

Molecular Pathology and Therapeutic of Ischaemic and Atherothrombotic Diseases



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Main Lines of Research

- ▶ Physiopathological role of LRP family proteins in chronic diseases.
- ▶ Role of lipids and inflammation in atherosclerosis and ischemic heart disease.
- ▶ Vascular impact of ischaemia and angiogenesis in heart disease. Cell therapy.
- ▶ Research into new targets to inhibit the transformation of silent atherosclerosis into ischaemic syndromes: tissue-factor-mediated angiogenic switch.

Challenges

- ▶ Broaden the experimental focus to include transgenic animal models with/without cardiovascular risk factors in order to proceed to in-depth analysis of molecules involved in the modulation of new proteins identified by post-genomic technologies and systems biology approaches.
- ▶ Maintain present scientific networks and establish new multidisciplinary collaborations.
- ▶ Increase international funding for the extension of new and established platforms in order to implement proposed activities.

Active Grants

- ▶ Lina Badimon Maestro. Red de Terapia Celular (TerCel). RD16/0011/0018. Instituto de Salud Carlos III. Duration: 2017-2021. 66,502.00 €.
- ▶ Gemma Vilahr García. L'administració intravenosa d'un inhibidor modificat de l'HMG-COA-reductasa: una prometedora estratègia cardioprotectora en la malaltia isquèmica del cor, desentranyant beneficis i mecanismes d'acció. MARATO 20154310. Fundació La Marató de TV3. Duration: 2016-2019. 154,150.00 €.
- ▶ Maria Montserrat Borrell Pages. Aterotrombosis y su inhibición: LRP5/WNT en la respuesta aguda a la lesión vascular. PI16/02014. Instituto de Salud Carlos III. Duration: 2017-2019. 53,500.00 €.
- ▶ Carmen Lambert Goitia. Project SAF2013-42962 LB. BES2014-068269. Ministerio de Economía y Competitividad. Duration: 2015-2019. 83,900.00 €.
- ▶ Lina Badimon Maestro (CP IP). Factor tisular no-coagulante y angiogenesis terapéutica para reparar el tejido isquémico. SAF2016-76819-R. Ministerio de Economía y Competitividad. Duration: 2016-2019. 320,000.00 €.
- ▶ Gemma Chiva Blanch. Patologia molecular i terapèutica de les malalties aterotrombòtiques i isquèmiques. IJCI-2015-26358. Ministerio de Economía y Competitividad. Duration: 2017-2019. 64,000.00 €.
- ▶ Lina Badimon Maestro. Investigación y desarrollo clínico de una nueva molécula para el control de peso y prevención de la obesidad. RTC-2016-5317-1. Ministerio de Economía y Competitividad. Duration: 2016-2018. 180,000.40 €.
- ▶ Gemma Vilahr García. Remodelado estructural y funcional de las partículas HDL y su implicación en la salud cardiovascular: identificación de moduladores con potencial terapéutico. SAF2015-71653-R. Ministerio de Economía y Competitividad. Duration: 2016-2018. 90,000.00 €.
- ▶ Lina Badimon Maestro. Validación de un nuevo y original biomarcador, ApoJ-glyc, para el diagnóstico y la estratificación del riesgo en pacientes con isquemia miocárdica. DTS16/00194. Instituto de Salud Carlos III. Duration: 2017-2018. 70,500.00 €.
- ▶ Lina Badimon Maestro. Patologia molecular i terapèutica de les malalties aterotrombòtiques. 2017 SGR 1480. Agència de Gestió d'Ajuts Universitaris i de Recerca. Duration: 2017-2019. 61,192.00 €.
- ▶ Lina Badimon Maestro. Identificación de nuevos biomarcadores en el manejo de la insuficiencia cardiaca. Sociedad Española de Cardiología (SEC). Duration: 2016-2017. 20,000 €.
- ▶ Lina Badimon Maestro. Moderate beer intake effects of the inflammasome pathway and TLR-mediated immunomodulation in humans. The European Foundation for Alcohol Research (ERAB Grants). Duration: 2017-2018. 65,000 €.
- ▶ Lina Badimon Maestro. CIBER Enfermedades Cardiovasculares. (CIBERCV). CB16/11/00411. Instituto de Salud Carlos III. 188,362 €.

Note: Total amount granted to PI. It does not include indirect costs.

Collaborations with other IIB Sant Pau Groups

- ▶ Clinical and Translational Cardiology (PI: Juan Cinca).
- ▶ Biomarkers for Cardiovascular Disease (PI: Teresa Padró).
- ▶ Cerebrovascular Diseases (PI: Joan Martí Fábregas).
- ▶ Endocrinology, Diabetes and Nutrition (PI: Alberto de Leiva).
- ▶ Pharmacological Research in Humans (PI: Rosa M. Antonijoan).
- ▶ Angiology, Vascular Biology and Inflammation (PI: Luis Vila)
- ▶ Radiodiagnosics (PI: Antoni Capdevila)
- ▶ Molecular Basis of Cardiovascular Risk (PI: Joan Carles Escolà)

National Collaborations

- ▶ Department of Internal Medicine, Hospital Clínic, Barcelona (Ramón Estruch).
- ▶ Department of Cardiology, Thorax Institute, Hospital Clínic, University of Barcelona (Salvatore Brugaletta, Victoria Martín-Yuste, Clarissa Cola, Manel Sabaté).
- ▶ Fundación Hipercolesterolemia Familiar. Madrid (Pedro Mata, Rodrigo Alonso, Leopoldo Pérez-Isla).
- ▶ Cell Therapy Network (TerCel), RD12/0019.
- ▶ Cardiovascular Research Network (RIC), RD12/0042.
- ▶ Department of Cardiology, Hospital Clínico Universitario Virgen de la Arrixaca, Murcia (MA Esteve-Pastor).
- ▶ Department of Cardiology, Hospital Universitario San Juan, Alicante (V. Bertomeu-Martínez).
- ▶ Department of Cardiology, Hospital La Paz, Madrid (I Roldán-Rabadán, R Peinado).
- ▶ Department of Cardiology (A Cequier-Fillat), Internal Medicine Service (F Formiga), Hospital de Bellvitge, Barcelona.
- ▶ Department of Cardiology, Hospital Universitario A Coruña, La Coruña (J Muñiz-García).
- ▶ Department of Cardiology, Hospital Universitario Reina Sofía, Córdoba (M. Anguita-Sánchez).
- ▶ Department of Preventive Medicine and Public Health, University of Valencia, Valencia (D. Corella).
- ▶ Human Nutrition Unit, Hospital Universitari Sant Joan, Institut d'Investigacions Sanitàries Pere Virgili, Universitat Rovira i Virgili, Reus (J Salas-Salvadó).
- ▶ Department of Cardiology, University Hospital Araba, Vitoria (F Arós).
- ▶ Department of Epidemiology and Public Health, University of Navarra, Pamplona (MA Martínez-González).
- ▶ Lipid Clinic, Endocrinology and Nutrition Service, Institut d'Investigacions Biomèdiques August Pi Sunyer (IDIBAPS), Hospital.
- ▶ Clinic, University of Barcelona, Barcelona, Spain (E Ros).

- ▶ Institut Hospital del Mar d'Investigacions Mèdiques (IMIM), Barcelona (M. Fitó).
- ▶ Servicio de Medicina Interna, Hospital Universitario La Paz, Madrid (MA Quesada, J Camacho Siles).
- ▶ Invasive Cardiology Department Puerta de Hierro Hospital, Majadahonda, Madrid, Spain (J Goicolea).
- ▶ Clinical Laboratory L'Hospitalet, Barcelona, Spain (G Padrós).

International Collaborations

- ▶ Experimental, Diagnostic and Speciality Medicine, University of Bologna, Italy (Raffaele Bugiardini).
- ▶ School of Healthcare Science, John Dalton Building, Manchester Metropolitan University, UK (Mark Slevin).
- ▶ Atherothrombosis Research Unit, Zena and Michael A. Wiener Cardiovascular Institute, Mount Sinai School of Medicine, New York, USA (Juan José Badimon).
- ▶ Department of Clinical Biochemistry and Immunohematology, Faculty of Health Sciences, University of Talca, Chile (Ivan Palomo).
- ▶ Centre for Clinical Heart Research, Department of Cardiology, Oslo University Hospital Ullevål, Oslo, Norway (Ingebjørg Seljeflot).
- ▶ Department of Food and Nutrition, Universidade Federal de Santa Maria, Palmeira das Missões, Brazil; Program of Postgraduate in Gerontology, Universidade Federal de Santa Maria, Santa Maria, Brazil (Patricia Chagas).
- ▶ Department of Pharmacology, Catholic University School of Medicine, Rome, Italy (Carlo Patrono).
- ▶ Engineering and Materials Research Centre, Manchester Metropolitan University, Manchester, M1 5GD, United Kingdom (Amir Keshmiri).
- ▶ Department of NeuroFarBa, C.I.M.M.B.A., University of Florence, Viale Pieraccini, 6, Florence 50139, Italy (Elisabetta Cerbai).
- ▶ Department of Epidemiology and Prevention, IRCCS Istituto Neurologico Mediterraneo Neuromed, 86077 Pozzilli, Italy (Giovanni de Gaetano).
- ▶ TACTICS - Transnational Alliance for Regenerative Therapies in Cardiovascular Syndromes (Fernández-Avilés F, Sanz-Ruiz R, Climent AM, Badimon L, Charron D, Fuster V, Janssens S, Kastrup J, Kim HS, Lüscher TF, Martin J, Menasché P, Simari R, Stone GW, Terzic A, Willerson JT, Wu J).
- ▶ Cardiology Department, University of Medicine and Pharmacy "Carol Davila" of Bucharest, Emergency Clinical Hospital of Bucharest, 8, Calea Floreasca, Sector 1, 014461 Bucuresti, Romania (Maria Dorobantu).
- ▶ Cardiovascular and Metabolic Diseases, Innovative Medicines and Early Development Biotech Unit, AstraZeneca, Mölndal, Sweden (Leif Carlsson).
- ▶ Division of Hematology/Oncology, Department of Internal Medicine, University of Cincinnati College of Medicine, Cincinnati, OH, USA (Vladimir Y Bogdanov).

- ▶ Lina Badimon Maestro. Validation of apo j-glyc as a biomarker of ischemic damage, 2016 PROD 00043. Agència de Gestió d'Ajuts Universitaris i de Recerca. Duration: 2017-2019. 99,500.00 €.
- ▶ Gemma Arderiu Marquès. Enfermedad arterial periférica: potenciar la capacidad angiogénica de las células madre mesenqui-

males, PI17/01321. Instituto de Salud Carlos III. Duration: 2018-2020. 74,000.00 €.

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Books or chapters with ISBN

- ▶ Badimon L, Tanner FC, Camici GG, Vilahur G. Pathophysiology of thrombosis (Section V / Chapter 18). In: Krams R, Bäck M. ESC Textbook of Vascular Biology. Oxford University Press, United Kingdom; pp: 273-290; 2017. ISBN: 9780198755777.

Awards

- ▶ Gemma Chiva 2017 Young Investigador Award for excellence in Clinical Research of the European Society for Clinical Investigation (ESCI).
- ▶ Lina Badimon. Visiting Professorship Manchester Metropolitan University (2017).
- ▶ Lina Badimon. Honorary Member of the Hungarian Society of Cardiology (2017).
- ▶ Lina Badimon. Member of the Scientific Advisory Board of the International Aspirin Foundation. England (2017).
- ▶ Lina Badimon. Member of the Scientific Advisory Committee of the Fundación GADEA para la Ciencia (2017).

Patents

- ▶ Lina Badimon Maestro, Gemma Vilahur García. Prevention or reduction is ischemia-related damage. EP17164137. European Union. 31/03/2017.
- ▶ Lina Badimon Maestro, Judit Cubedo Ràfols, Teresa Padró Capmany. Methods and kits for the diagnosis and risk stratification of patients with ischemia. EP16382167.1. European Union. 12/04/2016.
- ▶ Lina Badimon Maestro, Judit Cubedo Ràfols, Gemma Vilahur García, Teresa Padró Capmany. Prevention and/or treatment of ischemia or ischemia/reperfusion injury. EP16382111.9. European Union. 14/03/2016.
- ▶ Lina Badimon Maestro, Gemma Vilahur García. Prevention and/or treatment of ischemia/reperfusion injury. 14382190.8-1464. European Union. 18/07/2014.
- ▶ Concepción Vicenta Llorente-Cortés, Lina Badimon Maestro. LRP1 as key receptor for the transfer of sterified cholesterol from very-low-density lipoproteins (VLDL) to ischaemic cardiac muscle. 12804028. International. 07/05/2014.
- ▶ Lina Badimon Maestro, Judit Cubedo Ràfols, Teresa Padró Capmany. Apolipoprotein J isoforms as biomarkers of organ damage, PCT/ES2011/070080. International. 26/08/2011.
- ▶ Lina Badimon Maestro, José Martínez González. Procedimiento de identificación de potenciales compuestos moduladores de la actividad de NOR-1, nueva diana diagnóstica y terapéutica de enfermedades cardiovasculares, 2288330. International. 26/08/2009.
- ▶ Lina Badimon Maestro, José Martínez González. Procedimiento de identificación de NOR-1 y/o NURR1 para el diagnóstico y seguimiento de enfermedades cardiovasculares, 200202901. National. 01/04/2005.
- ▶ Nuria Rubio Vidal, Jerónimo Blanco Fernández, Lina Badimon Maestro. Procedimiento de cultivo de células progenitoras humanas para el trasplante autólogo. PCT/ES2004/070106. National. 01/01/2004.

Transfer Products

- ▶ Co-founder of the Spin-Off "Glycardial Diagnostics SL" September 2017.

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dro-Botet J., Piepoli M.F., Rigopoulos A.G., Ruschitzka F., Tunon J., von Eckardstein A., Vrablik M., Weiss T.W., Williams B., Windecker S., Zimlichman R., 2016 ESC/EAS guidelines for the management of dyslipidemias Guía ESC/EAS 2016 sobre el tratamiento de las dislipemias (2017) *REV ESP CARDIOL*, 70 (2), 115.e-115.e.

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Fuentes F., Alarcon M., Badimon L., Fuentes M., Klotz K.-N., Vilahur G., Kachler S., Padro T., Palomo I., Fuentes E., Guanosine exerts antiplatelet and antithrombotic properties through an adenosine-related cAMP-PKA signaling (2017) *INT J CARDIOL*, 248, 294-300.

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