

CIBERDEM

**10th ANNUAL MEETING
AND
YOUNG INVESTIGATORS SYMPOSIUM
November 6-8, 2019**

**Hotel Atenea Port
Mataró - Barcelona**

YOUNG INVESTIGATORS SYMPOSIUM

Wednesday, November 6th

9:00-9:15 WELCOME

Eduard Montanya
Scientific Director, CIBERDEM

9:15-11:15 SESSION 1

Chair: *Noèlia Téllez*
IDIBELL, University of Barcelona (Barcelona)

9:15 Retinal microperimetry: a useful tool for detecting insulin-resistance related cognitive impairment in morbid obesity

Andreea Ciudín
Vall de Hebron Research Institute – VHIR (Barcelona)

9:45 Interfering with β -cells or: how type I interferons are implicated in type 1 diabetes

Reinaldo Sousa dos Santos
Instituto de Investigación, Desarrollo e Innovación en Biotecnología Sanitaria de Elche, IDiBE, Universidad Miguel Hernández (Elche)

10:15 HDL and LDL: Potential new players in the association between diabetes and breast cancer

Lidia Cedó Giné
Institut d'Investigacions Biomèdiques, IIB Sant Pau (Barcelona)

10:45 Influence of ecological factors in the epidemiology of metabolic diseases. Di@bet.es study

Sergio Valdés
Endocrinología y Nutrición, Hospital Regional Universitario de Málaga, IBIMA (Málaga)

11:15-11:45 Coffee break

11:45-13:45 SESSION 2

Chair: *Sonia Fernández-Veledo*

*Hospital Universitari de Tarragona Joan XXIII, Institut d'Investigació
Sanitària Pere Virgili, Universitat Rovira i Virgili (Tarragona)*

**11:45 Dissecting the role of Ptf1a non-coding mutations in pancreatic
agenesis**

Irene Miguel-Escalada

Centre for Genomic Regulation, CRG (Barcelona)

**12:15 Unraveling the regulation of Vitamin D Receptor gene expression in
diabetes context**

Alba Casellas

Center of Animal Biotechnology and Gene Therapy, UAB (Barcelona)

**12:45 Beta cell replication in old islets is restricted to a subpopulation of
immature cells responsive to extracellular signals**

Noèlia Téllez

Diabetes, Nutrition and Endocrinological Diseases Research Group, IDIBELL,
Department Clinical Sciences, University of Barcelona (Barcelona)

**13:15:Alpha1-antitrypsin protects against islet amyloid-induced glucose
intolerance and β -cell dysfunction**

Joan-Marc Servitja

Diabetes and Obesity Research Laboratory, Institut d'Investigacions
Biomèdiques August Pi i Sunyer, IDIBAPS (Barcelona)

13:45-15:00 Lunch

15:00-17:00 SESSION 3

Chair: *Rosa Gasa*

*Institut d'Investigacions Biomèdiques August Pi i Sunyer, IDIBAPS
(Barcelona)*

15:00 Glycogen metabolism in astrocytes and neurons

Jordi Durán Castells

Institute for Research in Biomedicine, IRB Barcelona, The Barcelona Institute of Science and Technology (Barcelona)

15:30 Positional isomers of palmitoleic acid in metabolic syndrome: friends or foes?

Clara Meana

Instituto de Biología y Genética Molecular, IBGM, Consejo Superior de Investigaciones Científicas, CSIC (Valladolid)

16:00 BNIP3 Regulates mitochondrial health and insulin sensitivity in skeletal muscle

David Sebastián

Institute for Research in Biomedicine, IRB Barcelona, The Barcelona Institute of Science and Technology (Barcelona)

16:30 SUNCRI controls an anti-inflammatory program in macrophages to regulate the metabolic response to obesity

Vicky Ceperuelo

Fundación Instituto de Investigación Sanitaria Pere Virgili, Hospital Universitari Joan XIII (Tarragona)

17:00-17:30 Coffee break

17:30-18:15 KEYNOTE LECTURE

Chair: *Marc Claret*

*Institut d'Investigacions Biomèdiques August Pi iSunyer, IDIBAPS,
(Barcelona)*

Immunometabolism and aging

María Mittelbrunn

Fundación de Investigación Hospital 12 de Octubre, Centro de Biología
Molecular-UAM (Madrid)

18:15-18:30 CLOSING REMARKS

ANNUAL MEETING

Thursday, November 7th

9:00 OPENING AND WELCOME

Eduard Montanya
Scientific Director, CIBERDEM

9:00 – 11:00 INFLAMES PROJECT SYMPOSIUM

Identification of novel modulators of chronic inflammation in prevalent diseases: unveiling divergent mechanisms of diseases

Chair: *Antonio Zorzano*
Institute for Research in Biomedicine, IRB Barcelona, The Barcelona Institute of Science and Technology (Barcelona)

9:00 Identification of novel modulators of chronic inflammation in obesity and Crohn's disease: new role of adipose-stem cells and gut microbiota

Carolina Serena
Fundación Instituto de Investigación Sanitaria Pere Virgili (Tarragona)

9:30 Plasma metabolomics in obese, type 2 diabetes, or Crohn's disease patients, and relationship with insulin resistance and low-grade chronic inflammation of different etiology

Jordi Mayneris
Department of Endocrinology, Diabetes and Nutrition, Hospital of Girona "Dr Josep Trueta", University of Girona, Girona Biomedical Research Institute, IdibGi, CIBEROBN (Girona)

10:00 Impaired resolution of inflammation in visceral adipose tissue: a prime determinant of obesity-associated comorbidities

Joan Claria
Servicio Bioquímica y Genética Molecular, Hospital Clínic de Barcelona, Departamento de Biomedicina, Facultad de Medicina, Universitat de Barcelona, CIBEREHD (Barcelona)

10:30 Inflammation: a link between insulin resistance and non-alcoholic fatty liver disease

Ángela Martínez-Valverde

Instituto de Investigaciones Biomédicas Alberto Sols, CSIC-UAM (Madrid)

11:00-11:30 Coffee break

11:30-12:30 ORAL PRESENTATIONS SESSION 1

Chair: *Manuel Vázquez*

University of Barcelona (Barcelona)

Pilar Valdecantos

Instituto de Investigaciones Biomédicas Alberto Sols, CSIC-UAM (Madrid)

11:30 OP1 Mitochondrial dynamics and mitophagy in the functionality of thermogenesis in brown adipose tissue and in the adipose organ. Beatriz Jiménez; Martínez H.; Burillo J.; Marqués P.; Fernández-Rhodes M.; González

C.; Guillén C. and Benito M

Diabetes and Obesity Group, Biochemistry and Molecular Biology Department; Pharmacy School, UCM, Madrid

11:45 OP2 Proteomic approaches identify determinants of diabetes in severe obesity and their changes after bariatric surgery. María Insenser ¹,

Nuria Vilarrasa ², Assumpta Caixàs ³, Albert Lecube ⁴, Joan Vendrell ⁵, Héctor F Escobar-Morreale ¹

¹ Diabetes, Obesity and Human Reproduction Research Group, Hospital Universitario Ramón y Cajal & Universidad de Alcalá & Instituto Ramón y Cajal de Investigación Sanitaria (IRYCIS) & CIBERDEM, Madrid; ² Endocrinology and Nutrition Department, Bellvitge University Hospital-IDIBELL, Barcelona & CIBERDEM; ³ Endocrinology and Nutrition Department, Sabadell University Hospital (UAB), Corporació Sanitària Parc Taulí, Sabadell; ⁴ Endocrinology and Nutrition Department, Hospital Universitari Arnau de Vilanova, IRB Lleida, Universitat de Lleida, Lleida & CIBERDEM; ⁵ Institut Investigació Sanitària Pere Virgili (IISPV), Reus & CIBERDEM & Hospital Universitari de Tarragona Joan XXIII, Tarragona, Universitat Rovira i Virgili, Tarragona

12:00 OP3 Mitofusin 2 deficiency triggers an asparagine synthetase-dependent metabolic reprogramming. Juan Pablo Muñoz ^{1,2,3}, Jordi Coste ^{1,2,3}, Joan Blanco ^{1,2,3}, Sara Cano-Crespo ^{1,2,4}, Alexandra Junza ^{3,5}, Aida Rodríguez-Nuevo ^{1,2,3}, David Sebastián ^{1,2,3}, Oscar Yanes ^{3,5}, María J. Macías ^{1,6}, Manuel Palacín ^{1,2,4} and Antonio Zorzano ^{1,2,3}

¹ Institute for Research in Biomedicine (IRB Barcelona), The Barcelona Institute of Science and Technology (BIST), Barcelona; ² Departament de Bioquímica i Biomedicina Molecular, Facultat de Biologia, Barcelona; ³ CIBERDEM; ⁴ CIBERER; ⁵ Metabolomics Platform, IISPV, Department of Electronic Engineering, Universitat Rovira i Virgili, Tarragona; ⁶ ICREA, Barcelona

12:15 OP4 Fatty liver index as predictor for the risk of type 2 diabetes in normoglycemic subjects. The di@bet.es study. Eva García-Escobar ^{1,2}, S Valdés ^{1,2}, F Soriguer ^{1,2}, A Lago-Sampedro ^{1,2}, S García-Serrano ^{1,2}, N Colomo ^{1,2}, C Maldonado ², R Badía ², L Castaño ^{1,3,4}, E Delgado ⁵, J Franch-Nadal ^{1,6}, F J Chaves ^{1,7}, A Calle ^{1,8}, G Rojo-Martínez ^{1,2}

¹ CIBERDEM; ² Instituto de Investigación Biomédica de Málaga (IBIMA), UGC Endocrinología y Nutrición. Hospital Regional Universitario de Málaga; ³ Hospital Universitario Cruces, Biocruces Bizkaia, UPV/EHU, Barakaldo; ⁴ CIBERER; ⁵ Department of Endocrinology and Nutrition, Hospital Universitario Central de Asturias, University of Oviedo, Instituto de Investigación Sanitaria del Principado de Asturias (ISPA), Oviedo; ⁶ EAP Raval Sud, Institut Català de la Salut, Red GEDAPS, Primary Care, Unitat de Suport a la Recerca (IDIAP – Fundació Jordi Gol), Barcelona; ⁷ Genomic and Genetic Diagnosis Unit, Research Foundation of Valencia University Clinical Hospital-INCLIVA, Valencia; ⁸ Department of Endocrinology and Nutrition, Hospital Universitario S. Carlos de Madrid

13:00 Lunch

15:00–16:30 POSTER SESSION

16:30–18:30 ORAL PRESENTATIONS SESSION 2

Chair: *Benoit Gauthier*

*Andalusian Center for Molecular Biology and Regenerative Medicine-
CABIMER (Sevilla)*

Ignacio Conget

Hospital Clinic Barcelona, IDIBAPS (Barcelona)

16:30–17:00 STATE OF THE ART LECTURE

Label-free Imaging spectroscopy for the study of diabetes

Maria García Altares

Universitat Rovira i Virgili (Tarragona)

17:00–18:30 ORAL PRESENTATIONS

17:00 OP5 BCL-XL, but not complement C3, protects alpha-cells against metabolic stress- or proinflammatory-induced apoptosis. Reinaldo S. Dos Santos ^{1,2,3}, Ángel Nadal ^{1,2}, Decio L. Eizirik³, Laura Marroqui ^{1,2,3}

¹ Instituto de Investigación, Desarrollo e Innovación en Biotecnología Sanitaria de Elche (IDiBE), Universidad Miguel Hernández de Elche, Elche; ² CIBERDEM, ³ ULB Center for Diabetes Research, Université Libre de Bruxelles (ULB), Brussels, Belgium

17:15 OP6 Insulin degrading enzyme inhibition in the endocrine pancreas leads to insulin and glucagon secretion dysregulation and cell function immaturity. Beatriz Merino ¹, Cristina M. Fernández-Díaz ¹, Kaestner K ², Leissring M ³, Balsinde J ¹, Germán Perdomo ⁴, Irene Cózar-Castellano ¹

¹ Instituto de Biología y Genética Molecular (Universidad de Valladolid-CSIC); ² University of Pennsylvania, US; ³ University of California-Irvine, US; ⁴ Dpt. Health Sciences (Universidad de Burgos)

17:30 OP7 Essential role of glucokinase in the protection of pancreatic β cells to the glucose energetic status. Patricia Marqués, Anne Kamitz, Alberto Bartolomé, Jesús Burillo, Helena Martínez, Beatriz Jiménez, María Fernández-Rhodes, Carlos Guillén, Manuel Benito

School of Pharmacy, Complutense University, Madrid

17:45 OP8 SAFE-AP: Automatic control of blood glucose under announced and unannounced exercise. Preliminary results. Clara Viñals^{*,1,4}, Aleix Beneyto^{*,2}, Juan-Fernando Martín-SanJosé⁵, Clara Furió-Novejarque⁵, Arthur Bertachi^{2,3}, Jorge Bondia^{4,5}, Josep Vehí^{2,4}, Ignacio Conget^{1,4}, Marga Giménez^{1,4}

¹ Diabetes Unit, Endocrinology and Nutrition Dpt. Hospital Clínic de Barcelona; ² Institute of Informatics and Applications, University of Girona; Campus de Montilivi, s/n, Edifici P4, 17003 Girona; ³ Federal University of Technology - Paraná (UTFPR), Guarapuava, Brazil; ⁴ CIBERDEM; ⁵ Instituto Universitario de Automática e Informática Industrial, Universitat Politècnica de Valencia, Valencia * Both authors contributed equally

18:00 OP9 Exercise Enhanced Continuous Glucose Monitoring: Physical Activity Tracking Integration in Glucose Sensors. Alejandro José Laguna Sanz

¹, Jose Luis Díez¹, Marga Giménez², Jorge Bondia Company¹

¹CIBERDEM, Institut Universitari d'Automàtica i Informàtica Industrial, Universitat Politècnica de València; ²CIBERDEM, Diabetes Unit, Endocrinology and Nutrition Department, Hospital Clínic Universitari, IDIBAPS (Institut d'investigacions Biomèdiques August Pi i Sunyer), Barcelona

18:15 OP10 Exosomes as mediators of the systemic adaptations to high intensity interval training. Carlos Castaño^{1,3}, M. Mirasierra^{2,3}, M. Vallejo^{2,3}, L. Brugnara^{1,3}, S. Murillo^{1,3}, A. Novials^{1,3}, M. Párrizas^{1,3}

¹ Institut d'Investigacions Biomèdiques August Pi i Sunyer (IDIBAPS), Barcelona; ² Instituto de Investigaciones Biomédicas "Alberto Sols" (IIBM), Madrid; ³ CIBERDEM

18:30–20:30 POSTER SESSION & REFRESHMENTS

19:00 Pls MEETING

21:00 DINNER

9:00-10:45 ORAL PRESENTATIONS SESSION 3

Chair: *Carmen Álvarez*

Universidad Complutense de Madrid (Madrid)

María Ángeles Balboa

Instituto de Biología y Genética Molecular, CSIC (Valladolid)

9:00-9:30 STATE OF THE ART LECTURE

Understanding the pathophysiological role of succinate/SUCNR1 axis in obesity and T2D: from the laboratory to the clinic

Sonia Fernández Veledo

Institut d'Investigació Sanitària Pere Virgili, Hospital Universitari de Tarragona Joan XXIII (Tarragona)

9:30 – 10:45 ORAL PRESENTATIONS

9:30 OP11 Role of HIF1 α in inflammation-mediated insulin resistance and defective UCP-1 induction in brown adipocytes. Nuria Pescador ^{1,2,3}, Eva Esquinas ¹, Patricia Vázquez ^{1,3}, Julian Aragonés ⁴, M^a Jesús Obregón ¹, Alfonso Calle ^{2,3} Ángela M. Valverde ^{1,3}

¹ Instituto de Investigaciones Biomédicas Alberto Sols (CSIC-UAM), Madrid; ² Hospital Clínico San Carlos, Madrid; ³ CIBERDEM; ⁴ Instituto de Investigación Sanitaria La Princesa, Madrid.

9:45 OP12 The increase in GDF15 caused by PPAR β/δ activation is necessary for its metabolic effects. David Aguilar ^{1,2,3}, Javier Pizarro-Delgado ^{1,2,3}, Xavier Palomer ^{1,2,3}, and Manuel Vázquez-Carrera ^{1,2,3}

¹ Department of Pharmacology, Toxicology and Therapeutic Chemistry, Faculty of Pharmacy and Food Sciences and Institute of Biomedicine of the University of Barcelona (IBUB), University of Barcelona, Barcelona; ² CIBERDEM; ³ Pediatric Research Institute-Hospital Sant Joan de Déu, Esplugues de Llobregat

10:00 OP13 Plasma levels of the Fatty Acid Binding Protein (FABP) 4 are associated with the liver triglycerides composition in a murine model of non-alcoholic fatty liver disease (NAFLD). Ricardo Rodríguez-Calvo^{1,2}, Sara Samino^{2,3}, Josefa Girona^{1,2}, Neus Maríntez-Micaelo^{1,2}, Pere Rafols^{2,3}, María García-Altares^{2,3}, Sandra Guaita-Esteruelas^{1,2}, Alexandra Junza^{2,3}, Mercedes Heras^{1,2}, Oscar Yanes^{2,3}, Xavier Correig^{2,3}, Lluís Masana^{1,2}

¹ Vascular Medicine and Metabolism Unit, Research Unit on Lipids and Atherosclerosis, "Sant Joan" University Hospital, Universitat Rovira i Virgili, Institut de Investigació Sanitària Pere Virgili (IISPV), Reus; ² CIBERDEM; ³ Metabolomics Platform, Department of Electronic Engineering (DEEEA), Universitat Rovira i Virgili, Tarragona

10:15 OP14 Pre-operative circulating succinate levels as a biomarker for diabetes remission after bariatric surgery. Gemma Llauradó^{1,2*}, Victoria Ceperuelo-Mallafre (co-first author)^{2,3}, Noelia Keiran^{2,3}, Ester Benaiges^{2,3}, Brenno Astiarraga^{2,3,7}, Laia Martínez³, Silvia Pellitero^{2,4}, Jose Miguel González-Clemente^{2,5}, Amaia Rodríguez⁶, José Manuel Fernández-Real⁷, Albert Lecube⁸, Ana Megía^{2,3}, Nuria Vilarrasa^{2,9}, Joan Vendrell (co-senior author)^{2,3,10} and Sonia Fernández-Veledo^{2,3}

¹ Department of Endocrinology and Nutrition, Hospital del Mar, Institut Hospital del Mar d'Investigacions Mèdiques (IMIM), Barcelona; ² CIBERDEM; ³ Institut d'Investigació Sanitària Pere Virgili. Endocrinology and Nutrition Service, Hospital Universitari de Tarragona Joan XXIII, Tarragona; ⁴ Department of Endocrinology and Nutrition. Germans Trias i Pujol Research Institute, Barcelona; ⁵ Department of Endocrinology and Nutrition. Hospital de Sabadell. Corporació Sanitària Parc Taulí. Institut d'Investigació i Innovació Parc Taulí (Universitat Autònoma de Barcelona), Sabadell; ⁶ Metabolic Research Laboratory, Clínica Universidad de Navarra, CIBEROBN, IdiSNA, Pamplona

10:30 OP15 Galectin-3 and Monocyte Chemoattractant Protein-1, as new biomarkers for patients with diabetes and high risk of cardiovascular diseases. Lorenzo-Almorós A¹, Aceña A, Pello AM, Carda R, López-Castillo M, Tuñón J², Egido J^{1,3}, Oscar Lorenzo^{1,3}

¹ Renal, Vascular and Diabetes Laboratory. Instituto de Investigaciones Sanitarias-Fundación Jiménez Díaz. Universidad Autónoma, Madrid; ² Department of Cardiology, Fundación Jiménez Díaz, Madrid; ³ CIBERDEM

10:45-11:15 Coffee break

11:15-12:30 ORAL PRESENTATIONS SESSION 4

Chair: *Mario Vallejo*

Instituto de Investigaciones Biomédicas Alberto Sols, CSIC (Madrid)

Vicky Ceperuelo

Fundación Instituto de Investigación Sanitaria Pere Virgili, Hospital Universitari Joan XII (Tarragona)

11:15 OP16 Exploring the microbiota-host epigenetics axis in female and male germ-free and conventional mice. Joan Miro-Blanch^{1,2}, Jordi Capellades^{1,2}, Alexandra Junza^{1,2}, Magdalini Serefidou³, Pau Gama-Perez^{4,5}, Claire Maudet⁶, Aurélie Balvay⁶, Ignasi Forné³, Pablo M. Garcia-Roves^{4,5}, Axel Imhof³ and Oscar Yanes^{1,2}

¹ Metabolomics Platform, IISPV & Department of Electronic Engineering, Universitat Rovira i Virgili; ² CIBERDEM; ³ Protein Analysis Unit (ZfP), BioMedical Center (BMC), Ludwig Maximilians University of Munich, Martinsried, Germany; ⁴ Institut d'Investigacions Biomèdiques de Bellvitge (IDIBELL); ⁵ Department of Physiological Science, University of Barcelona; ⁶ Micalis Institute, Institut National de la Recherche Agronomique, AgroParisTech; Université Paris-Saclay, Jouy-en-Josas, France

11:30 OP17 Gut dysbiosis and altered barrier function precedes the appearance of metabolic syndrome in a rat model of nutrition-induced catch-up growth. Elisa Fernández-Millán^{1,2}, Martínez-Oca P^{1,2}, Robles-Vera I³, Sánchez-Roncero A^{1,2}, Duarte J^{3,4,5}, Escrivá F^{1,2}, Fernández-Marcelo T², Álvarez C^{1,2}

¹ Department of Biochemistry and Molecular Biology, Faculty of Pharmacy, University Complutense of Madrid, Madrid; ² CIBERDEM; ³ Department of Pharmacology, School of Pharmacy, University of Granada, Granada; ⁴ Instituto de Investigación Biosanitaria de Granada (Ibs. Granada), Granada; ⁵ CIBERCV, Granada

11:45 OP18 Hypothalamic deficiency of Alx3 in the arcuate nucleus correlate with altered body mass composition and muscle weakness. Mercedes Mirasierra, Antonio Fernández-Pérez and Mario Vallejo

Instituto de Investigaciones Biomédicas Alberto Sols, Consejo Superior de Investigaciones Científicas, Universidad Autónoma de Madrid, CIBERDEM

12:00 OP19 Inadequate control of thyroid hormones sensitizes to hepatocarcinogenesis, unhealthy aging and shorter lifespan. Livia López-Noriega ¹, Vivian Capilla-González ¹, Nadia Cobo-Vuilleumier ¹, Eugenia Martin-Vázquez ¹, Petra Isabel Lorenzo ¹, Enrique Martinez-Force ², Mario Soriano-Navarro³, María García-Fernández⁴, Silvana Yanina Romero-Zerbo^{5,6}, Francisco Javier Bermúdez-Silva ^{5,6}, Irene Díaz-Contreras ^{1,6}, Ana Sánchez-Cuesta ⁷, Carlos Santos-Ocaña ⁷, Abdelkrim Hmadcha ^{1,6}, Bernat Soria^{1,6}, Franz Martín ^{1,6}, Benoit Raymond Gauthier ^{1,6*}, Alejandro Martin-Montalvo ^{1*}

¹ Department of Cell Regeneration and Advanced Therapies, Andalusian Center for Molecular Biology and Regenerative Medicine-CABIMER, Junta de Andalucía-University of Pablo de Olavide-University of Seville-CSIC, Seville; ² Instituto de la Grasa (CSIC), Universidad Pablo de Olavide, Sevilla; ³ Centro de Investigación Príncipe Felipe, Valencia; ⁴ Department of Human Physiology, Málaga University, Biomedical Research Institute of Málaga (IBIMA), Málaga; ⁵ Instituto de Investigación Biomédica de Málaga-IBIMA, UGC Endocrinología y Nutrición, Hospital Regional Universitario de Málaga, Málaga; ⁶ CIBERDEM; ⁷ Centro Andaluz de Biología del Desarrollo, Universidad Pablo de Olavide and CIBERER, Sevilla

12:30 POSTERS AWARDS SESSION

Chair: *Franz Martín*
Universidad Pablo de Olavide (Sevilla)

13:00 CLOSING REMARKS

Eduard Montanya
Scientific Director, CIBERDEM

