

Inflammatory Diseases



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Zamora Atenza, Carlos IR

Main Lines of Research

- ▶ The role of the natural immune system in the development of autoimmune and inflammatory processes.
- ▶ Immunological response and clinical course in immunomodulator treatments.
- ▶ The role of autoantibodies, components of the adaptive immunity system, in the pathogenesis of autoimmune processes and their use as diagnostic and prognostic markers in these diseases.
- ▶ Mechanisms involved in immunodeficiency.

Challenges

- ▶ Role of cells, molecules and autoantibodies of the innate and adaptive immune response in the development and control of inflammatory processes, in the appearance of autoimmune phenomena, immunodeficiencies, infections, cardiovascular diseases and development of tumours.
- ▶ Role of TLR and STAT signalling in inflammatory diseases and response to superantigens.
- ▶ Study of mechanisms involved in immunodeficiency caused by alterations of molecular components.
- ▶ Analysis of the evolution of immunological parameters and their correlation with clinical response to treatment with immunomodulators.
- ▶ Composition of complex human biological fluids. Association with clinical parameters.

Collaborations with other IIB Sant Pau Groups

- ▶ Dr. C. Guarner and Dr. G. Soriano (Digestive Diseases and CIBER)
- ▶ Dra. Isabel Illa (Neurology)
- ▶ Dra. Esther Garcia-Planella (Digestive Diseases)
- ▶ Dr. Cesar Diaz-Torné (Reumatologia)
- ▶ Dr. Plaza and Dr. Sibila (Chronic Respiratory Diseases)
- ▶ Dr. Lluís Puig (Dermatology)
- ▶ Dra. Majem i Dr. Barnades (Clinical Oncology)
- ▶ Dr. Maroto (Clinical Oncology)

External Collaborations

- ▶ Dra. Manichanh (Digestive Pathology, Hospital Vall d'Hebron)
- ▶ Dra. Hernandez (Rheumatology, Hospital Clinic)
- ▶ Dr. Albert Selva i Dr. Moises Labrador (Allergology, Hospital Vall d'Hebron)
- ▶ Dr. Porcel (Internal Medicine, Hospital Arnau de Vilanova)
- ▶ Dr. Fernandez (Fundació Puigvert)
- ▶ Dra. Andia (Hospital Universitario de Cruces)
- ▶ Dra. Semnani i Dr. Nutman del NIAID-NIH (Bethesda, USA)
- ▶ Dra. Catalfamo del Georgetown University School of Medicine (Washington DC)

Active Grants

- ▶ Sílvia Vidal Alcorisa. Estudio de la interacción entre el linfocito T y plaquetas: su aplicación en el desarrollo de una terapia celular para regular la respuesta inmune en la artritis reumatoide. PI14/00741. Instituto de Salud Carlos III. Duration: 2015-2017. 41,500.00 €.
- ▶ Sílvia Vidal Alcorisa. Platelet-leukocyte complex/interaction: a new biomarker for the immune-related adverse events in

lung cancer patients treated with immune checkpoint inhibitors. IR16-P6. Fundació Privada Hospital de la Santa Creu i Sant Pau. Duration: 2017-2017. 7,000.00 €.

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

Grants Awarded in 2017

- ▶ Sílvia Vidal Alcorisa. Caracterización de las plaquetas “educadas” en un entorno inflamatorio crónico para optimizar las terapias inmunoreguladoras con plaquetas. PI17/00072, Instituto de Salud Carlos III. Duration: 2018-2020. 47,500.00 €.

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

Transfer Products

- ▶ Sílvia Vidal Alcorisa. Análisis de los mecanismos inmunoreguladores de la Treg inducidos por tocilizumab en artritis reumatoide. Roche Farma, S.A.
- ▶ Sílvia Vidal Alcorisa. Caracterización de los macrófagos y las células madre del cáncer en pacientes con cáncer de pulmón, mama y ovario. MERCK.
- ▶ Sílvia Vidal Alcorisa, Marga Majem. Fuentes de PD-1 y PD-L1 en el cáncer de pulmón no microcítico. BMS.
- ▶ Pablo Maroto Análisis del perfil inmunológico de las células tumorales y de los linfocitos en la orina de pacientes con cáncer de vejiga. Roche Farma, S.A.
- ▶ César Díaz-Torné. Systemic inflammation in patients with gout. Astra Grunenthal.

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Scientific Production

Leiding J.W., Okada S., Hagin D., Abinun M., Shcherbina A., Balashov D.N., Kim V.H.D., Ovadia A., Guthery S.L., Pulsipher M., Lilic D., Devlin L.A., Christie S., Depner M., Fuchs S., van Royen-Kerkhof A., Lindemans C., Petrovic A., Sullivan K.E., Bunin N., Kilic S.S., Arpaci F., Calle-Martin O.D.L., Martinez-Martinez L., Aldave J.C., Kobayashi M., Ohkawa T., Imai K., Iguchi A., Roifman C.M., Gennery A.R., Slatter M., Ochs H.D., Morio T., Torgerson T.R., Hematopoietic stem cell transplantation in patients with gain-of-function signal transducer and activator of transcription 1 mutations (2017) J ALLERGY CLIN IMMUN.

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flammatory demyelinating polyradiculoneuropathy strongly associates to HLA-DRB15 (2017) J NEUROINFLAMM, 14 (1).

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Nieto J.C., Zamora C., Canto E., Garcia-Planella E., Gordillo J., Ortiz M.A., Juarez C., Vidal S., CSF-1 regulates the function of monocytes in Crohn's disease patients in remission (2017) SCI REP-UK, 7 (1).

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Sanchez E., Nieto J.C., Vidal S., Santiago A., Martinez X., Sancho F.J., Sancho-Bru P., Mirelis B., Corominola H., Juarez C., Manichanh C., Guarner C., Soriano G., Fermented milk containing Lactobacillus paracasei subsp. paracasei CNCM I-1518 reduces bacterial translocation in rats treated with carbon tetrachloride (2017) SCI REP-UK, 7.

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Grau J.M., Selva-O'Callaghan A., Illa I., RIG-I expression in perifascicular myofibers is a reliable biomarker of dermatomyositis (2017) ARTHRITIS RES THER, 19 (1).

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Suarez-Cuartin G., Smith A., Abo-Leyah H., Rodrigo-Troyano A., Perea L., Vidal S., Plaza V., Fardon T.C., Sibila O., Chalmers J.D., Anti-Pseudomonas aeruginosa IgG antibodies and chronic airway infection in bronchiectasis (2017) RESP MED, 128, 1-6.

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Zamora C., Canto E., Nieto J.C., Bardina J., Diaz-Torne C., Moya P., Magallares B., Ortiz M.A., Julia G., Juarez C., Llobet J.M., Vidal S., Binding of platelets to lymphocytes: A potential anti-inflammatory therapy in rheumatoid arthritis (2017) J IMMUNOL, 198 (8), 3099-3108.

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Other Publications

- ▶ Crespo-Lessmann A, Mateus E, Torrejón M, Belda A, Giner J, Vidal S, Sibila O, Plaza V. Asthma with bronchial hypersecretion: expression of mucins and toll-like receptors in sputum and blood. J Asthma Allergy. 2017 Oct 12; 10: 269-276.

Endocrinology, Diabetes and Nutrition



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Main Lines of Research

- ▶ Endocrine neoplasms: investigation of tumour dedifferentiation mechanisms through genomic, proteomic and bioinformatic procedures.
- ▶ Autoimmune diabetes mellitus (classic type 1 and LADA) and gestational diabetes.
- ▶ Telemedicine and intelligent systems for therapeutic optimization of diabetes mellitus.
- ▶ Prediction, prevention and optimization of the treatment of obesity, hyperlipidaemia, metabolic syndrome and complications.
- ▶ Diabetes and endocrine disorders in pregnancy.
- ▶ History of insulin: old and new controversies about the discovery of insulin.

Endocrine Neoplasms

- ▶ Molecular markers of the epithelial lineage: expression of the ABCG2 gene/BCRP1 transporter.
- ▶ Transcriptomics and proteomics as prediction and prognosis instruments for epithelial thyroid cancer.
- ▶ Intramural CELL-NANO-THYROID project: investigation of human mesenchymal cell capacity as an instrument for administering anti-tumour cell drugs in the form of conjugated nanoparticles.
- ▶ Role of cholesterol & cholesterol metabolites in thyroid neoplasms differentiation.
- ▶ Assessment of glycosylated immunoglobulins as serologic markers of thyroid carcinoma.

Challenges

Autoimmune Diabetes Mellitus

- ▶ Classic type 1 autoimmune diabetes mellitus: discovery of genes that influence susceptibility to autoimmune diabetes (classic type 1).
- ▶ LADA type diabetes: prevalence of metabolic syndrome among patients with LADA compared to prevalence among patients with classic type 1 diabetes, type 2 diabetes and the general non-diabetic population in European countries.

Diabetes and Pregnancy

- ▶ Clinical research aimed at optimizing care for women with pre-gestational and ges-

tational diabetes at pre-conception, pregnancy, birth and postpartum stages.

Technology, telemedicine and intelligent systems for therapeutic optimization of diabetes mellitus

- ▶ Technology in the treatment of diabetes with special focus in insulin (new insulins, pumps), and glucose measurement including sensors.
- ▶ Development of a technological platform for the prediction, prevention and treatment of obesity, DM, HTA, dyslipidemia and cardiometabolic risk.

Optimization of the Treatment of Obesity, Hyperlipidaemia, Metabolic Syndrome and Complications

- ▶ Optimal treatment and prevention of cardiovascular risk associated with obesity, hyperlipidaemia, metabolic syndrome and diabetes mellitus 2.

History of Insulin: Old and New Controversies about the Discovery of Insulin

- ▶ To investigate with documented evidence (heuristics) if European research on the development of pancreatic extracts achieved beneficial results in the ootherapy of both experimental and clinical diabetes.

Theses

- ▶ Gabriela Monroy Rodríguez. Diabetes gestacional y la influencia de la lactancia en el metabolismo hidrocarbonado. Universitat Autònoma de Barcelona. Directors: Rosa Corcoy and Alberto de Leiva. Date of defense: 01/12/2017.
- ▶ Diana Ovejero Crespo. Descripció clínica, etiologia molecular i estudis fisiopatològics de la síndrome cutània esquelètica hipofosfatèmica: una malaltia mosaica de mutacions ras activadores, Universitat Autònoma de Barcelona. Directors: Ana Isabel Chico, Rosa Corcoy, Adolfo Díez, Alberto de Leiva. Date of defense: 18/06/2017.

Collaborations

Collaborations with other IIB Sant Pau Groups

- ▶ Oncogenesis and Antitumour Drugs (Ramon Mangués).
- ▶ Ophthalmology (Fernando Rodríguez Álvarez).
- ▶ Cardiovascular Biochemistry (Jorge Ordóñez, José Luis Quesada, Francisco Blanco).
- ▶ General and Digestive Surgery (Antonio Moral, Ignacio Pérez).
- ▶ Reproductive Health (Juan Adelantado).
- ▶ Metabolic Bases of Cardiovascular Risk (Francisco Blanco).

External Collaborations

CIBER-BBN

- ▶ Bioengineering and Telemedicine Group at the Universidad Politécnica de Madrid, Spain (GBT-UPM). PI: Enrique J. Gómez Aguilera.

- ▶ Biomedical Engineering Research Group at the Universidad de Sevilla, Spain (GIB-US). PI: Laura Roa Romero.

CELL-NANO-THYROID

- ▶ Molecular Oncology Group at HVH, PI: S. Schwartz, Jr.
- ▶ Development of New Drugs Group at the Universidad del País Vasco, Spain. PI: JL Pedraz.

CONCEPT: Women with Type 1 Diabetes in Pregnancy Trial

Vitamin D and Lifestyle Intervention for Gestational Diabetes Mellitus (GDM) Prevention (DALI) Consortium

Action LADA European Consortium

Active Grants

- ▶ Cintia González Blanco. Intensificación y monitorización telemática personalizada de la modificación del estilo de vida en el tratamiento de la obesidad y la prevención del riesgo cardiometabólico. PI12/00931. Instituto de Salud Carlos III. Duration: 2013-2017. 68,000.00 €.
- ▶ Valeria Alcántara Aragon. Intensificación y monitorización telemática personalizada de la modificación del estilo de vida en el tratamiento de la obesidad y la prevención del riesgo cardiometabólico (PREDIRCAM 2). 2014FI00149. Agència de Gestió d'Ajuts Universitaris i de Recerca. Duration: 2014-2017. 60,465.12 €.
- ▶ Alberto de Leiva Hidalgo. Grup de Recerca en Endocrinologia,Diabetes i Metabolisme. 2014 SGR 569. Agència de Gestió d'Ajuts Universitaris i de Recerca. Duration: 2014-2017. 50,000.00 €.

- ▶ Ascension Lupiañez Barbero. Validació clínica de la plataforma tecnològica PREDIRCAM en l'etapa primerenca de la diabetis autoimmune tipus LADA. 2016 FI_B 00211. Agència de Gestió d'Ajuts Universitaris i de Recerca. Duration: 2016-2019. 60,465.12 €.
- ▶ Valeria Alcántara Aragón. Impact of intermittent versus continuous walking on glucose control in type 2 diabetes. IR16-E4. Fundació Privada Hospital de la Santa Creu i Sant Pau. Duration: 2017-2017. 3,500.00 €.
- ▶ Rosa Corcoy. Novel markers of glycemic control in women with Type 1 diabetes in pregnancy. An ancillary study from the CONCEPTt randomised clinical trial. EFSD/Sanofi Research Grant Programme for innovative measurement of diabetes outcomes. Duration: 2017-2018. 60,000 €.

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

Awards

- ▶ Valeria Alcántara. Predircam 2- plataforma web para el soporte continuado en cambios de estilo de vida, tratamiento y seguimiento telemático de personas con obesidad y prevención de DM2. 3rd Award MSD 2017 to Innovation and Excellence in the approach of diabetic patients.

Endocrinology, Diabetes and Nutrition

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Cedo L., Santos D., Roglans N., Julve J., Pal-lares V., Rivas-Urbina A., Llorente-Cortes V., Laguna J.C., Blanco-Vaca F., Escola-Gil J.C., Human hepatic lipase overexpression in mice induces hepatic steatosis and obesity through promoting hepatic lipogenesis and white adipose tissue lipolysis and fatty acid uptake (2017) *PLOS ONE*, 12 (12).

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phy H.R., Continuous glucose monitoring in pregnant women with type 1 diabetes (CONCEPTT): a multicentre international randomised controlled trial (2017) *LANCET*, 390 (10110), 2347-2359.

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Monroy G., Tundidor D., Orellana I., Garcia-Patterson A., Adelantado J.M., Corcoy R., Antenatal oral glucose tolerance test in women with gestational diabetes mellitus: Fasting plasma glucose is the best predictor of both large for-gestational-age newborns and postpartum glucose tolerance (2017) *MINERVA ENDOCRINOL*, 42 (4), 311-317.

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Ramos A., Mendoza L.C., Rabasa F., Bolibar I., Puig T., Corcoy R., Case-control studies in diabetes. Do they really use a case-control

design? (2017) *ACTA DIABETOL*, 54 (7), 631-634.

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Royo-Bordonada M.A., Armario P., Lobos Bejarano J.M., Pedro-Botet J., Villar Alvarez F., Elosua R., Brotons Cuixart C., Cortes O., Serrano B., Camafort Babkowski M., Gil Nunez A., Perez A., Maiques A., de Santiago Nocito A., Castro A., Alegria E., Baeza C., Herranz M., Sans S., Campos P., Spanish adaptation of the 2016 European Guidelines on cardiovascular disease prevention in clinical practice Adaptación española de las guías europeas de 2016 sobre prevención de la enfermedad cardiovascular en la práctica clínica (2017) *GAC SANIT*, 31 (3), 255-268.

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