic disease in primary care using large databases.
2. To analyse the role of cardiovascular (CV) risk factors and their control in dementia incidence.
3. To design and validate risk functions, tailored to the needs of general and specific populations.
4. To analyse the role of emerging and new risk factors and the presence of asymptomatic atherosclerosis in cardiovascular risk prediction.
5. To evaluate activities for health promotion and disease prevention in the context of the redIAPP (Research Network on Preventive Activities and Health Promotion, RETICS).

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2. To analyse the role of cardiovascular (CV) risk factors and their control in dementia incidence.
3. To design and validate risk functions, tailored to the needs of general and specific populations.
4. To analyse the role of emerging and new risk factors and the presence of asymptomatic atherosclerosis in cardiovascular risk prediction.
5. To evaluate activities for health promotion and disease prevention in the context of the redIAPP (Research Network on Preventive Activities and Health Promotion, RETICS).

PUBLICATIONS

INDEXED / i.f: 216.54


CARDIOVASCULAR AND RESPIRATORY AREA

NON-INDEXED


GRANTS

Project: Girona, Regió Saludable
Funding agency: Generalitat de Catalunya, Fons FEDER
Duration: 01/01/2017 to 31/12/2021
Coordinator: Josep Puig Alcántara
Principal Investigator: Josep Puig Alcántara

COLLABORATIVE GRANTS

Project: Stratification of ObesePhenotypes to Optimize Future Obesity Therapy
Funding agency: European Commission
Duration: 09/07/2020 to 08/07/2025
Coordinator: José Manuel Fernández-Lemos
Principal Investigator: José Manuel Fernández-Lemos

Project: Smart City Observatories implement RESilient Water Management
Funding agency: European Commission
Duration: 2019 to 2020
Coordinator: Lluís Corominas (ICRA)
Principal Investigator: Rafel Ramos

Project: Análisis del papel de las aptitudes personales como DEterminantes de la incidencia de morbidad, eSTilos de vida, calidad de Vida, uso de sERVicios y mortaLiAd (Cohorte DESVELA)
Funding agency: Instituto Carlos III
Duration: 01/01/2020 to 31/12/2022
Principal Investigator: Ruth Martí-Lluch

Project: Seguiment de la cohort poblacional de l’estudi REGICOR: tendències en la incidència de malaltia cardiovascular, en la prevalència de factors de risc, identificació de nousmecanismes i biomarcadorspredictius, i avaluació d’estratègies de prevenció.
Funding agency: Generalitat de Catalunya (PERIS)
Duration: 29/03/2017 to 01/02/2010
Coordinator: Roberto Elosua Llanos
Principal Investigator: Rafel Ramos

Project: Nivel y variación del riesgo cardiovascular y prevención de la demencia.
Funding agency: Instituto Carlos III
Duration: 25/11/2020 to 01/02/2019
Coordinator: Roberto Elosua Llanos
Principal Investigator: Rafel Ramos

MEMBERSHIP OF COLLABORATIVE RESEARCH STRUCTURES (NATIONAL & INTERNATIONAL)

SPANISH

• RETICS - Red: REDIAPP ISCIII

DOCTORAL THESIS

Title: Creació i validació d’un model de predicció per al càlcul del temps d’antigio plàstica primària en pacients amb infart agut miocardi que són traslladats a un hospital amb disponibilitat d’hemodinàmic
Student: Jaime Aboal Viñas
University: Universitat de Girona
Directors: Dr. Rafel Ramos, Dr. Ramon Brugada
Date: 26/06/2020

Title: Validesa del Sistema d’Informació pel Desenvolupament de la Investigació a Atenció Primària (SIDIAP) en l’estudi de malalties vasculars i estudi de la efectivitat de les estatines en la reducció de mortalitat i malaltiesvasculars en la poblaciómajor de 74 anys
Student: Elisabet Balló Peña
Director: Rafel Ramos Blane
University: Universitat de Girona
Date: 31/07/2020

COLLABORATIONS

We effectively collaborate and share projects with investigators from both national and international institutions.

INTERNATIONAL COLLABORATIONS

• Dr Irene Petersen’s research group. The group is located at the University College of London, and they are experts on Missing imputation techniques. Dr Irene Petersen collaborates as researcher in some of the projects led by members of our
Participation with EU-ADR Alliance. Members of the group are part of this European structure. We intend to be involved in European projects related to cost effectiveness of treatments for the prevention of CV disease.

Dr Prieto Alhambra’s research group from Oxford University. Drs Ramos and García stayed for a research fellowship at the Botnar Research Center.

Cardiovascular Epidemiology and Genetics Group from the IMIM (Institut Hospital del Mar Investigacions Mèdiques). Dr R. Elosua is the coordinator of this group, which is also composed by Dr J. Marrugat and Dr M. Grau, among others, with whom we have collaborated in many projects, and authored many papers.

Collaboration with CIBERCV, through Dr Marrugat’s (CB16/11/00229), Dr Elosua’s (CB16/11/00246), and Dr Brugada’s (CB16/11/00329) groups.

We also collaborate on the Myocardial Infarction Genetics Consortium (MiGen): This international genetics research platform includes 2,967 cases of early-onset myocardial infarction and 3,075 age- and sex-matched controls.

We also participate in the Non-Communicable Diseases Risk Factor Collaboration (NCD-RisC), which is a network of health scientists around the world that provides rigorous and timely data on major risk factors for non-communicable diseases; it covers all countries worldwide. (http://ncdrisc.org/)

We are also involved in the INTERPRESS-IPD: The Inter-arm blood pressure difference individual patient data collaborations. It is an international collaboration evaluating the independent contribution of Inter-arm blood pressure difference to estimate cardiovascular and all-cause mortality risk. (http://medicine.exeter.ac.uk/research/healthresearch/primarycare/projects/interpress-ipd/)
Respiratory

MEMBER OF CIBER-ES

KEYWORDS
Bronchiectasis;
Sleep disorders;
Interstitial Lung Diseases;
Occupational diseases

GROUP LEADER - R4
Ramón Orriols

ESTABLISHED RESEARCHERS - R3
Montserrat Vendrell
Olga Tura

POST-DOCTORAL RESEARCHERS - R2
Manel Haro
Susana Mota
Gerard Muñoz
Marc Bonnin
Ana M. Muñoz
Mònica Sánchez

PRE-DOCTORAL RESEARCHERS - R1
Eric Rojas
Daniel S. Torres

COLLABORATORS
Sònia Belda
Anton Obrador
Laura Sebastián
Juan Carlos Calderón
Maria José Redondo
Saioa Eizaguirre
Gladis Sabater

TECHNICIANS
Neus Luque
Paula Poyatos
Neus Puigdevall

NON SCIENTIFIC RESEARCH SUPPORT STAFF
Laia Merchan

KEYWORDS
Bronchiectasis;
Sleep disorders;
Interstitial Lung Diseases;
Occupational diseases
OVERVIEW

Respiratory Research Group at IDIBGI is composed by several researchers from the Pneumology Service. It is focused on bronchiectasis, sleep diseases, occupational respiratory diseases and Interstitial Lung Diseases research.

Research is complemented with an intensive clinical activity, which has lent the group to be invited to conferences at international congresses, draft reviews and publishers in magazines of high impact, as well as to be a member of experts in the field of respiratory illnesses, either on a national and international.

RESEARCH TOPICS

- Bronchiectasis. Physiotherapy. Primary immunodeficiencies.
- Sleep diseases: diagnostic at Primary Health care level and vascular impact.
- Occupational diseases and immunoallergic respiratory diseases.
- Lung cancer.
- Pulmonary hypertension

PUBLICATIONS

INDEXED / I.F: 131.11


GRANTS

Project: Targets of Chronic Thromboembolic Pulmonary Hypertension (CTEPH); the root cause and an in vivo model of CTEPH endothelial pathology

Funding agency: Instituto de Salud Carlos III

Duration: 01/01/2018 to 30/06/2022

Coordinator: Olga Tura Ceide

Principal Investigator: Olga Tura Ceide
Project: Incorporació al Grup de recerca de “Respiratori”:
Biomarcadors de disfunció endotelial en la SAOS
Funding agency: Generalitat de Catalunya (SLT006/17/00251)
Duration: 01/01/2018 to 31/12/2021
Coordinator: Olga Tura Ceide
Principal Investigator: Olga Tura Ceide

Project: Ayuda de personal Miquel Servet.
Funding agency: Instituto de Salud Carlos III
Duration: 01/01/2017 to 31/12/2021
Coordinator: Olga Tura Ceide
Principal Investigator: Olga Tura Ceide

Project: Estudio del metabolismo y de la función endotelial en pacientes con hipertensión pulmonar tromboembólica efecto de la estimulación de riociguat
Funding agency: Instituto de Salud Carlos III (PI18/0090)
Duration: 01/01/2019 to 31/12/2021
Coordinator: Olga Tura Ceide
Principal Investigator: Olga Tura Ceide

MEMBERSHIP OF COLLABORATIVE RESEARCH NETWORKS (NATIONAL & INTERNATIONAL)

INTERNATIONAL
• EMBARC - The European Bronchiectasis Registry

SPANISH
• CIBER_ES (enfermedades respiratorias) - CB06/06/0030
Medical imaging

GROUP LEADER - R4
Salvador Pedraza

ESTABLISHED RESEARCHERS - R3
Josep Puig
Albert Maroto
Víctor Pineda

POST-DOCTORAL RESEARCHERS - R2
Antoni Mestre
Montserrat Negre

PRE-DOCTORAL RESEARCHERS - R1
Eduard Camacho
Víctor Cuba
Alfredo Eduardo Gimeno
Nerses Nerseyan
Marta Reales
Pau Xiberta

COLLABORATORS
Elda Balliu
Noemí Cañete
Jaume Codina
Josep Daunis

Victòria Garriga
David Hernández
Paco Jaldo
Sergi Juanpere
Xavier Molina
Laura Paul
Diego Preciado
Ana Maria Quiles
Sebastià Remolà
Santiago Thió Fernández
Laia Valls
Joan Carles Vilanova

TECHNICIANS
Carles Biarnès
Maria Àngels Martí
Alejandro Hinojosa

NON SCIENTIFIC RESEARCH SUPPORT STAFF
Xavier Molina Figuera
OVERVIEW

Medical Imaging research group main goals:

- Image Biomarkers validation.
- Validation of brain connectivity as a predictive biomarker in patients with cerebral infarction.
- Aging predictive biomarkers study.
- “Population” study.

RESEARCH TOPICS

The main research lines are:

- Determination of the biomarkers associated to the healthy aging in population studies.
- Validation of the predictive value about cardiovascular risk of imaging biomarkers.
- Validation of the value of artificial intelligence to predict cardiovascular risk of imaging biomarkers.
- Determination of the protocol of follow-up of incidental findings in population studies.
- Validation of the predictive utility of imaging biomarkers in patients with cerebral infarct.
- Validation of the prognostic value of imaging biomarkers in patients with cerebral hematoma.
- Validation of the predictive utility of imaging biomarkers in patients with brain tumors.
- Validation of the prognostic value of imaging biomarkers in patients with obesity.
- Validation of the diagnostic utility of imaging biomarkers in patients with Multiples sclerosis.
- Validation of the diagnostic utility of imaging biomarkers in patients with obesity.
- Validation of the diagnostic value of artificial intelligence in the interpretation of thoracic X-rays.

PUBLICATIONS

INDEXED / I.F: 266.69


immunohistochemistry and have an immune-phenotype indicating


NON-INDEXED


Books

GRANTS
Project: AI Platform integrating imaging data and models, supporting precision care through prostate cancer’s continuum
Funding agency: European Comission
Duration: 01/10/2020 to 30/09/2024
Coordinator: Joan Carles Vilanova Busquets
Principal Investigator: Joan Carles Vilanova Busquets
Project: Girona Regió Saludable - Imagenoma de la Salut
Funding agency: Generalitat de Catalunya
Duration: 01/10/2017 to 31/12/2021
Coordinator: Josep Puig Alcántara
Principal Investigator: Josep Puig Alcántara

Project: BRAIN-CONNECTS: MRI Biomarkers of Brain Connectivity during Stroke Recovery and Rehabilitation
Funding agency: La Marató de TV3
Duration: 2017 to 2020
Coordinator: Josep Puig Alcántara
Principal Investigator: Josep Puig Alcántara
Mental health and addictions

GROUP LEADER - R4
Jordi Cid

ESTABLISHED RESEARCHER - R3
Eva Frigola

POST-DOCTORAL RESEARCHERS - R2
Laura Masferre

PRE-DOCTORAL RESEARCHERS - R1
Miriam Broncano
Àngels Déu

COLLABORATORS
Jordi Nuñez
Meritxell Beltran
Mª Àngels Vila
Sacramento Mayoral
René Morgan
Eduard Palomer
Evgenia Baykova
Domènech Serrano

OVERVIEW

The Mental Health Research group lump together 2 research groups: Clinical and economics and Neurobiology. The two groups build collaborative research projects and share research structure.

RESEARCH TOPICS

1. Clinical and Economics: Jordi Cid
   • Psychosis: functionalism, diagnosis and intervention – Jordi Cid and Eva Frigola-Capell
   • Suicide: epidemiology, diagnosis and genetics – Jordi Cid and Eva Frigola-Capell
   • School failure: epidemiology, prevention, neurodevelopmental disorders – Jordi Cid
   • Mental Health and Neuropsychology: Jordi Cid and Eva Frigola-Capell
   • Cost efficiency and Big Data: Jordi Cid

2. Neurobiology: Domènech Serrano
   • TDHA: pharmacological treatment and Mobile technology – Domènech Serrano, Sacramento Mayoral, Evgenia Baykova
   • Patient Safety: Eva Frigola-Capell
   • Addictions: risk factors and health outcomes - Laura Masferrer

PUBLICATIONS

Indexed / I.F:18.54


MEMBERSHIP OF COLLABORATIVE RESEARCH NETWORKS (NATIONAL & INTERNATIONAL)

SPANISH
- Spanish Metacognition Study Group (SMSG)
Neurodevelopmental disorders

KEYWORDS
Mental health; intellectual disabilities; challenge behavior; genetics; behavioural phenotypes; Prader-Willy; Down syndrome; Neuropsychology; DTI; MEG; MRI

GROUP LEADER - R4
Ramón Novell

POST-DOCTORAL RESEARCHERS - R2
Susana Esteba-Castillo
Pilar Àvila

PRE-DOCTORAL RESEARCHERS - R1
Natàlia Díaz
Aida Palacín
Raimon Ripoll

COLLABORATORS
Marta Vilà

TECHNICIANS
Núria Ribas Vidal

NON SCIENTIFIC RESEARCH SUPPORT STAFF
Cristina Almeda
Meritxell Baro
David Losada
OVERVIEW

The Neurodevelopmental Disorders Research Group has been involved in many national and international research projects in the field of intellectual disability and development and has received several research grants. The members of the group have a long trajectory and experience in the evaluation and management of people with ID. The team collaborates with other research groups with several projects. For example, the neuroimaging research team at the Hospital del Mar directed by Jesús Pujol. This team is considered an international reference in obtaining and analyzing structural and functional neuroimaging in psychopathologies such as OCD, Affective Disorders and in the study of brain morphology in the emotional or personality component. Another of the teams is the Genetics group of the Corporació Sanitària Parc Taulí (CSPT), which has a long experience in the study of the etiology of intellectual disability and psychiatric disorders, among which we can highlight the study of the molecular and diagnostic bases of the Prader Willi, Fragile X, and Angelman syndromes. Likewise, the CSPT Genetics group is integrated in international collaborations with the aim of grouping and analysing the data of each team in order to identify recurrent variants and to be able to apply for European funding (Horizon 2021). It is important to point out the work done with the Department of Endocrinology of the Corporació Sanitària Parc Taulí (CSPT), studying the relationship between certain hormones and peptides and their relationship with cognition. Finally, the technical team of SESM-DI collaborates in the global training of the Institut d’AssistènciaSanitària as a multidisciplinary teaching unit in psychiatry, psychology and neuropsychology, leading to. The project provides university internships for students in the fields of medicine, psychology and nursing, as well as students of post-graduate courses and masters.

RESEARCH TOPICS

The group has different lines of research:

1. Aging, mild cognitive impairment and dementia in people with intellectual disabilities.
2. Genetics in mental illness and challenge behaviour in people with intellectual disabilities.
5. Integral care for people with limited intellectual functioning.
6. Creation, normalization and validation of Neuropsychological tests for ID population.

PUBLICATIONS

INDEXED / I-F: 35.38


NON-INDEXED


GRANTS

COLLABORATIVE GRANTS

Project: Tratamiento con hormona de crecimiento en el adulto con Síndrome de Prader-Willi: efecto sobre el tono muscular valorado mediante resonancia magnética funcional (RMf) y su relación con la fuerza muscular y la composición corporal

Funding agency: Instituto de Salud Carlos III

Duration: 2019 to 2021
Coordinator: A. Caixas
Principal Investigator: A. Caixas

COLLABORATIONS

• Research and Psychology in Education Department.
  Complutense University of Madrid, Spain.

• Laboratory of Cognitive and Computational Neuroscience.
  Department of Legal Medicine, Psychiatry and Pathology
  (Faculty of Medicine). Complutense University of Madrid,
  Spain.

• Down Syndrome Department, La Princesa University Hospital

• Department of Methodology for Behavioral Science.
  Complutense University of Madrid, Spain.

• Universidad Politecnica de Madrid, Centro de Tecnología
  Biomédica; Universidad de La Laguna, Electrical Engineering
  and Bioengineering group

• MRI Research Unit, Department of Radiology, Hospital del Mar,
  08003 Barcelona, Spain

• Department of Clinical and Health Psychology, Autonomous
  University of Barcelona, 08193 Barcelona, Spain

• Endocrinology and Nutrition Department, Parc Taulí Hospital
  Universitari, Institut d’Investigació i Innovació Parc Taulí
  I3PT-Universitat Autònoma de Barcelona, Sabadell, Spain

• Philipps-Universität Marburg, Marburg, Germany

• Grup de Recerca del’I3PT Obseitat i síndrome de Prader Willi.
  Àrea: inflamació, Immunologia i metabolisme (Susanna Esteba-
  Castillo).

• Investigadora en el área de neuropsicología del grupo para
  el estudio de variantes en número de copias (CNV’s); Trinity
  College (Dublín) (Susanna Esteba-Castillo).

• Miembro del grupo de trabajo consolidado en
  Neurodevelopmental disorders; genetics, psychiatry,
  intelectual disabilities and brain sciences con el Univeristy
  College London, division of Psychiatry (Susanna Esteba-
  Castillo).
METABOLISM AND INFLAMMATION

DIGESTIVE DISEASES AND MICROBIOTA
INFECTIONS, SEPSIS AND MULTI-ORGAN DYSFUNCTION IN THE PATIENT
INTERNAL MEDICINE
METABOLIC AND MATERNOFETAL NEPHROLOGY
NUTRITION, EUMETABOLISM AND HEALTH
PAEDIATRIC OBESITY AND CARDIOVASCULAR RISK
Digestive diseases and microbiota

KEYWORDS
Microbiota; Inflammatory Bowel diseases; Biomarker; Molecular microbial ecology

GROUP LEADER - R4
Xavier Aldeguer

POST-DOCTORAL RESEARCHERS - R2
Anna Bahí Salavedra
Marc Llirós
Mireia Vila

PRE-DOCTORAL RESEARCHERS - R1
David Busquets
Josep Oriol Miquel
Silvia Virolés
Laura Vilà
Aleix Lluansí

COLLABORATORS
Esther Fort
Leyanira Torrealba
Hugo Ikuo Uchima
Carlos Huertas
Isabel Serra
Virgínia Piñol
Carmen López Nuñez

NON SCIENTIFIC RESEARCH SUPPORT STAFF
Anna Feliu
Montserrat Capdevila
OVERVIEW

The group lead by MD PhD X Aldeguer is interested in understanding the role of those tiny bugs living in the gut and how their perturbations (i.e., dysbiosis) affect the status of health and disease in humans. Basically, deviations from the “normal” state will tell us about the disease status and putative ways to solve the disequilibrium. We are a multidisciplinary team involving post-doctoral researchers with broad experience in the medical and microbial ecology fields, but also a wide range of medical doctors pursuing a PhD degree to understand the role of our tiny trip companions. In order to give answer to our research topics (basically which is the role of gut microbes on health and inflammatory bowel status), we are performing human clinical studies and culture-independent techniques focused on DNA sequencing of the 16S rRNA gene. These tools will enable us to address our biological questions from a taxonomic and functional perspective.

RESEARCH TOPICS

Over the last years our research group has established as main research lines the study of the human gut microbiome in all diseases affecting the digestive tract with the involvement of the inflammatory process (e.g., inflammatory bowel disease (IBD), colorectal cancer (CRC), chronic pancreatitis (CP), pancreatic cancer (PC), hepatic steatosis, hepatocarcinoma, Barrett’s esophagus disease, among few others) with the intention to define a set of microbial biomarkers as prognosis tools for such disease collection, but also paying attention to their diagnosis and monitoring to support clinicians. Briefly, our research group has been working on the description IBD microbiome ever since 2002. Moreover, we have been spanning our view thus getting involved in research projects were inflammatory processes can be related with the role of gut microbiome (e.g., rheumatic diseases or asthma, to cite a pair).

On an early stage, we focused on the microbiome profile in Crohn’s disease based upon colonic biopsies. A study that deserved a prestigious local grant. La Marato TV3 among others. The microbiome was described using 16S RNA application and DGGE gels. These studies were published in The IBD Journal 2016 (Martinez-Medina et al).

Derived from this early study, we took a step further and drew attention to the description of two main species in IBD, E coli and F. prausnitzi and we were the first group in the world to describe 2 phylotypes of this species (Lopez-Siles et al. 2016 IBD Journal) with differences between Crohn’s disease (CD) and Ulcerative Colitis (UC; unpublished results). The abundance of Akkermansia on mucosa samples in many IBD subtypes is currently being assessed and has been published ( Lopez-Siles et al Front Cell Infect Microbiol. 2018).

Beyond IBD, our group has also contributed to the description of microbial markers for IBS and colon cancer. In this sense, the main strategic research lines of our group are based on the following pillars:

1. Dysbiosis indicators in inflammatory bowel diseases

   Over the last years, we are performing a wide-range study aimed to correlate microbiological indexes (based on logarithmic ratios of absolute quantifications) and clinical determinants for inflammatory bowel disorders (IBD) (Crohn’s Disease (CD), ulcerative colitis (UC), and colo-rectal cancer (CRC)). We propose such ratios for risk determination, pre-screening processes and diagnostic of bowel disorders. Besides IBD, the utility of logarithmic ratios on Inflammatory Bowel Syndrome (IBS) is also under study. Moreover, a step forward in the healing mucosa concept is underlining our scientific proxy.

   In close collaboration with the clinical microbiology team at Universitat de Girona lead by PhD Margarita Martínez-Medina, we are digging into the genetic elements defining the "adherent-invasive" pathovar within Escherichia coli (AIEC) and its role on CD. Microbiologically based molecular tools for detection of AIEC on CD patients are under process.

2. Hepatopancreatic line

   More and more evidences pointed towards the presence and active role of microbes (either resident or transient ones from the gut) in the hepatopancreatic environment. In this sense, we have recently opened a new research line studying the microbial community in fecal samples of patients suffering of hepatic inflammatory diseases. By now, we are studying diseases such: chronic pancreatitis (CP) and its evolution towards cancer or steatosic liver ending in hepatocellular carcinoma.

3. Liver microbiome

   Liver related diseases have somehow an inflammatory process. In this sense, we are currently performing clinical- and molecular-based studies trying to correlate gut microbiome and liver diseases, basically non-alcoholic steatohapatitis (NASH), hepatocellular carcinoma (HCC), and non-alcoholic fatty acid liver disease (NAFLD).

4. Dysbiosis and rheumatic diseases

   A new research line aimed to connect the inflammatory process of rheumatic disorders with the gut microbiome has been recently activated. As for the IBD, the presence of inflammatory signals
might be correlated with the gut microbiome. In this sense, we propose the use and application of logarithmic ratios of absolute microbial quantifications to establish threshold values for rheumatic disorders.

6. Healing dysbiosis with traditional bread
In close collaboration with a high-quality traditionally made bread produced, we have started to investigate the effect of traditional bread (long fermentation of whole grain wheat flour with wild starters) on patients suffering of IBD and metabolic syndrome (in collaboration with the Institut Mar d’Investigacions Biomèdiques (IMIM) of Hospital del Mar de Barcelona. This new research line allowed establishing collaboration between the private sector (Elias Boulanger) and two public partners (IMIM and IDIBGI).

Based on those results, our group has founded in 2014, a start-up biotech company named GoodGut (www.goodgut.eu). This company is focused on the development of microbial fecal signatures based on markers described in our previous studies which are integrated upon a machine-learning derived algorithm.

Based on this techniques, there are three markers being validated clinically for IBD:

• Raid-Monitor that correlates more precisely to endoscopic indexes than calprotectin (results under submission)
• Raid-Response which have a preliminary results very robust on prediction of response to anti-TNF treatment
• Raid-DX which allows a good differential diagnosis between IBD and IBS (under submission)

PUBLICATIONS
INDEXED / i.f: 38.35


9. Lenci N, Anzil A, Servais P, Kebbouche S, Gana ML, Lirros M. Microbacterium algeriensense sp. nov., a novel actinobacterium...


NON-INDEXED


GRANTS


Project: Analysis of microbiota patterns linked to pancreatic cancer and their role in host inflammation, oxidative stress, and immune status. Funding agency: Fundación La Marató TV3 (201912-31) Duration: 30/09/2020 to 30/09/2023 Coordinator: Xavier Aldeguer Manté Principal Investigator: Xavier Aldeguer Manté

PATENTS

Number of application: WO2020182922 Title: Improved method for the screening, diagnosis and/or monitoring of colorectal advanced neoplasia, advanced adenoma and/or colorectal cancer. National Patent/PCT / EPO Applicants: Mariona Serra Pagès, Jesús García-Gil, Xavier Aldeguer Manté, Marta Malagón Rodriguez, Sara Ramió Pujol.

DOCTORAL THESIS

Title: Avaluació de la utilitat del monitoratge farmacocinètic dels fàrmacs anti-TNF en pacients amb malaltia inflamatòria intestinal en dos hospitals amb diferent grau d’especialització Student: Mireia Vila Currius Director: Xavier Aldeguer Manté University: Universitat de Girona Date: 09/03/2020

COLLABORATIONS

Our research group is currently collaborating with the following team partners (see provided list below). Clinical Microbiology and Infectious diseases group of the University of Girona (UdG); with the university research group lead by M Martínez-Medina and LJ García-Gil we have a close collaboration experience dealing with inflammatory bowel diseases and isolation, characterization and study of different E. coli enterotypes.

- LJ García-Gil, full-professor
- M Martínez Medina, tenure-track lecturer

Oncology Data Analytics Program (ODAP), Catalan Institute of Oncology (ICO) from the Bellvitge Biomedical Research Institute (IDIBELL); with Eric Duell’s team we have been awarded with a MARATÓ TV3 prize to investigate the human microbiome in pancreatic cancer.

- E Duell, team leader
- Ainhoa García, PhD student

Goodgut sà: a biotechnology company dedicated to the research and development of non-invasive systems to support the diagnosis and treatment of digestive diseases located in Girona area and in which our group leader is co-founder and medical director.
Infections, sepsis and multi-organ dysfunction in the patient

KEYWORDS
Microbiota; Inflammatory Bowel diseases; Biomarker; Molecular microbial ecology

GROUP LEADER - R4
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PRE-DOCTORAL RESEARCHERS - R1
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Cristina Murcia

COLLABORATORS
Carolina Lorencio
Patricia Ortiz
Sara Foradada
Josep Miquel Morales

TECHNICIANS
Miquel Angel Arruego
Nereal López de Arbina

NON SCIENTIFIC RESEARCH SUPPORT STAFF
Juliana Gonzalez
Abdó Tache
OVERVIEW

More than 15 years ago a research group was created in the IDIBGI called “Microbiology and inflammation”. This group included all projects on infections of the University Hospital of Girona Doctor Josep Trueta (HUGDIT) as well as a group from the University of Girona working in conjunction with them. Also Dr. Sirvent, is involved in CIBERrespiratori group, 14th grou- Dr. Antoni Torres (Hospital Clinic).

In order to update the group and suitably redefine the projects and research staff actively involved, we will create an internal specific, dynamic group for the study of infectious diseases in the critically ill patient: Study Group of Microbiology and Infection in Critically ill patients (MI-ICU).

RESEARCH TOPICS

- Studies of Microbiology and Infections in the critically ill patient.
- Study of sepsis.
- Study of community-acquired pneumonia.
- Study of sepsis in glycemia.
- Nursing procedure in security and sepsis in critical patient.

PUBLICATIONS

INDEXED / I.F.: 2.491


NON-INDEXED:

Internal medicine

KEYWORDS
Venous Thromboembolism; Heart Failure; Infectious diseases; COVID-19; Sarcoidosis

GROUP LEADER - R4
Antoni Castro i Guardiola

COLLABORATORS
Gemma Álvarez
Mònica Angerri
Arola Armengou
Marta Conde
Ariadna de Genover
Ana del Cielo Pérez
Iria Francisco
Aberaldo Hurtado
Marta Lora
Anna Oller
Meritxell Ortega
Guillem Policarpo
Martín guintana
Maria Rexach
Xavier Salgado
Ferran Garcia-Bragado

OVERVIEW
All members belong to the Internal Medicine Service, a healthcare service that assists a wide spectrum of pathologies. The main activity of the group is the assistance, and, in their effort to maintain the quality of care, they dedicate notable efforts to continuing medical education (after hours), and in their conviction that clinical research results in a better quality of care.

RESEARCH TOPICS

• Venous thromboembolic disease (VTE). The group, for years, has been dedicated to clinical research of the VTE; has participated in several controlled clinical trials on the new direct-acting oral anticoagulants, all of which were published in the New England Journal of Medicine (the last in 2018). The group also participates in two international registries on the VTE, the registries RIETE and GARFIELD - VTE. Nowadays involves in the trial API-CAT STUDY for Apixaban Cancer Associated Thrombosis.

• Heart failure. Dr. Arola Armengou She is a member of the Heart Failure and Atrial Fibrillation group of the Spanish Internal Medicine Society and is an active member of the RICA registry.

• Infectious diseases. The group designed and developed a clinical trial on pneumonia acquired in the community, as well as other studies on the same pathology; These studies were translated into an original in the America Journal of Medicine as well as other publications and communications to different congresses. The group also works on the infection by the human immunodeficiency virus, multiresistant bacteria, urinary tract infections and Tuberculosis.

• Finally, the group also participates in the clinical investigation of systemic autoimmune diseases and recently we have started clinical research, together with the Ophthalmology Service, of uveits. The group participates in the RELES registry (Registro Español del Lupus Eritematoso Sistémico) of the Spanish Internal Medicine Society.
PUBLICATIONS

INDEXED / I.F: 20.84


Metabolic and maternofoetal

Recognised as a consolidated research group by AGAUR (Generalitat de Catalunya) - 2017SGR01236

KEYWORDS
Pregnancy;
Pre and postnatal growth;
Metabolic programming

GROUP LEADER - R4
Judit Bassols

PRE-DOCTORAL RESEARCHERS - R2
José María Martínez-Calcerrada
Ariadna Gómez Vilarrubia

COLLABORATORS
Mercè Montesinos
Alexandra Bonmatí
Montserrat Gispert Sauch
OVERVIEW

An unfavorable prenatal environment and inadequate nutritional stimulus during critical developmental periods are associated with an increased risk of endocrine-metabolic diseases in the mother and in their offspring. This metabolic programming is produced, in part, by epigenetic changes in maternal and fetal tissues. In recent years, we have developed a longitudinal clinical study in a cohort of pregnant-newborns with prenatal development alterations (pre-gestational obesity, gestational obesity and fetal growth restriction) to study the epigenetic marks (miRNA and DNA methylation) in maternal plasma, placenta and umbilical cord and to determine their relationship with endocrine-metabolic parameters and with pre and postnatal growth. These epigenetic marks in pregnancy available tissues can be used as new predictive elements for the identification of newborns at risk of developing future metabolic diseases and as new therapeutic targets for these diseases.

RESEARCH TOPICS

**Main Research Line:** Identification of metabolic and (epi)genetic marks associated with metabolic alterations of pregnancy and offspring, and their relation to pre and postnatal growth.

**Specific Research Lines:**
1. Alterations of prenatal development: gestational obesity and restriction of fetal growth.
2. Postnatal recovery growth (catch-up).
3. Metabolic programming during pregnancy.
4. Epigenetics of development.

PUBLICATIONS

**Indexed / I.F.: 63.71**


GRANTS

**Project:** Perfil de ácidos grasos y programación epigenética en placenta: prevención del riesgo cardiovascular y obesidad en la infancia (PI17/00557)
Funding agency: Instituto de Salud Carlos III
Duration: 01/01/2018 to 30/06/2021
Coordinator: Judit Bassols Casadevall
Principal Investigator: Judit Bassols Casadevall

Project: Ayuda de personal PFIS
Funding agency: Instituto de Salud Carlos III
Duration: 01/01/2019 to 31/12/2022
Coordinator: Judit Bassols Casadevall
Principal Investigator: Judit Bassols Casadevall

MEMBERSHIP OF COLLABORATIVE RESEARCH NETWORKS (NATIONAL & INTERNATIONAL)

INTERNATIONAL:
- International Childhood Vascular Structure Evaluation Consortium (ICVSEC)
- International Consortium on Thyroid and Pregnancy (ICTP)

AWARDS

Title: Umbilical Cord miRNAs in Small -for-Gestational-Age Children and Association with catch-up growth: A Pilot Study
Institution: Sociedad Española de Endocrinología Pediátrica (SEEP)
Awardee/s: Premio a la Investigación en Endocrinología Pediátrica y Crecimiento 2020
Date: 16/10/2020

Title: Ayuda de personal Miquel Servet II
Institution: Sociedad Española de Endocrinología Pediátrica (SEEP)
Awardee/s: Accésit de los Premios a la Investigación en Endocrinología Pediátrica y Crecimiento 2020
Date: 16/10/2020

COLLABORATIONS

- Endocrinology, Pediatric Research Institute, Sant Joan de Déu Children’s Hospital, Barcelona
- Development & Regeneration, University of Leuven, Leuven, Belgium

COLLABORATIVE GRANTS

Project: Repercusión de las alteraciones prenatales perinatales en el desarrollo postnatal: Enfermedades de origen fetal. (Exp. 2017-SGR-1236)
Funding agency: Agència de Gestió d’AjutsUniversitaris i de Recerca (AGAUR)
Duration: 2018-2020
Coordinator: Lourdes Ibáñez
Principal Investigator: Lourdes Ibáñez
Nephrology

KEYWORDS
Nephrology;
Dialysis;
Hypertension;
Therapeutic aphaeresis

GROUP LEADER - R4
Jordi Calabia

ESTABLISHED RESEARCHERS - R3
Xoana Barros

PRE-DOCTORAL RESEARCHERS - R1
Anna Merino
OVERVIEW

Consolidate the method for studying cardiovascular risk and the atheroma burden in patients with chronic kidney disease, high blood pressure and Diabetes Mellitus with diabetic nephropathy.

Consolidating the methodology for the study of stiffness and vascular calcification in patients with chronic kidney disease.

RESEARCH TOPICS

Study of the macro and microvascular affectation of inflammatory markers and bone-mineral metabolism markers in chronic kidney disease and their most frequent pathologies: high blood pressure and diabetic nephropathy.

PUBLICATIONS

INDEXED / I.F.: 63.71


MEMBERSHIP OF COLLABORATIVE RESEARCH NETWORKS (NATIONAL & INTERNATIONAL)

SPANISH:
• Grupo sobre enfermedades glomerulares (GLOSEN)

CATALAN:
• Grup de malalties glomerulars (GlomCAT)
Nutrition, eumetabolism and health

Recognised as a consolidated research group by AGAUR (Generalitat de Catalunya) - 2017SGR00734

MEMBER OF CIBER-OBN

KEYWORDS
Inflammation; Iron; Insulin Resistance; Type 2 diabetes; Obesity

GROUP LEADER - R4
José-Manuel Fernández-Real

David Pérez
Lidia Sojo

ESTABLISHED RESEARCHERS - R3
José María Moreno Navarrete
Francisco José Ortega
Jordi Mayneris Perxachs
Wifredo Ricart Engel

TECHNICIANS
Isma Ishaq
Irene Navarro
Kenia Melissa Vasquez

POST-DOCTORAL RESEARCHERS - R2
Anna Castells
Josefina Biarnés
Eduardo Esteve
Mercè Fernández
Gemma Xifra
Jessica Latorre

NON SCIENTIFIC RESEARCH SUPPORT STAFF
Yenny Leal
Cristina Planella
Oscar Rovira
Anna Pibernat

PRE-DOCTORAL RESEARCHERS - R1
María Arnoriaga
Núria Oliveras
Aina Lluch

COLLABORATORS
Mariona Esteve
Mònica Recasens
Elisabet Costa
OVERVIEW

The research group, “Nutrition, Eumetabolism and Health”, is a consolidated group recognized by the Generalitat of Catalonia and belongs to the CIBERobn (CIBER Physiopathology of Obesity and Nutrition) since its foundation.

The research is focused on the pathophysiology of obesity, type 2 diabetes mellitus and their complications and the main lines of research are centered on innate immune system, inflammation and metabolic disease, the group has done significant work on the association of various genetic inflammatory polymorphisms of the innate immune system with insulin resistance and several other parameters of the metabolic syndrome;

Genomic / genetic type 2 diabetes and obesity (including microRNAs and long-non-coding RNAs);

Biology of adipose tissue, the group coordinates the FatBANK at the state level, the only biobank specializing in adipose tissue;

Iron (systemic, circulating and tissue in liver, brain, fatty tissue and muscle) as a modulator of inflammation to metabolic pathology, the group has pioneered the study of the links between iron metabolism and type 2 diabetes and José Manuel Fernández-Real was the first to propose ferritin as a component of the metabolic syndrome (Diabetes Care 1998) and to measure the effects of iron-depletion on insulin sensitivity in type 2 diabetes mellitus (Diabetes 2002);

The role of the microbiota to obesity and type 2 diabetes, the microbiota is a very important regulatory factor of aggression and response to aggression. Intestinal bacteria are a part of the unconscious system that regulates our behavior. It has been postulated that in the absence of bacteria humans would not have developed their level of cognitive performance;

Non-alcoholic steatohepatitis and fatty liver;

The brain as a metabolic organ and

Computational tools to optimize glycemic control.

In parallel, the group’s work has contributed to characterize new phenotypic variables linked to insulin resistance.

The group has led a part of a European project (FLORINASH) that characterizes the signature of the microbiota related to non-alcoholic steatohepatitis in patients with morbid obesity and is currently part of another Horizon 2020 project, PEPPER (patient empowerment through predictive personalised decision support), which contemplates the development of a personalized decision support system for the management of chronic diseases. The system, based on reasoning based on cases and predictive models, will allow patients to manage their own illnesses, as is the case of diabetes.

RESEARCH TOPICS

• Inflammation and insulin resistance.
• Physiology of the adipose tissue.
• Iron metabolism and insulin resistance.
• Biomarkers for obesity, insulin resistance and Type-2 diabetes.
• Microbiota composition in metabolic disease.
• Interactions among microbiota, brain microstructure and function: the gut-brain axis.

PUBLICATIONS

Indexed / I.F.: 194.68


4. Mayneris J,Mousa A,Naderpoor N,Fernández JM,de Courten B. Plasma Phospholipids with Long-Chain Polyunsaturated Fatty Acids and Dihydroceramides at the Crossroads of Iron Stores and


Non-indexed


GRANTS

Project: Análisis integrat de les intereaccions entre la glucèmica i la composició de la microbiota, i del seu impacte sobre l’acumulació de ferro cerebral i la conigidació en subjectes obesos
Funding agency: Instituto de Salud Carlos III (ISCIII)
Duration: 01/01/2019 to 31/12/2021
Coordinator: José Manuel Fernández-Lemos
Principal Investigator: José Manuel Fernández-Lemos

Project: Stratification of Obese Phenotypes to Optimize Future Obesity Therapy
Funding agency: European Comission
Duration: 09/07/2020 to 08/07/2025
Coordinator: José Manuel Fernández-Lemos

Principal Investigator: José Manuel Fernández-Lemos

Project: Herencia epigenética mediada por ARN paterno de trastornos metabólicos: impacto de la pérdida de peso en el epitranscriptoma de los espermatozoides humanos
Funding agency: Instituto de Salud Carlos III (ISCIII)
Duration: 01/01/2019 to 31/12/2021
Coordinator: José Manuel Fernández-Lemos
Principal Investigator: José Manuel Fernández-Lemos

Project: Ayuda de personal para la intensificación
Funding agency: Instituto de Salud Carlos III (ISCIII)
Duration: 01/01/2020 to 31/12/2023
Coordinator: José Manuel Fernández-Lemos
Principal Investigator: José Manuel Fernández-Lemos

Project: Ayuda de personal Río Hortega
Funding agency: Instituto de Salud Carlos III (ISCIII)
Duration: 01/01/2020 to 31/12/2021
Coordinator: José Manuel Fernández-Lemos
Principal Investigator: José Manuel Fernández-Lemos

Project: Gut-brain-axis: Targets for improvement of cognition in the elderly (SMARTAGE)
Funding agency: Unión Europea (Horizonte 2020)
Duration: 2020 to 2024
Coordinator: Otto W. Witte
Principal Investigator: José Manuel Fernández-Lemos

Project: Predicción personalizada de la cognición a través de la microbiota humana. (ThinkGut)
Funding agency: Interreg-POCTEFA
Duration: 2019 to 2022
Coordinator: José Manuel Fernández-Lemos
Principal Investigator: José Manuel Fernández-Lemos

Project: Are there any links between microbial products accumulation in adipose tissue and obesity-associated insulin resistance? The possible role LBP and lysozyme
Funding agency: Instituto de Salud Carlos III
Duration: 2020 to 2022
Coordinator: José María Moreno Navarrete (CIBER)
Principal Investigator: José María Moreno Navarrete (CIBER)

Project: Papel de la Olfactomedina 2 (OLFM2) en el tejido adiposo en relación con la obesidad
Funding agency: Instituto de Salud Carlos III
Duration: 2019 to 2021
Coordinator: Francisco José Ortega
Principal Investigator: Francisco José Ortega
**Project:** Systems biology approach to unravel the pathogenesis of non-alcoholic fatty liver disease (NAFLD)
**Funding agency:** Instituto de Salud Carlos III - Miguel Servet
**Duration:** 2019 to 2024
**Coordinator:** Jordi Mayneris Perxachs
**Principal Investigator:** Jordi Mayneris Perxachs

**Project:** Relevance of the cluster miR-424(322)/503 in the development of hyperplastic adipose tissue
**Funding agency:** Fundació La Marató de TV3
**Duration:** 2017 to 2020
**Coordinator:** Francisco José Ortega
**Principal Investigator:** Francisco José Ortega

**Project:** Estudio de la biosíntesis de H2S en el tejido adiposo humano y su posible efecto en la adipogénesis y en la sensibilidad a la insulin
**Funding agency:** Instituto de Salud Carlos III
**Duration:** 2017 to 2021
**Coordinator:** José María Moreno Navarrete (CIBER)
**Principal Investigator:** José María Moreno Navarrete (CIBER)

**Project:** Restricting fatty liver: Therapeutic utility of miR-30b
**Funding agency:** Instituto de Salud Carlos III - Miguel Servet
**Duration:** 2020 to 2024
**Coordinator:** Francisco José Ortega
**Principal Investigator:** Francisco José Ortega

**Project:** Role of gut microbiota in fatty liver and diabetes
**Funding agency:** Diabetes UK
**Duration:** 2018 to 2022
**Coordinator:** Marc Dumas
**Principal Investigator:** José Manuel Fernández-Lemos

**Project:** Precision medicine through integrative metagenomics and phenomics in a human NAFLD cohort
**Funding agency:** Guts UK
**Duration:** 2019 to 2023
**Coordinator:** Marc Dumas
**Principal Investigator:** José Manuel Fernández-Lemos

**Number of application:** US63/132.881
**Title:** Compositions and methods for treating metabolic disorders.
**National Patent /PCT / / EPO
**Inventor:** Ramón Díaz, Kiyoshi Tachikawa, Priya Kamali, Rajesh Mukhavaram, Padmanab Chivukula, José Moreno-Navarrete, José Manuel Fernández-Real, Aleix Gavaldà Navarro, Marta Giralt Oms, Francesc Villarroya Gombau.

**MEMBERSHIP OF COLLABORATIVE RESEARCH NETWORKS (NATIONAL & INTERNATIONAL)**

**INTERNATIONAL**
- ECNP Network

**SPANISH**
- CIBER_OBN (Obesidad y nutrición) - CB06/03/0010

**DOCTORAL THESIS**

**Title:** Efectes de l'exercici de resistència de baixa intensitat i del suport nutricional sobre la sarcopènia i la inflamació crònica de baix grau en persones de 60-75 anys
**Student:** Cristina Planella Farrugia
**Director:** Wifredo Ricart, José Manuel Fernández-Real Lemos
**University:** Universitat de Girona
**Date:** 10/09/2020

**Title:** Relevance of the epigenetic regulation exercised by hepatic microRNAs in the fatty liver arena: from the bedside to the bench
**Student:** Jèssica Latorre Luque
**Director:** José Francisco Ortega Delgado, José Manuel Fernández-Real Lemos
**University:** Universitat de Girona
**Date:** 04/03/2020

**PATENTS**

**Number of application:** EP20382592
**Title:** Gut microbiota composition and uses thereof.
**National Patent /PCT / / EPO
**Applicants:** José Manuel Fernández-Real, Jordi Mayneris Perxachs, Maria Arnoriaga Rodríguez, Rafael Maldonado, Aurelijus Burokas, Andrés Moya Simarro, Vicente Pérez Brocal.
Paediatric obesity and cardiovascular risk

Recognised as a consolidated research group by AGAUR (Generalitat de Catalunya) - 2017SGR01236

KEYWORDS
Obesity;
Cardiovascular risk;
Metabolic programming;
Developmental epigenetics;
Intrauterine growth retardation

GROUP LEADER - R4
Abel López Bermejo

POST-DOCTORAL RESEARCHER - R2
Gemma Carreras

PRE-DOCTORAL RESEARCHERS - R1
Ferran Díaz
Berta Mas
Fidanka Vasileva

COLLABORATORS
Inés Osiniri
Pilar Soriano
Elena Riera
Anna Prats
OVERVIEW

Our research is aimed at identifying new biomarkers during the perinatal life and childhood for the early detection and prevention of cardio-metabolic risk in the adult life. We also investigate the epigenetic marks that contribute to prenatal programming of such diseases and the use of metformin to prevent them early in life. To carry out these objectives we have developed a population-based cohort of children with and without obesity (n = 700), two perinatal cohorts of pregnant mother-father-infant trios (n = 700) and a swine animal model of piglets treated with metformin (n=96). In recent years, we have characterized several endocrine, genetic and epigenetic markers in relation to the pre- and postnatal growth and metabolic dysfunction in pregnant women and in the offspring.

RESEARCH TOPICS

MAIN RESEARCH LINES:
• Identification of biomarkers in childhood for the early detection and prevention of cardio-metabolic risk.

SPECIFIC RESEARCH LINES:
• Pathophysiology of childhood obesity.
• Cardiovascular risk markers in childhood.
• Epigenetics of development: DNA methylation and imprinted marks.
• Prenatal basis of metabolic programming.
• The use of metformin to revert metabolic programming.

PUBLICATIONS

INDEXED / I.F.: 79.68


10. Yang L, Whincup PH, López A, Caserta CA, Muniz CC, Kollias


NON-INDEXED


MEMBERSHIP OF COLLABORATIVE RESEARCH NETWORKS (NATIONAL & INTERNATIONAL)

INTERNATIONAL
- International Childhood Vascular Structure Evaluation Consortium (ICVSEC)
- International Consortium on Thyroid and Pregnancy (ICTP)

GRANTS

Project: Efecto de la sobrenutrición materna en las marcas epigenéticas de programación metabólica: identificación y reversibilidad terapéutica (PI16/01335)
Funding agency: Instituto de Salud Carlos III
Duration: 01/01/2017 to 30/06/2021
Coordinator: Abel López-Bermejo
Principal Investigator: Abel López-Bermejo
Grant holder: Elsa Puerto Carranza

Project: Función cognitiva y obesidad en niños prepuberales: Efecto de la obesidad materna, crecimiento pre y postnatal y factores ambientales
Funding agency: Fundación Merck-Salud
Duration: 2019 - 2021
Coordinator: Abel López-Bermejo
Principal Investigator: Abel López-Bermejo
NEUROSCIENCE

AGING, DISABILITY AND HEALTH
CEREBROVASCULAR PATHOLOGY
NEURODEGENERATION AND NEUROINFLAMMATION
Aging, disability and health

Recognised as a consolidated research group AGAUR (Generalitat de Catalunya) – 2017SGR00731

KEYWORDS
Ageing; Disability; Dementia; Alzheimer’s disease; Epidemiology; Neuropsychology; Depression; Caregivers

GROUP LEADER - R4
Josep Garre-Olmo

ESTABLISHED RESEARCHERS - R3
Manuel de Gracia
Oriol Turró

POST-DOCTORAL RESEARCHERS - R2
Josep Lluís Conde
Laia Calvó

PRE-DOCTORAL RESEARCHERS - R1
Lluis Zacarías
Vanesa Viñas
Mar Fernández

COLLABORATORS
Joan Vilalta-Franch

NON SCIENTIFIC RESEARCH SUPPORT STAFF
Laia de Castro Sala
The research group on Ageing, Health and Disability has as a scientific challenge related to the socio-demographic, clinical and epidemiological factors associated with the normal and pathological aging and with the process of disability and dependence.

**RESEARCH TOPICS**

1. Clinical characteristics and consequences of pathological aging associated with dementia
2. Epidemiology of dementia and aging
3. Development, adaptation and validation of psychometric instruments to measure variables related to aging (normal and pathological) and disability

**PUBLICATIONS**

**INDEXED / I.F: 52.86**


**GRANTS**

**Project:** Prevalencia y fenotipos de multimorbilidad crónica según agregación de enfermedades o trayectorias individuales en pacientes con demencia frente a población general  
**Funding agency:** Instituto de Saludo Carlos III  
**Duration:** 01/01/2020 to 31/12/2022  
**Coordinator:** Josep Garre-Olmo  
**Principal Investigator:** Josep Garre-Olmo

**Project:** Trastorns afectius i risc cardiovascular en població general: efecte diferencial dels mecanismes fisiopatològics (SLT006/17/234)  
**Funding agency:** Generalitat de Catalunya  
**Duration:** 01/01/2018 to 31/12/2021  
**Coordinator:** Josep Garre-Olmo  
**Principal Investigator:** Josep Garre-Olmo

**Project:** Ajuts per donar suport a les activitats dels grups de recerca (SGR)  
**Funding agency:** Agencia de gestió d’ajuts Univ. i Recerca  
**Duration:** 01/01/2017 to 30/09/2021  
**Coordinator:** Josep Garre-Olmo
Principal Investigator: Josep Garre-Olmo

Project: IEl sentit de coherència (SOC) de les persones cuidadores com a factor determinant dels costos assistencials de la malaltia d’Alzheimer. Cod. SOC & DEM
Funding agency: Instituto de Salud Carlos III
Duration: 01/01/2018 to 31/12/2021
Coordinator: Oriol Turró Garriga
Principal Investigator: Oriol Turró Garriga

MEMBERSHIP OF COLLABORATIVE RESEARCH NETWORKS (NATIONALS & INTERNATIONAL)

INTERNATIONAL
• Survey of Health, Ageing and Retirement in Europe (http://www.share-project.org)
Cerebrovascular pathology

Recognised as a consolidated research group AGAUR (Generalitat de Catalunya) - 2017SGR01730

MEMBER OF
RED INVICTUS + ISCIII

KEYWORDS
Acute Stroke;
Ischaemic stroke;
Haemorrhagic stroke;
Thrombolysis;
Stroke unit;
Endovascular treatment;
Cryptogenic stroke;
Animal models;
Molecular and cellular neuroscience;
Atherosclerosis;
Biomarkers.

GROUP LEADER - R4
Joaquín Serena Leal

ESTABLISHED RESEARCHERS - R3
Gemma Huguet
Elisabet Kádár
Yolanda Silva
Mikel Terceño

POST-DOCTORAL RESEARCHERS - R2
Carme Gubern
Dolors Puigoriol

PRE-DOCTORAL RESEARCHERS - R1
Saima Bashir
Alan Danilo Murillo

COLLABORATORS
Laura Pardo
Montserrat Reina

NON SCIENTIFIC RESEARCH SUPPORT STAFF
Pilar Tarifa
OVERVIEW

The Cerebrovascular Pathology Research Group is a multidisciplinary team with more than 20 years of investigating experience in the area of cerebrovascular diseases, during which time it has consolidated itself as new investigators have joined. It has been recognised as a pre-consolidated research group by the Catalan Autonomous Government (2017 SGR 1730) and maintains scientific relations with other member centres of a network of scientific collaboration which began more than 10 years ago. Relations are particularly close with the groups that make up the STROKE area of the Thematic Network of Cooperative Health Investigation (Red RENEVAS, Red INVICTUS –Investigación Vascular en Ictus- and Red INVICTUS PLUS), of the Carlos III Health Institute. We are one of the 11 members of this group, who have all been selected on the basis of their experience and results from the first call of this network.

RESEARCH TOPICS

The main areas of investigation of the group are:

1. Clinical and experimental investigation of vulnerable atheromatous plaques in the identification of at-risk groups of patients with atherothrombotic disease.

2. Clinical and experimental investigation of the predictive capacity of biomarkers in the functional prognosis of patients with ischaemic and haemorrhagic stroke, with special focus on biomarkers of endothelial lesions and of the extracellular matrix that are predictors of haemorrhagic transformation (HT) of the ischaemic lesion and the recanalization response in patients who receive fibrinolytic therapy with rt-PA.


5. Application and utility of advanced neuroimaging predictors in the identification of salvageable cerebral tissue in the ischaemic penumbra and predictors of progression in cerebral haemorrhage.

6. Ultrasound clinical investigation focussed on the epidemiology of the patent foramen ovale, the possibility of associated stroke recurrence, and response to current preventative pharmacological therapy.

PUBLICATIONS

Indexed / i.f: 159.42


GRANTS

Project: Aproximación proteómica para la identificación de placa vulnerable y posterior validación de biomarcadores no invasivos en pacientes con estenosis carotidea: biomarcadores en sangre periférica y neuroimagen de alta resolución.
Funding agency: Instituto de Salud Carlos III
Duration: 01/01/2017 to 30/06/2021
Coordinator: Joaquín Serena
Principal Investigator: Joaquín Serena

Project: Circulating miRNAs as predictive biomarkers of vulnerable plaque in patients with carotid stenosis. Clinical and pre-clinical study
Funding agency: Instituto de Salud Carlos III
Duration: 01/01/2020 to 31/12/2022
Coordinator: Joaquín Serena
Principal Investigator: Joaquín Serena

Project: Red de Enfermedades Vasculares Cerebrales. INVICTUS PLUS.
Funding agency: Instituto de Salud Carlos III
Duration: 01/01/2017 to 31/12/2021
Coordinator: Joaquín Serena
Principal Investigator: Joaquín Serena

Funding agency: Fundació La Marató de TV3
Duration: 01/01/2018 to 31/12/2020
Coordinator: Yolanda Silva Blas
Principal Investigator: Yolanda Silva Blas

PATENTS

Number of application: WO2020234269
Title: Method for the differential diagnosis of symptomatic versus asymptomatic carotid stenosis.
National Patent /PCT / / EPO
Inventors: Joaquín Serena Leal, Maria Carme Gubern Mérida, Yolanda Silva Blas, Mikel Terceño Izaga, Saima Bashir Viturro, José Castillo Sánchez, Tomás Sobrino Moreiras.

MEMBERSHIP OF COLLABORATIVE RESEARCH NETWORKS (NATIONAL & INTERNATIONAL)

INTERNATIONAL
• The International PFO Consortium Study Group

SPANISH
• RETICS: Red Enfermedades Vasculares Cerebrales (INVICTUS PLUS) (RD16/0019/0003)

DOCTORAL THESIS

Title: Indicació selectiva de “shunt” en l’endoarteriectomia carotídia, un nou mètode
Student: Andrés Navarro, Omar Aitor
University: Universitat de Girona
Directors: Joaquín Sabina Leal, Yolanda Silva Blas
Date: 25/9/2020

Title: Depresión, ansiedad y calidad de vida percibida en pacientes fumadores con ictus agudo.
Student: Eduardo Maldonado Manzano
Director: Rosa Suñer Soler, Joaquín Serena Leal, María Eugenia Gras
University: Universitat de Girona
Date: 27/7/2020
COLLABORATIONS

- Grupo: Dr. Ignacio Lizasoain and Dr. María Ángeles Moro.
  Unidad de Investigación Neurovascular (UIN). Departamento de
  Farmacología. Facultad de Medicina. Universidad Complutense
  de Madrid.

- Grupo: Prof. José Castillo. Laboratorio de Investigación en
  Neurociencias Clínicas. Hospital Clínico Universitario. Santiago de
  Compostela.

- Gran collaboratiu Catalan Stroke Code and Reperfusion Study
  Group (Cat-SCR) del Pla Director de Malalties Cerbrovascular.

- International PFO Consortium. Prof. Dr. med. Krassen Nedeltchev.
  Kantonsspital Aarau AG. CH – 5001 Aarau (http://www.
  pfoconsortium.org).

- Grup de Gestió del Pla de Malalties Cerebrovasculars de
  l’Institut Català de la Salut (ICS).

- Grupo de Trabajo de la Sociedad Española de Neurología -
  Proyecto RENISEN, Registro de Ictus de la Sociedad Española de
  Neurología.
Recognised as a consolidated research group AGAUR (Generalitat de Catalunya) - 2017SGR01444

MEMBER OF
REEM ISCIII

KEYWORDS
Multiple sclerosis; Neurodegeneration; Neuroinflammation; Cognitive impairment; Neuroimmunology; Epigenetics; EHealth

GROUP LEADER - R4
Lluís Ramió i Torrentà

ESTABLISHED RESEARCHERS - R3
René Robles
Jordi Gich

POST-DOCTORAL RESEARCHERS - R2
Ester Quintana

PRE-DOCTORAL RESEARCHERS - R1
Maria Muñoz
Clàudia Coll
Daniel López
Naiara Celarain
Judit Salavedra

COLLABORATORS
Imma Pericot
David Genís
Laura Fàbregas
Anna Cots
Berta Solano
Antoni Turón
Berta Alemany

TECHNICIANS
Imma Gómez
Miriam Broncano
Miguel Merchán
Lilian Vivas
Marina González

NON SCIENTIFIC RESEARCH SUPPORT STAFF
Pepi López
Meritxell Rigola
Mireia Montserrat
OVERVIEW

Our multidisciplinary research group is headed by Dr. Lluís Ramió i Torrentà who is also in charge of the Neuroimmunology and Multiple Sclerosis (MS) Unit and head of the neurology department in Dr. Josep Trueta University Hospital. The Unit take care of most of the multiple sclerosis patients in Girona’s region. The group is composed by neurologist, neuropsychologist, radiologists, lab personal, nurses and office personal with common aim of give responses to each challenge that MS could give us. Our horizon is not only with the knowledge, but transfers it to the society and finally to the patient. We are involved in several clinical studies (clinical trials, epidemiologic studies) and in basic research (genetic and epigenetic factors, biomarkers, cognitive rehabilitation, rare clinical phenotypes) we also are actively working in developing eHealth systems no improve patients’ care.

RESEARCH TOPICS

Brief description of the main lines of research group
Priority clinical-healthcare lines:
2. Study of the emotional impact, ability to cope, and adaptation to the diagnosis of multiple sclerosis.
4. Improve compliance with immunomodulatory treatment in multiple sclerosis.
5. Improve the clinical data collection by developing of a multiparametric, multidisciplinary database for multiple sclerosis. Include biosensors and app as new methods to collect data.
7. Shared decisions, expert patient empowerment and patient with multiple sclerosis.

Priority lines in basic research:
2. Study of miRNA pattern expression in different clinical subtype and their biomarker value.
5. Genetic studies in familial multiple sclerosis.
6. Determination of biological prognosis factors in cerebrospinal fluid and serum for the evolution of multiple sclerosis (genetic factors, biochemical factors, environmental factors such as vitamin D, virus and others).

Bank of DNA, CSF and serum samples of neuroimmunological diseases and control subjects

PUBLICATIONS

INDEXED / I.F.: 82.25


GRANTS

Project: Red Española de Esclerosis Múltiple
Funding agency: Instituto de Salud Carlos III
Duration: 01/01/2017 to 21/12/2021
Coordinator: Lluís Ramió I Torrentà
Principal Investigator: Lluís Ramió I Torrentà

Project: Proyectos Binauales EME-REEM 2020
Funding agency: Asociación Esclerosis Múltiple España
Duration: 01/07/2020 to 30/06/2022
Coordinator: Lluís Ramió I Torrentà
Principal Investigator: Lluís Ramió I Torrentà

Project: Estudio piloto sobre los efectos del tratamiento con calcitriol en la función neurológica y los niveles de frataxina en pacientes con ataxia de Friedreich (fa-calcitriol)
Funding agency: FEDAES (Federación de ataxias de España)
Duration: 01/09/2020 to 30/09/2022
Coordinator: Berta Alemany Perna
Principal Investigator: Berta Alemany Perna

Project: Determinación de las concentraciones de IL-6 y otras citoquinas como biomarcadores pronósticos en pacientes afectados de COVID-19
Funding agency: Merck
Duration: 2020 to 2021
Coordinator: Lluís Ramió I Torrentà
Principal Investigator: Lluís Ramió I Torrentà

FUNDRAISING GRANT

Project: Beca Granés Fundació
Funding agency: Granés Fundació
Duration: 2020 to 2024
Coordinator: Lluís Ramió I Torrentà
Principal Investigator: Lluís Ramió I Torrentà
MEMBERSHIP OF COLLABORATIVE RESEARCH NETWORKS (NATIONAL & INTERNATIONAL)

NATIONAL
- RETICS - Red Española de Esclerosis Múltiple (REEM) - RD16/0015/0006

AWARDS

Title: 2020 Premi Neurovation in Multiple Sclerosis
Institution: Sociedad Española de Neurología (SEN)
Awardee/s: Marina González
Country: Barcelona, Spain
Date: 24/04/2020

Title: International Nightingale Awards
Institution: International Organization of Multiple Sclerosis Nurses
Awardee/s: Marina González
Country: Darmstadt, Germany
Date: 27/08/2020

COLLABORATIONS

- VICOROB- UdG
- Hospital Ramón y Cajal, neurology service
- Hospital Universitari Vall d’Hebron, neuroimmune service
- Trial in collaboration with the CIBER (Centro de Investigacion Biomédica en Red) group of Valencia.
ONCOLOGY AND HAEMATOLOGY

CHROMOSOMAL REPLICATION
DESCRIPTIVE EPIDEMIOLOGY, GENETICS AND CANCER PREVENTION
GENERAL AND DIGESTIVE SURGERY
HAEMATOLOGY
METABOLISM AND CANCER
Chromosomal replication

KEYWORDS
Genomic duplication;
Cell cycle

GROUP LEADER - R4
Jordi Frigola Mas

PRE-DOCTORAL RESEARCHERS - R1
Marina Guerrero
Adrián Jiménez
OVERVIEW

Genomic duplication is an essential task to any living organism. In eukaryotes, multiple replication origins are used to replicated their large genomes. Once copied their DNA, the cells will be ready to divide into two daughter cells. Genomic duplication, together with cell division, are a series of events that allow cells to grow, develop, proliferate and renew themselves. Due to its prominent role in cell proliferation and cancer, historically chromosome replication has been a major target of both, radiotherapy and chemotherapy. During the last decade or so, enormous progression has been made towards the molecular comprehension of chromosome replication. Our laboratory is working on the first stages of chromosome replication, known as origin licensing. Using budding yeast as a model organism, together with the latest developed tools in the replication field, we are dissecting the specific roles of individual proteins involved in origin licensing. Ultimately, our goal is to translate all this knowledge into new and better cancer treatments. Specifically, we are developing new therapies that able us to stop cell proliferation without the need to introduce any DNA damage. This new strategy should overcome one of the main limitations of the current therapies, their high toxicity.

RESEARCH TOPICS

Our laboratory is working into two main lines of research. 1. Understand at molecular level how the protein complex that allows cells to duplicate their genomes, known as replisome, assembles, regulates and function. To do so, we make use of budding yeast and the latest generation of replication assays. 2. Develop new cancer treatments that target chromosome replication with significantly less toxicity than current ones. At present, most of cancer treatments that target replication induce DNA damage to stop uncontrolled cell proliferation. Our aim is to develop new therapies that halt replication, without the need to induce vast amount of mutations.

GRANTS

Project: Estudios bioquímicos de la finalización de la replicación cromosómica. Disección molecular del desensamblaje del replisoma en condiciones normales y de estrés replicativo Funding agency: MINECO Duration: 2017 to 2020 Coordinator: Jordi Frigola Mas Principal Investigator: Jordi Frigola Mas

FUNDRAISING GRANT

Project: Recerca i desenvolupament de noves teràpies antitumorals. Funding agency: Fundació Bosch i Aymerich Duration: 2020 to 2022 Coordinator: Jordi Frigola Mas Principal Investigator: Jordi Frigola Mas

Project: Nova teràpia d’ajuda al Sistema immunitari per contenir la COVID-19 Funding agency: Espai Gironès Duration: 2020 to 2020 Coordinator: Jordi Frigola Mas i Narcís Fernández Principal Investigator: Jordi Frigola Mas i Narcís Fernández

COLLABORATIONS

- Narcís Fernández Fuentes - Universitat de Vic
Descriptive epidemiology, genetics and cancer prevention

Recognised as a consolidated research group by AGAUR (Generalitat de Catalunya) - 2017SGR00733

MEMBER OF
CIBER-ESP

KEYWORDS
Cancer epidemiology;
Prognostic and predictive markers;
Cancer risk factor

GROUP LEADER - R4
Rafael Marcos-Gragera

POST-DOCTORAL RESEARCHERS - R2
Gemma Osca
Marta Solans

PRE-DOCTORAL RESEARCHERS - R1
Alicia Silvana Villavicencio

COLLABORATORS
Carme Carmona
Rafael Fuentes
Sònia del Barco
Carme Auñon
Angel Izquierdo
Neus Vilar
Jordi Rubió
Loreto Vilardell
Adelaida Garcia
Maria Aranzazu Eraso
Bernat Carles Serdà

TECHNICIANS
Montse Puigdemont
Anna Vidal
Martí Rispau

NON SCIENTIFIC RESEARCH SUPPORT STAFF
Joana Fuentes
OVERVIEW

The Descriptive Epidemiology, Genetics and Cancer prevention group is made up of a multidisciplinary group including epidemiologists, statisticians, oncologists, radiotherapists, physical therapist, dermatologist; biologist, nurse and medical documentalists, biologist. The group main focus is cancer epidemiology (descriptive and analytical), cancer prevention and genetic.

The group takes part in numerous national and international collaborations:

- Cancer Incidence in Five Continents (CIS) is the result of a long collaboration between the International Agency for Research on Cancer and the International Association of Cancer Registries. The series of monographs, published every five years, has become the reference source of data on the international incidence of cancer. http://cis.iarc.fr/Default.aspx
- International Incidence of Childhood Cancer (IICC) is a collaborative project of the International Agency for Research on Cancer (IARC) and the International Association of Cancer Registries (IACR). This project was co-sponsored by the Union for International Cancer Control (UICC). The objective is to disseminate the available data on the incidence of cancer in children around the world.
- The European Network of Cancer Registries (ENCR), established within the framework of the Europe Against Cancer Programme of the European Commission, has been in operation since 1990. The ENCR promotes collaboration between cancer registries, defines data collection standards, provides training for cancer registry personnel and regularly disseminates information on incidence and mortality from cancer in the European Union and Europe. http://www.encr.eu/
- European Cancer Information System (ECIS). ECIS provides the latest information on indicators that quantify cancer-burden across Europe. It permits the exploration of geographical patterns and temporal trends of incidence, mortality and survival data across Europe for the major cancer entities. The purpose of the web-application is to support research as well as public-health decision-making in the field of cancer and to serve as a point of reference and information for European citizens. https://ecis.jrc.ec.europa.eu/
- EUROpean CANcer REgistry based study on survival and care of cancer patients (EUROCARE) (member of the Steering Committee); http://www.eurocare.it/
- The High Resolution studies (HR) started in 1990s as ancillary studies of the EUROCARE project, with the participation of a few population-based Cancer Registries (CR) across Europe. Based on samples of cases representative of the whole cancer incidence population, the HR studies collect more clinical detailed data than those available in the routine cancer registry activity, such as stage at diagnosis, diagnostic procedures, molecular profiling and main treatments. The main aim of the HR studies is: to explain the reasons of the cancer survival differences evidenced by the EUROCARE studies across Europe. The HR studies started in the 1990s with 26 CR, and thanks to a steadily growing number of participating Cancer Registries; the study regularly provides publications of patterns of care in Europe. http://www.hrstudies.eu/
- RARECAREnet project: the RARECAREnet database on the epidemiology of rare cancers in Europe is drawn from the dataset of EUROCARE-5, the wider collaborative study on cancer patients’ survival in Europe (www.eurocare.it). Overall 94 European population-based cancer registries (CRs) participating in EUROCARE-5 adhered to the RARECAREnet project also. They provided information on cancer patients diagnosed up to 2007 and followed-up for vital status ascertainment to the end of 2008 or later. http://www.rarecarenet.eu/
- Global surveillance of cancer survival (CONCORD programme). CONCORD is the global programme for world-wide surveillance of cancer survival, led by the London School of Hygiene & Tropical Medicine. http://csg.lshtm.ac.uk/
- EUPancreas. is a COST Action .-BM1204-. That aims to unite pancreas cancer research groups across Europe and provides an innovative and unique platform for collaborating and sharing information, ideas and experience.
- Multicentre case-control studies:
  - MCC Spain. Population-based multicase-control study (MCC-SPAIN) to evaluate the influence of environmental factors and their interaction with genetic factors in common tumours or tumours with peculiar epidemiological characteristics in our country, for which the environmental factors involved were not well investigated. At present, the MCC-Spain study includes 17 CIBERSP research groups.
  - International Lymphoma Epidemiology Consortium (InterLymph). The InterLymph Consortium, or formally
the International Consortium of Investigators Working on Non-Hodgkin's Lymphoma Epidemiologic Studies, is an open scientific forum for epidemiologic research in non-Hodgkin's lymphoma. Formed in 2001, the Consortium is a group of international investigators who have completed or have ongoing case-control studies and who discuss and undertake research projects that pool data across studies or otherwise undertake collaborative research. https://epi.grants.cancer.gov/

RESEARCH TOPICS

Strategic objectives

1. Descriptive and analytical epidemiology of cancer

Population-based cancer registry in the province of Girona (national and international collaborations)

- To monitor the cancer burden (incidence, prevalence and survival) and its evolution in Girona, Spain, Europe and Worldwide.

- To provide a basis for research on cancer causes

- Aetiological studies of chronic lymphocytic leukaemia (CLL) and breast cancer.

- Study of the genetic and molecular prognosis factors in breast cancer and haematological tumours.

- Study of the genetic and environmental risk factors in breast cancer and chronic lymphocytic leukaemia.

- Studies of infectious, genetic and environmental risk factors linked to the development of lymphomas.

- Genetic susceptibility and the interaction between genes and environment. The study of the interaction of environmental factors with genetic factors is a key part of aetiopathogenesis.

2. Cancer prevention

Primary prevention

- Evaluation of the efficacy of vaccination against the human papilloma virus

Secondary prevention

- Evaluation of the organized breast cancer detection program:

Benefits and adverse effects of breast cancer detection: a method to improve the measurement of the results of early detection.

Evaluation of the rate of interval of cancer and its determinants in the program of early detection of breast cancer at the province of Girona.

- Screening and prevention of cervical cancer.

Evaluation of the program of timely detection of cervical cancer:

Determination of the sensitivity and specificity of cervical cytology.

Tertiary prevention

- Tertiary prevention in cancer care: the use of treatment and rehabilitation programmes to improve the outcome of illness among affected individuals.

- To design strategic rehabilitation programmes improve Quality of Life in cancer patients.

- To design and implement rehabilitation programmes based on epidemiological knowledge.

- To maintain strategic and collaborative links with rehabilitation cancer research programmes.

- To improve the quality of survival in older cancer population based on multimodal rehabilitation programmes.

- To generate knowledge on cancer recovery and Quality of Life by conducting, assisting and evaluating innovative, internationally competitive, public health programs.

- To form and maintain strategic and collaborative links with cancer research / control programs and related institutions nationally and internationally.

3. Genetics (Genetic Epidemiology of Cancer)

- Evaluation of the risk of developing cancer.

- Study of the genetic risk factors for cancer.

- Genetic susceptibility to cancer.

Principal lines of research

Descriptive and analytical epidemiology of cancer


**GRANTS**

**Project**: Detecció precoç dels canvis cardiovasculars després de la radioteràpia en el càncer de mama. / Títol oficial: MEDIRAD “Implications of Medical LowDose RadiationExposure”

**Funding agency**: European Comission

**Duration**: 01/06/2017 to 28/02/2022

**Coordinator**: Arantxa Eraso Urien

**Principal Investigator**: Arantxa Eraso Urien

**Collaborative grants**

**Project**: Genetic and metabolomics screening towards the precision medicine in cancer prevention

**Funding agency**: Fundación AECC Investigación contra el cancer

**Duration**: 1/10/2018 to 30/09/2023

**Principal Investigator**: Victor Moreno Aguado

**Collaborator researcher**: Rafael Marcos-Gragera and Marta Solans

**Project**: Estudio Poblacional Multinivel de las Desigualdades Socioeconómicas en la Distribución Geográfica de la Incidencia, la Mortalidad y la Supervivencia Neta del Cáncer en España.

**Funding agency**: FIS – Instituto de Salud Carlos III

**Duration**: 01/01/2018 to 31/12/2022

**Coordinator**: Miguel Angel Luque Fernández

**Principal Investigator**: Miguel Angel Luque Fernández

**Collaborator researcher**: Loreto Villardell and Montse Puigdemont

**Project**: Epidemiologia de les neoplasies hematològiques.

**Funding agency**: Institut de Recerca contra la Leucèmia Josep Carreras (FIJC1100)

**Duration**: 01/01/2020 to 31/12/2022

**Coordinator**: Rafael Marcos-Gragera

**Principal Investigator**: Rafael Marcos-Gragera

**Project**: Modelo predictivo de supervivencia poblacional del cáncer de mama según el estadio, el subtipo molecular en el momento del diagnóstico y la adherencia al tratamiento.

**Funding agency**: Instituto de Salud Carlos III - PI18/01836

**Duration**: 01/01/2019 to 31/12/2021

**Coordinator**: Ramon Clèries (PDO)

**Principal Investigator**: Ramon Clèries (PDO)

**Collaborator researcher**: Ramon Clèries (PDO)

**Project**: Hacia una estimación precisa de cáncer y la individualización del tratamiento médico mediante la aplicación del riesgo poligénico en cáncer de mama y ovario hereditario.

**Funding agency**: FIS – Instituto de Salud Carlos III (PI19/01195)

**Duration**: 01/01/2020 to 31/12/2022

**Coordinator**: Judith Balmaña (HVO)

**Principal Investigator**: Balmaña (HVO)

**Collaborator researcher**: Angel Izquierdo

**Project**: Organ-specific biomarkers and therapies to improve the management of brain metastasis

**Funding agency**: LA MARATÓ TV3

**Duration**: 01/01/2020 to 31/12/2022

**Principal Investigator**: Joaquim Bosch Barrera.

**Collaborator researcher**: Montse Puigdemont Gemma Osca Gelis.

**Project**: High Resolution Study of Social Inequalities in Cancer: a population-based multilevel study (HiReSiC)

**Funding agency**: Fundación Científica de la Asociación contra el Cáncer (AECC) (10981)

**Duration**: 01/01/2020 to 31/12/2022

**Principal Investigator**: Rafael Marcos-Gragera

**Collaborator researcher**: Marta Solans

**Project**: COVID-19 Cohort in Spain: Social dynamics, mental health and inequalities (CONTENT)

**Funding agency**: Fundació La Caixa

**Duration**: 01/01/2020 to 31/12/2022

**Principal Investigator**: Manolis Kogevinas, MD, PhD

**Collaborator researcher**: Rafael Marcos-Gragera

**Project**: Projectes d'especialització i competitivitat territorial (PECT): Estils de vida, característiques sociodemogràfiques i econòmiques, discapacitat, dolor, qualitat de vida, impulsivitat, suport social, i prevalència de factors de risc i de malalties cròniques de la població adulta de la província de Girona. (Girona, regió saludable).
Funding agency: FEDER / Diputació de Girona / DIPSALUT / Institut d'Investigació Biomèdica de Girona Dr. Josep Trueta (IDIBGI) / Fundació Salut Empordà (GO03-001848 )
Duration: 01/01/2019 to 31/12/2021
Principal Investigator: Rafel Ramos Blanes i Josep Garre Olmo
Collaborator researcher: Rafael Marcos-Gragera

**MEMBERSHIP OF COLLABORATIVE RESEARCH NETWORKS (NATIONAL & INTERNATIONAL)**

**INTERNATIONAL**
- Cancer Incidence in Five Continents (CI5)
- European Cancer Information System (ECIS)
- EUROpean CANcer Registry (EUROCARE)
- European Network of Cancer Registries (ENCR)
- Global Surveillance of cancer survival (CONCORD programme)
- Innovative Partnershipfor Action Against Cancer (iPAAC)
- International Incidence of Childhood Cancer (IICC)
- International Lymphoma Epidemiology Consortium (InterLymph) (Multicentre case-control studies)
- RARECARENet project
- The High Resolution studies (HR)

**SPANISH**
- CIBER_ESP (Epidemiología y Salud pública) - C806/02/1002
- GenRisk cáncer
- La Red Española de Registros de Cáncer (REDECAN)
- MCC-Spain (Multicentre case-control studies)

**DOCTORAL THESIS**

Title: Estudi epidemiològic poblacional de la incidència, tendència i supervivència de les neoplàsies limfoides a la província de Girona durant un període de 20 anys (1996-2015)
Student: Auñón Sanz, Ma.del Carmen
Director: Fuentes Raspall, Rafael / Marcos Gragera, Rafael / Aranzazu Eraso, Maria
University: Universitat de Girona
Date: 20/11/2020
General and digestive surgery

OVERVIEW

The research group focuses on digestive oncological diseases. Our research is fundamentally clinical and is based on clinical assistance.

RESEARCH TOPICS

The main lines of research group are:

- Colorectal cancer
- Gastric tumours
- Liver and pancreas tumours

PUBLICATIONS

INDEXED / I.F.: 192.27


Haematology

Recognised as a consolidated research group AGAUR (Generalitat de Catalunya) - 2017SGR00733

GROUP LEADER - R4
David Gallardo Giralt

POST-DOCTORAL RESEARCHERS R-2
Gemma Osca

COLLABORATORS
Anna Angona
Antonio Blanco
Anna Bustins
Rosa Coll
David Cruz
Joahana Alejandra Diaz
Yolanda González
Nicholas Kelleher
Natália Lloveras
Carla Moret
Josep Mª Roncero
Esperanza Tuset
Silvia Zdenka Mostaceda
Marta Sitges
Nazly Santos
Jordi Vila

NON SCIENTIFIC RESEARCH SUPPORT STAFF
Rocío Rodríguez
Marta González
OVERVIEW

The Hematology Group has been working in clinical and translational research since its foundation in 2007. The PI is Dr. David Gallardo, Head of the Hematology Department. The group has been awarded with several grants obtained in competitive calls, such as 3 projects Fundació Marató TV3, 6 projects FIS in a row (Instituto de Salud Carlos III), two projects from Fundación Mutua Madrileña and also grants from local foundations against cancer, such as Oncolliga Girona, Roses contra el cancer or Llavaneres contra el cancer. We are currently collaborating with one of the IDIBAPS groups in a European grant (POCTEFA) together with the Toulouse group.

The group has published several papers in top scientific journals, such as Blood, Leukemia or Haematologica. Moreover, active collaboration of many investigators in scientific networks has led to publication of collaborative works, both at the National and International levels. There are currently five Ph.D. projects going on as a result of the group scientific activity.

RESEARCH TOPICS

- Immune response after allogeneic stem cell transplant
- Pharmacogenomics and signaling pathways in acute myeloid leukemia
- Immune checkpoints in hematological malignancies
- Molecular mechanisms involved in lymphoma transformation
- Clinical trials concerning hematological malignancies

PUBLICATIONS

Indexed / I.F.: 98.93


**GRANTS**

**Project:** Modulación de respuesta inmune en trasplante alogénico de progenitores hematopoyéticos por el genotipo de moléculas inhibidoras de checkpoint. Biobanco español de aloTHP  
**Funding agency:** Instituto de Salud Carlos III  
**Duration:** 01/01/2018 to 01/06/2022  
**Coordinator:** David Gallardo  
**Principal Investigator:** David Gallardo

**Project:** Genotype of immune response inhibitory molecules: beyond allogeneic transplantation. National DNA Bank of patients treated with CAR-T cell therapy  
**Funding agency:** Instituto de Salud Carlos III  
**Duration:** 01/01/2021 to 31/12/2023  
**Coordinator:** David Gallardo  
**Principal Investigator:** David Gallardo

**Project:** EFA281/16/IMLINFO: Réseau transfrontalier d’immunothérapies personnalisées dans le traitement des lymphomes non Hodgkiniens  
**Funding agency:** Interreg V-A Espagne-France-Andorre POCTEFA 2014-2020 FR  
**Duration:** 01/01/2018 to 31/12/2020  
**Coordinator:** Patricia Pérez Galán  
**Principal Investigator:** David Gallardo

**FUNDRAISING GRANT**

**Project:** Estudi de les molècules de coestimulació com a marcadors

**MEMBERSHIP OF COLLABORATIVE RESEARCH NETWORKS (NATIONAL & INTERNATIONAL)**

**INTERNATIONAL**

- European Society for Blood and Marrow Transplantation (EBMT)

**SPANISH**

- Grupo Cooperativo de Estudio y Tratamiento de las Leucemias Agudas y Mielodisplásicas (CETLAM)
- Grupo de Estudio de Hemostasia y Trombosis (GEHT)
- Grupo Español de Enfermedades Mieloproliferativas Crónicas Filadelfía Negativas (GEMFIN)
- Grupo Español de Leucemia Linfocítica Crónica (GELLLC)
- Grupo Español de Linfomas/Trasplante Autólogo de Médula Ósea (GELTAMO)
- Grupo Español de Mieloma (GEM)
- Grupo Español de Síndromes Mielodisplásicos (GESMD)
- Grupo Español de Trasplante Hematopoyético y Terapia Celular (GETH)
- Programa Español de Tratamientos en Hematología (PETHEMA)

**CATALAN**

- Grup Català de Citología Hematològica (GCCH)
- Grup Català de Citometria Hematopatològica (FLOWCAT)
Metabolism and cancer

KEYWORDS
Metabolism; Cancer; Aging

GROUP LEADER - R4
Javier A. Menéndez

ESTABLISHED RESEARCHERS - R3
Elisabet Cuyàs

PRE-DOCTORAL RESEARCHERS - R1
Sara Verdura

COLLABORATORS
Joaquim Bosch
Begoña Martín
Eugeni López
OVERVIEW

The “Metabolism & Cancer” group adopts the view that aging diseases including cancer are governed by a pivotal regulatory role of metabolic reprogramming in cell fate. The group aims to advance new metabolism-targeted anti-approaches through completion of clinical proof-of-efficacy in cancer patients.

RESEARCH TOPICS

Metabolism & Cancer

- Metabolism as a bona fide cancer driver
- Metabolic mechanisms of drug resistance: Targeting cellular metabolism to improve cancer therapeutics
- Molecular characterization and preclinical evaluation of new metabolic targets in human carcinomas
- Pre-clinical development and clinical testing of anti-metabolic drug candidates for oncology patients

Metabolo-epigenetics & cancer: molecular aspects and therapeutic development

- Metabolo-epigenetic mechanisms involved in the generation and maintenance of cancer stem cells (CSCs), i.e., the metabostemness hallmark.
- New therapeutic strategies targeting the metabolo-epigenetic machinery of CSCs.
- Precision medicine approaches based on the metabolo-epigenetic machinery of CSCs.
- Mitochondrial dynamics & cancer
- Role of autophagy and mitochondrial dynamics in the generation and maintenance of CSCs
- Targeting autophagy and mitochondrial dynamics to overcome drug resistance in cancer therapy

Computational systems biology in cancer & aging

- Mathematical & Computational Biology: stochastic tools, conceptual frameworks, and wet-lab validation of metabolo-epigenetics models in cancer & aging

Natural biocompounds: mechanisms & drug development

- Molecular characterization and preclinical evaluation of natural with anti-cancer and/or anti-aging properties
- In silico modeling and pre-clinical development of biocompounds-based anti-cancer and anti-aging drugs

Metabolo-immunotherapy

- Identification of metabolic nodes essential for the regulation of immune checkpoints in cancer cells
- Dietary interventions and efficacy of immune checkpoint inhibitors (ICIs)

- In silico clinical trials of metabolic interventions in combination with ICIs

PUBLICATIONS

INDEXED / I.F.: 201.51


GRANTS

Project: Metabolic dependencies and dietary regulation of immune-checkpoints: New targets for cancer immunotherapy resistance (PID2019-104055GB-I00)
Funding agency: Ministerio de Economía y Competitividad
Duration: 2020 to 2023
Coordinator: Javier A. Menendez
Principal Investigator: Javier A. Menendez
Project: A therapeutic strategy to co-target brain metastasis-initiating and hyperlipidemia-driving mechanisms in lorlatinib-treated NSCLC  
Funding agency: PFIZER, S.L.U.  
Duration: 2019-2021  
Collaborator: Joaquim Bosch Barrera and Javier A. Menendez  
Principal Investigator: Joaquim Bosch Barrera and Javier A. Menendez

Project: Pre-clinical efficacy and synergistic potential of the flavonolignan silibinin in combined treatment with atezolizumab (Tecentriq) to prevent NSCLC brain metastases  
Funding agency: ROCHE S.L.U  
Duration: 2020-2021  
Collaborator: Joaquim Bosch Barrera and Javier A. Menendez  
Principal Investigator: Joaquim Bosch Barrera and Javier A. Menendez

Project: A metabolic and dietary blueprint for boosting cancer immunotherapy  
Funding agency: Fundació Oncolliga Girona  
Duration: 2020-2021  
Collaborator: Javier A. Menendez  
Principal Investigator: Javier A. Menendez

Project: A metabolic framework for reducing and exploiting the multidimensional complexity of tumor heterogeneity: Sub-phenotyping of cancer stem cell metabolomic states.  
Funding agency: Ministerio de Economía y Competitividad  
Duration: 2016 to 2020  
Collaborator: Javier A. Menendez  
Principal Investigator: Javier A. Menendez

COLLABORATIONS

- Professor Dr. Jorge Joven. IISPV, Reus
- ICREA Professor Tomás Alarcón. Centre de Recerca Matemàtica, Barcelona.
- Professor Dr. José Antonio Encinar. Universidad Miguel Hernández, Elche.
- Professor Dr. Pilar Blancafort. Harry Perkins Institute of Medical Research (University of Western Australia, Australia.
- Professor Dr. Francesca Cutruzzolà. SAPIENZA University of Rome, Italy
- Dr. Alexei Vazquez. Beatson Institute (Glasgow), UK.
ASSOCIATED GROUPS

UNIVERSITY OF GIRONA
BIOCHEMISTRY OF CANCER
COMPUTER VISION AND ROBOTICS
CONTROL ENGINEERING AND INTELLIGENT SYSTEMS - MEDICINE AND HEALTH
HEALTH AND HEALTHCARE
HEALTH PSYCHOLOGY
MICELAB - MODELLING, IDENTIFICATION AND CONTROL ENGINEERING
PROTEIN ENGINEERING
STATISTICS AND DATA ANALYSIS
STATISTICS, ECONOMETRICS AND HEALTH (GRECS)
Biochemistry of cancer

University of Girona

GROUP LEADER - R4
Rafael de Llorens
Rosa Peracaula

ESTABLISHED RESEARCHERS - R3
Anna Massaguer
Esther Llop

POST-DOCTORAL RESEARCHERS - R2
Sílvia Barrabés
M. Ángeles Martínez

PRE-DOCTORAL RESEARCHERS - R1
Anna Gratacós
Adrià Duran
Laura Miró

COLLABORATORS
Josep Comet
Manel Ramírez
Dúnia Pérez
Marina Fontán
M. Rosa Ortiz
Adelaida Garcia Velasco
Ernesto Castro
Esther Fort

OVERVIEW
The research of the group is focused on the field of cancer therapy and diagnosis.

RESEARCH TOPICS
• Glycobiology and cancer:
Biomarker discovery based on altered glycoforms of serum proteins. Study of molecular mechanisms that lead to altered glycosylation in tumors and its influence in the cancer phenotype. Targeting specific glycosyltransferases.

• Targeted anti-tumour therapies (TAD):

PUBLICATIONS
INDEXED / I.F.: 96.65


**DOCTORAL THESIS**

**Title:** Altered glycosylation in pancreatic cancer: development of new tumor markers and therapeutic strategies

**Student:** Pedro E. Guerrero

**University:** Universitat de Girona

**Directors:** E. Llop and R. Peracaula

**Date:** 29/07/2020

**GRANTS**

**Project:** Non-invasive biomarkers for Prostate Cancer clinical risk stratification: PSA glycoforms and multiparametric magnetic resonance imaging. Predictive model for potential metastatic Prostate Cancer. Ref. 201922

**Funding agency:** University of Girona. Ajuts PONT 2020 (2020/04)

**Duration:** From 19/07/2020 to 19/07/2023

**Principal Investigator:** Esther Llop and Josep Comet

**Project:** Glycomic approaches for the discovery of novel biomarkers and therapeutic targets in pancreatic cancer

**Funding agency:** Fundació La Marató de TV3

**Duration:** From 1/11/2020 to 30/06/2021

**Principal Investigator:** Rosa Peracaula and Esther Llop

**DOCTORAL THESIS**

**Title:** Altered glycosylation in pancreatic cancer: development of new tumor markers and therapeutic strategies

**Student:** Pedro E. Guerrero

**University:** Universitat de Girona

**Directors:** E. Llop and R. Peracaula

**Date:** 29/07/2020

**COLLABORATIONS**

- Glycoscience Group (Dr. Radka Saldova) from NIBRT Dublin
- Cancer Molecular Targets group (Dr. Pilar Navarro) from IMIM-Hospital del Mar Medical Research Institute/ Institute of Biomedical Research of Barcelona (IIBB)-CSIC.
- Grupo de Química de la coordinación aplicada (Dr. Blanca R Manzano) from Universidad de Castilla-La Mancha
- Multiscale in Mechanical and Biological Engineering (M2BE) group (Dr. PE Guerrero, Dr. JM Garcia Aznar) from University of Zaragoza
Computer vision and robotics
University of Girona

Recognised as a consolidated research group by AGAUR (Generalitat de Catalunya) - 2017SGR01164

GROUP LEADER - R4
Robert Martí

ESTABLISHED RESEARCHERS - R3
Xavier Lladó
Arnau Oliver
Jordi Freixenet
Joan Martí

POST-DOCTORAL RESEARCHERS - R2
Sergi Valverde
Joel Vidal

PRE-DOCTORAL RESEARCHERS - R1
Mostafa Salem
Albert Malet
Basel Alyafi
Albert Clèrigues
Llucia Coll
Liliana Valencia
Kaisar Kushibar
José Bernal

TECHNICIANS
Isaac Llorente
Pablo Gómez

NON SCIENTIFIC RESEARCH SUPPORT STAFF
Mireia Frigola
Anna Ferrarons

OVERVIEW
The Image Analysis and 3D Perception research group (G3DAI) belongs to the VICOROB research Institute of the University of Girona and it has been recognised as a consolidated group (2017 SGR 1164).

G3DAI focuses its effort on two main research lines: image analysis, to develop and optimize hardware and software for analysis of data, with particular focus on the study of medical images; 3D perception, for the acquisition and processing of three-dimensional information of a real scene.

Currently, G3DAI has 21 members: 10 doctors, 5 doctoral students, 4 master’s students and 2 administrative staff. From 2014 to 2020, 16 theses have been defended.

RESEARCH TOPICS
G3DAI’s motivation is driven by the scientific challenges which continuously appear as a consequence of the society’s requirements with a common research area of image analysis, perception and computer vision. Regarding medical imaging, G3DAI is working towards the development of imaging tools to help women stratification for personalized breast cancer screening programs. With respect to multiple sclerosis, the group’s research intends to develop novel algorithms to improve the current magnetic resonance biomarkers such as brain lesions, longitudinal brain atrophy, and regional cortical and subcortical gray matter. Regarding 3D perception, G3DAI focuses the research on the development of novel 3D reconstruction techniques based on scanner systems and computer vision algorithms.

PUBLICATIONS
INDEXED / I.F.: 19.78


GRANTS

Project: Predictive models for multiple sclerosis using brain magnetic resonance imaging biomarkers - EVOLUTION
Funding agency: Ministerio de Economía y Competitividad
Duration: From 2018 to 2021
Coordinator: Universitat de Girona
Principal Investigator: Xavier Lladó

Project: Erasmus + Joint Master Degree in Medical Imaging and Applications – MAIA
Funding agency: Comissió Europea
Duration: From 2016 to 2024
Coordinator: Universitat de Girona (UdG)
Principal Investigator: Arnau Oliver

Project: Computación de la Imagen para la mejora de la Radiómica del cáncer de mama
Funding agency: Ministerio de Economía y Competitividad
Duration: From 2019 to 2021
Coordinator: Universitat de Girona (UdG)
Principal Investigator: Robert Martí

Project: Storm III - Sistema de predicción de muy alta resolución de la producción de energía de plantas fotovoltaicas con almacenamiento basado en inteligencia artificial de bajo coste computacional, prueba de concepto, storm fase II
Funding agency: Ministerio de industria, comercio y turismo (MINCOTUR)
Duration: From 25/06/2020 to 31/03/2021
Coordinator: Universitat de Girona (UdG)
Principal Investigator: Robert Martí

DOCTORAL THESIS

Title: Automatic segmentation of brain structures in magnetic resonance images using deep learning techniques
Student: Kaisar Kushibar

Director: Dr. Arnau Oliver / Dr. Xavier Lladó / Dr. Sergi Valverde
University: Universitat de Girona (UdG)
Date: 20/07/2020

Title: Deep learning methods for automated detection of new multiple sclerosis lesions in longitudinal magnetic resonance images
Student: Mostafa Abobakr Abdelmajed Salem
Director: Dr. Joaquim Salvi Mas and Dr. Xavier Lladó Bardera
University: Universitat de Girona (UdG)
Date: 13/02/2020

Title: Deep learning for atrophy quantification in brain magnetic resonance imaging
Student: Jose Bernal Moyano
Director: Dr. Xavier Lladó and Dr. Arnau Oliver
University: Universitat de Girona (UdG)
Date: 27/10/2020

COLLABORATIONS

- At an international level, through the existing international masters at G3DAI, the group coordinates on a daily basis with Fabrice Meriaudeau, Alain Lalande, from the University of Bourgogne (France) and Francesco Tortorella, from Cassino University (Italy). This has also encouraged the mobility of lectures between these institutions.

- In the field of brain image analysis, the group has also collaborations with international institutions such as Vanderbilt University, Nashville, USA (Prof. Bennett Landman), University College of London, UK (J.E. Iglesias, Prof. C. Wheeler-Kingshot), University of Sydney (Prof. S. Klistorner) or McConnell Brain Imaging Centre, Montreal, Canada (Prof. Arnold Douglas).

- The group is also collaborating in the field of breast image analysis and computer aided diagnosis with the Manchester Metropolitan University (Dr. Moi Hoon Yap), Aberystwyth University (Prof. Reyer Zwiggelaar), Universidad Complutense de Madrid (Dr Margarita Chevalier), Prof. N. Karssemeijer (Radboud Medical University Center, Nijmegen, Netherlands, ScreenPoint Medical), Prof. A. Maidment, Dr. Pedrag Bakic (Penn University, USA), Prof. A. Noble (Univ. of Oxford, UK), Prof. F. Meriaudeau (Univ. de Bourgogne, France).
Control engineering and intelligent systems - Medicine and health

University of Girona

Recognised as a consolidated research group by AGAUR (Generalitat de Catalunya) - 2017SGR01551

OVERVIEW

The main research activity of the Medicine and Healthcare research line of the control engineering and intelligent systems (eXiT) research group is focused on the application of artificial intelligence principles (data mining and knowledge discovery, qualitative reasoning, case based reasoning, metaheuristic optimization) and machine learning, to support decision-making processes in healthcare.

RESEARCH TOPICS

The Medicine and Healthcare research line of eXiT focuses on four main groups: (i) Disease prognosis, (ii) Clinical decision support systems, (iii) mHealth and (iv) Biosignal processing. These research and technical approaches were applied to the following medical and healthcare areas:

- Endocrinology: Insulin bolus recommendation for diabetic patients, phenotype model learning for obesity prognosis.
- Hospital management: machine learning methods for Emergency department attendance prediction.
- Internal medicine: treatment recommendation system for dyslipidaemia, and familial hypercholesterolemia detection mechanism.
- Mental health: treatment recommender system for Attention Deficit and hyperactivity disorder (ADHD).
- Neurology: machine learning algorithms for seizure detection and prediction from EEG, machine learning for migraine prediction.
- Odontology: New devices for bruxism monitoring.
- Paediatrics: Neonatologist at home (NOAH) project for vital signs monitoring in premature babies.

GRANTS

Project: SERAS - Seizure Risk Assessment
Funding agency: MINECO (Retos Colaboración, RTC-2017-6701-1)
Duration: From 1/1/2018 to 31/12/2020
Coordinator: David Blánquez (MJN)
Principal Investigator: Beatriz López

Project: PEPPER - Patient Empowerment through Predictive PERSONalised decision support
Funding agency: EU H2020 (PHC-28-2015), Grant Agreement 689810

KEYWORDS

Healthcare; Artificial intelligence; Case based reasoning; Machine learning; Optimization

GROUP LEADER - R4
Beatriz López

ESTABLISHED RESEARCHERS - R3
Bianca Innocenti
Carles Pous

POST-DOCTORAL RESEARCHERS - R2
Joaquim Massana

PRE-DOCTORAL RESEARCHERS - R1
Natàlia Mordvanyuk
Alihuén García
Oscar Raya

TECHNICIANS
Miquel Rustullet
Daniel Macaya

NON SCIENTIFIC RESEARCH SUPPORT STAFF
Pau Olives
Jaume Gauchola
Marc González
Roberto Petite
Sara Murlà
ASSOCIATED GROUPS

Duration: From 1/2/2016 to 31/3/2020
Coordinator: Clare Martin (Oxford Brookes University)
Principal Investigator: Beatriz López

Project: Development of a prototype tool to formulate participatory, individualized and automated therapeutic recommendations for the treatment of patients with Attention Deficit Hyperactivity Disorder (ADHD)
Funding agency: COMG, Fundación Pascual i Prats & Campus Salud de la Universidad de Girona (UdG)
Duration: From 1/5/2018 to 30/4/2020
Principal Investigator: Domenec Serrano (IACS), Xavier Castells (Translab, UdG)

Project: Red Temática sobre Inteligencia Artificial en Biomedicina
Funding agency: Ministerio de Cienca, Innovación y Universidades
Duration: From 1/1/2020 to 31/12/2021
Coordinator: Mar Marcos (Universidad Jaime I)
Principal Investigator: Beatriz López

Project: Desarrollo y evaluación de una herramienta de mHealth que utiliza la inteligencia artificial para formular recomendaciones terapéuticas farmacológicas para el tratamiento de TDAH
Funding agency: Ministerio de Cienca, Innovación y Universidades, Instituto de Investigación Carlos III
Duration: From 1/1/2020 to 31/12/2021
Principal Investigator: Xavier Castells

Project: DREAMER: Detección pREcoz Alzheimer
Funding agency: MJN Neuroserveis, S.L. (through CDTI, MISIONES programme)
Duration: From 12/2020 to 03/2021
Principal Investigator: Beatriz López

MEMBERSHIP OF COLLABORATIVE RESEARCH NETWORKS (NATIONAL & INTERNATIONAL)

INTERNATIONAL
- European AI Alliance (EAA)

COLLABORATIONS

The eXit Healthcare research group collaborates with the following researchers / groups:
- Doctor Xavier Castells from the Laboratori de Medicina Translacional i Ciències de la Decisió, TRANSLAB (ADHD project)
- Doctor Alberto Zamora, TRANSLAB (Dyslipidemia and Familial Hypercholesterolemia project)
- MJN Neuroserveis (SERAS project, Epilepsy)
- Daniel Lambisto (ICO, Girona)
- Dr. Abel López Bermejo, Dra. Judith Sanz, Marta Fabrellas (Noah Project)
- Doctor Fernandez Real and team from IdIBGI (obesity and diabetes projects)
- Doctor Nick Oliver and team from Imperial College London (PEPPER project)
- Clare Martin and team from Oxford Brookes (PEPPER project)
OVERVIEW

The Research Group in Health and Healthcare is a multidisciplinary group composed of experts in nursery, psychology, anthropology and physiotherapy. Its aim is to conduct high quality research in different areas of health.

The research group in Health and Healthcare was founded in 2002 and in 2017, the Generalitat de Catalunya (2017-SGR-1767) renew your recognition as a “Consolidated Group”.

The group is part to the sectorial campus of Health of the University of Girona.

RESEARCH TOPICS

The research carried out by the Group is organized into four major areas of work: Health Promotion, The elderly and carers, Woman, Gender and Health and Health Emergencies.

Health promotion
Research in Health Promotion covers a wide range of actions in several areas:

• Health institutions: evaluation of the quality of both the organizations themselves and the care services they provide; assessment of the skills of the professionals of health.
• Educational institutions such as schools and universities.
• Community collectives of users of health services.
• Strategies: health literacy and salutogenesis.
• Health care and quality of life of people in critical conditions, with neurological problems, with mental health problems or with cancer.

The Elderly and carers
The main objective of this area is to improve the quality of life of the elderly, the dependent and fragile population and its carers. To achieve it, its investigators do specialized research to enhance the understanding of these situations, with special attention to the development of tools to assess dependency.

Women, Gender and Health
The research developed in this area is designed to provide the scientific knowledge needed to undertake actions to revert the discriminatory elements of the healthcare system that affect the health professions, the health professionals and the users of health services.
ASSOCIATED GROUPS

Health Emergency
This area focuses on the assessment of the skills to conduct basic and advanced life support protocols and on the creation of new tools to assess the professional competences in this field. This activity takes place in the group’s laboratory in the Science Park.

PUBLICATIONS

Indexed / I.F.: 38.15


GRANTS

Project: Redes de solidaridad con impacto en los procesos de recuperación de mujeres víctimas de violencia de género
Funding agency: Ministeri de Ciència, Innovació i Universitats - MCIU
Duration: From 01/01/2019 to 31/12/2021
Coordinator: Patricia Melgar Alcantud
Principal Investigator: Patricia Melgar Alcantud

Project: EFA019/15. Prospectiva transfronteriza sanitaria y social / Prospective transfrontalière sanitaire et sociale. Prospectsaso
Funding agency: European Commission
Duration: 01/09/2016 - 31/08/2019 Start of prolongation: 01/09/2019 Final prolongation: 31/08/2020
Coordinator: Yves Gilbert
Principal Investigator: Anna Planas Llado

Project: El sentido de la coherencia en cuidadores de pacientes con demencia puede reducir los costes asistenciales
Funding agency: Instituto de Salud Carlos III
Duration: From 01/01/2018 to 31/12/2020
Coordinator: Oriol Turro Garriga
Principal Investigator: Oriol Turro Garriga

Project: Projecte pacient expert Catalunya en Esclerosis múltiple
Funding agency: Institut Català de la Salut del Departament de Salut de la Generalitat de Catalunya (ICS)
Duration: From 2017 to 2020
Coordinator: Carme Bertran Noguer
Principal Investigator: Carme Bertran Noguer

DOCTORAL THESIS

Title: Depresión, ansiedad y calidad de vida percibida en pacientes fumadores con ictus agudo
Student: Eduard Maldonado
Director: Rosa Suñer Soler; Joaquín Serena Leal; María Eugenia Gras Pérez

University: University of Girona (UdG)
Date: 29/06/2020
ASSOCIATED GROUPS

Health psychology
University of Girona

OVERVIEW

The group’s researchers come from different fields of knowledge within the subjects of Psychology, Nursing and Medicine, and their research is interdisciplinary in nature.

The members of the group teach on the undergraduate and Master’s degree programmes in their fields. One of the main tasks of the group’s activity is the training of new researchers.

The research group has received recognition from the Catalan Autonomous Government by the following means and calls: - Recognized as a Consolidated Research Group by the Catalan Autonomous Government in the 2014-2016 call. Call No.: 2014 SGR 322. - Recognized as a Consolidated Research Group by the Catalan Autonomous Government in the 2009-2013 call. Call No.: 2009 SGR 618.

RESEARCH TOPICS

The research lines of the group are included in the field of health psychology. The perspective is, therefore, biopsychosocial. The priority lines of research are:

- Sexual behaviour of risk and prevention of AIDS, other STD and unwanted pregnancies.
- Behaviour of risk and prevention for users of motor vehicles and pedestrians.
- Substance dependence.
- Stress, pain and quality of life.
- Quality of life during aging.
- Processes of loss and mourning.
- Research in education in health Psychology.

PUBLICATIONS

INDEXED / I.F.: 17.46


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**DOCTORAL THESIS**

**Title:** Efectes d’un programa d’intervenció psicoeducativa en les actituds i coneixements sexuals i afectius de persones amb discapacitat intel·lectual que assosteixen a un servei de teràpia ocupacional  
**Student:** Jordi Hernández Suriñach  
**Director:** Dr. Montserrat Planes Pedra, Dr. Ana Belén Gómez Lima and Dr. Esther Sánchez Raja  
**University:** Universitat de Girona (UdG)  
**Date:** 28/07/2020

**Title:** Depresión, ansiedad y calidad de vida percibida en pacientes fumadores con ictus agudo  
**Student:** Eduard Maldonado Manzano  
**Director:** Dr. Rosa Suñer Soler, Dr. Joaquín Serena Leal and Dr. Mª Eugenia Gras Pérez  
University: Universitat de Girona (UdG)  
Date: 27/07/2020
ASSOCIATED GROUPS

MICELab - Modelling, identification and control engineering

University of Girona

Recognised as a consolidated research group AGAUR (Generalitat de Catalunya) - 2017SGR01551

KEYWORDS
Artificial Pancreas;
Diabetes Technology;
Control Engineering;
Artificial Intelligence;
Machine Learning

GROUP LEADER - R4
Josep Vehí

ESTABLISHED RESEARCHERS - R3
Joaquim Armengol
Remei Calm
Luo Ningsu
Inés Ferrer

POST-DOCTORAL RESEARCHERS - R2
Iván Contreras

PRE-DOCTORAL RESEARCHERS - R1
Sayyar Ahmad
Aleix Beneyto
Alvis Cabrera
Adrià Parcerisas
Ernesto Estremera
Omer Mujahid

NON SCIENTIFIC RESEARCH SUPPORT STAFF
Anna Comas

OVERVIEW

The MICELab group is an interdisciplinary research group of the Institute of Informatics and Applications of the University of Girona involved in national and international research and technology transfer projects. The team is composed of experienced researchers from the control engineering field with expertise in systems and control theory, modelling and control of biomedical systems, computer science, robust and predictive control, machine learning and decision support systems.

The group has extensive experience in the field of diabetes and is one of the leading groups in the development of the artificial pancreas worldwide. Since January 1st, 2018 the group led by Prof. Vehí belongs to the prestigious centre of excellence in diabetes CIBERDEM: “Centro de Investigación Biomédica en Red de Diabetes y Enfermedades Metabólicas Asociadas”, being one of the few engineering groups of the centre.

RESEARCH TOPICS

Diabetes medical devices. Artificial pancreas
The development of algorithms related to the different elements involved in glycemic control loop for the artificial pancreas has been one of the main research lines over the last years. In it we have developed algorithms to monitor and calibrate the continuous glucose monitors and have designed control systems, with special focus to the rejection of major disturbances such as food or exercise.

- Custom platform: Our Android-based AP platform (jAP) is a multivariable fully automated artificial pancreas. The jAP system stands out for its scalability, allowing the implementation of unihormonal / bihormonal systems and easily integrating additional devices such as physical activity monitors. It is one of the few platforms available internationally.

Fault detection and risk assessment
Within the framework of self-management of diabetes, interval predictive models combined with other methodologies, such as CBR, multivariate statistical control or data mining, have been used to develop tools to detect faults on devices (occlusions, insulin pumps losses, loss of sensitivity of the sensors, etc.), both for types 1 and 2. Risk assessment methods have also been used to assess and to predict the risks that are taken to perform an action.

Artificial Intelligence for Digital Health
Using advanced artificial intelligence algorithms to provide personali-
zied health services, improve user experience, increase the engagement of patients and move towards integrated health systems. This includes: the development of decision support tools based on machine learning methods to enhance patient safety by anticipating adverse glycaemic events, despite the difficulties of the large intra-individual variability and other factors that affect glycaemic control; development of advanced telemedicine systems and tools for chronic disease management, particularly diabetes and hypertension; and incorporation of prevention and prediction tools in the current systems for managing diabetes.

PUBLICATIONS

Indexed / I.F.: 20.20


GRANTS

Project: mSAFE-AP – Solutions for the improvement of efficiency and safety of the artificial pancreas by fault-tolerant multivariable control architectures
Funding agency: MINECO (Spain). DPI2016-78831-C2-2-R.
Duration: 2016-2020
Coordinator: Jorge Bondia
Principal Investigator: Josep Vehí

DOCTORAL THESIS

Title: Robust and fault-tolerant strategies for controlling blood glucose in patients with type 1 diabetes
Student: Aleix Beneyto Tantiña
Director: Josep Vehí
University: Universitat de Girona (UdG)
Date: 2020

COLLABORATIONS

• Hospital Clinic Universitari de Barcelona
• Hospital Sant Joan de Déu
• Hospital Clinic Universitari de Valencia
• Universitat Politècnica de València
• Università degli Studi di Padova
• Imperial College London
• CONICET - U. Nacional de La Plata
Protein engineering
University of Girona

OVERVIEW

Our research group is interested in the development of new effective antitumor drugs and in the study of protein oligomerization processes that are linked to proteinopathies. Specifically, we are developing new antitumor drugs based on nuclear-directed ribonucleases, on apoptin and on organometallic compounds of cupper, ruthenium, manganese and iron. The protein cytotoxic drugs developed here are non-mutagenic compounds that exert their cytotoxic action on different targets that attack the malignant phenotype at multiple levels. TDP43 is associated with the amyotrophic lateral sclerosis (ALS) and with the frontotemporal lobar degeneration (FTLD), which constitute the third more important neurodegenerative disease. The use of inteins to selectively isotopically label different internal domains of the proteinopathic TDP43 protein allows studying the molecular determinants involved in its aggregation as well as the interactions to other cellular partners related to its function.

RESEARCH TOPICS

- Development of new antitumor drugs based on proteins that target RNA in the cell nucleus
- Development of new antitumor drugs based on the viral apoptosis-inducing protein apoptin
- Development of drug delivery systems for antitumor proteins based on the vault structure
- Characterization of the molecular determinants of aggregation of TDP43 by isotopic labeling of internal sequences using intein methodology

PUBLICATIONS


GRANTS

Project: Development of anantitumorproteindelivery System intoovariancancer cells using The sub cellular vault REF IDEAS1803BENI
Funding agency: Asociación Española contra el Cáncer
Duration: From 01/01/2018 to 28/02/2021
Principal Investigator: Antoni Benito
Statistics and data analysis (CODA)
University of Girona

OVERVIEW
Compositional Data Analysis (CoDA) refers to the analysis of CoDa refers to the analysis of compositional data, random vectors with strictly positive components usually expressed as vectors whose sum is constant (e.g., 100, one, a million). Typical examples in different fields are: economy (income/expenditure distribution), medicine (body composition: fat, bone, lean), food industry (food composition: fat, sugar, etc), chemistry (chemical composition), health (physical activities), and genetics (genotype frequency). This type of data appears in most applications, and the interest and importance of consistent statistical methods cannot be underestimated.

RESEARCH TOPICS
The current aim of the group activities is to spread and transfer the CoDa methods in other scientific fields and, in particular, in the fields identified as societal challenges: climate change, health, wellness, and food quality. The final objective is to obtain results by using compositional methods and to transfer them to involved entities. This spread of results will be carried out by means of the following activities proposed: organisation of seminars, workshops (CoDaWork), and courses (CoDaCourse); development of statistical packages (CoDaPack and R), and a specific website for CoDa (CoDaWeb); as well as the edition of specialized publications.

PUBLICATIONS
INDEXED / I.F.: 155.26


ASSOCIATED GROUPS


GRANTS

Project: METHods for COMpositional analysis of DAta (CODAMET).
Duration: From 2019 to 2021
Coordinator: José Antonio Martín Fernández
Principal Investigator: José Antonio Martín Fernández, Glòria Mateu Figueras

Project: Research Group “Compositional and Spatial Data Analysis” (COSDA).
Funding agency: Agència de Gestió d’Ajuts Universitaris i de Recerca (GAUAR). Generalitat de Catalunya (Ref: 2017SGR656).
Duration: From 2017 to 2020
Coordinator: José Antonio Martín Fernández

MEMBERSHIP OF COLLABORATIVE RESEARCH NETWORKS (NATIONAL & INTERNATIONAL)

INTERNATIONAL
• CoDa-Association

CATALAN
• Societat Catalana d’Estadística
• Societat Catalana de Biologia
• Sociedad Española de Biometría

DOCTORAL THESIS

Title: Compositional methodology and statistical inference of family relationships using genetic markers
Student: Iván Galván Femenía
Director: Dr. Jan Graffelman and Dr. Carles Barceló Vidal
Date: 10/07/2020

COLLABORATIONS

• Barcelona Supercomputing Center (BSC)
• Instituto de Investigación Biomédica de Bellvitge (IDIBELL)
• Instituto de Investigación del Sida IrsiCaixa
• Eurecat Centro Tecnológico de Cataluña
• Institut Universitari de Recerca en Atenció Primària Jordi Gol i Gurina
• Research Centre in Sustainable Energy, Queens University Belfast
• United States Geological Survey
OVERVIEW

The Research Group of Statistics, Econometrics and Health (GRECS) at the University of Girona is a multidisciplinary group made up mainly of statisticians, but also specialists in biomedicine, the environment, epidemiologists and economists. It is a doubly accredited group both at autonomous level (consolidated group of the Catalan Government) and nationally, through our membership in the CIBER of Epidemiology and Public Health (CIBERESP) (Instituto de Salud Carlos III, Government of Spain).

RESEARCH TOPICS

Our lines of research are both methodological (spatial statistics, Bayesian statistics, analysis of compositional data, mixed models, survival analysis, etc.) and applied. These later focus on Real World Data, environmental epidemiology, cancer epidemiology, and clinical epidemiology. In the latter, our research efforts have recently focused on COVID-19 and Motoneuron disease (MND). We approach both from the environmental epidemiology and apply the most appropriate statistical methods for their study.

PUBLICATIONS

INDEXED / I.F.: 123.89


Books

GRANTS
Duration: From 2020 to 2022
Principal Investigator: Marc Saez and Maria Antònia Barceló

Project: WASABY European Commission DG SANTE PP-2-5- 2016
Duration: From 2018 to 2020
Principal Investigator: Marc Saez and Rafael Marcos-Gragera

**ASSOCIATED GROUPS**

**obesity policy (STOP)**
Duration: From 2018 to 2021
Principal Investigator: Marc Saez

Duration: From 16/07/2020 to 31/12/2021
Principal Investigator: Marc Saez and M. Antònia Barceló

**MEMBERSHIP OF COLLABORATIVE RESEARCH NETWORKS (NATIONAL & INTERNATIONAL)**

**SPANISH**

- CIBER_ESP (Epidemiología y Salud pública) - CB06/02/1002