

Bone and Mineral Metabolism Laboratory Group



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(1) Pedro Esbrit (PhD; Group Director); (2) Adela García-Martín (PhD); (3) Daniel Lozano Borregón (PhD); (4) Sergio Portal-Núñez (PhD); (5) Ana López-Herradon (PhD student); (6) Marta Maycas (PhD student)

The studies carried out in the Bone and Mineral Metabolism Laboratory at Instituto de **Investigación Sanitaria-Fundación Jiménez Díaz** have addressed to explore the pathogenic roles of parathyroid hormone-related protein (PTHrP) in hypercalcemia of malignancy as well as in various nephropathies. This research group is also involved in studies to clarify the mechanisms whereby PTHrP affects bone formation and remodeling in various pathophysiological conditions related to osteopenia.

The Bone and Mineral Metabolism Laboratory group is currently a member of a the "aging and frailty network" (RETICEF), including cell biologists and clinicians for studies to address different aspects related to the pathophysiology of aging.

Current collaborations

Dr. A.R. de Gortázar. Departamento de Ciencias Médicas Básicas. Facultad de Medicina. Universidad San Pablo CEU (Madrid).

Dr. A. Díez. Departamento de Medicina Interna. Hospital del Mar (Barcelona).

Dra. M de la Fuente. Departamento de Fisiología Animal. Facultad de Biología. Universidad Complutense de Madrid.

Dr. M. Vallet-Regí. Departamento de Química Inorgánica y Bioinorgánica. Facultad de Farmacia. Universidad Complutense de Madrid.

Dr. J. Buján. Departamento de Especialidades Médicas. Facultad de Medicina. Universidad de Alcalá (Madrid).

Selected Recent Publications

V Alonso, AR de Gortázar, JÁ Ardura, I Andrade-Zapata, MV Alvarez-Arroyo, P Esbrit. Parathyroid hormone-related protein (107-139) increases human osteoblastic cell survival by activation of vascular endothelial growth factor receptor-2. **J Cell Physiol** 217:717-27, 2008

D. Lozano, L.F. de Castro, S. Dapía, I. Andrade-Zapata, F. Manzarbeitia, M. V. Alvarez-Arroyo, E. Gómez-Barrena, P. Esbrit. Role of parathyroid hormone-related protein in the decreased osteoblast function in diabetes-related osteopenia. **Endocrinology** 150:2027-2035, 2009.

Lozano D, Manzano M, Doadrio JC, Salinas AJ, Vallet-Regí M, Gómez-Barrena E, Esbrit P. Osteostatin-loaded bioceramics stimulate osteoblastic growth and differentiation. **Acta Biomater.** 6: 797-803, 2010.

Fernández de Castro L, Lozano D, Dapía S, Portal-Núñez S, Caeiro JR, Gomez-Barrena E, Esbrit P. Role of the N- and C-terminal fragments of parathyroid hormone-related protein as putative therapies to improve bone regeneration under high glucocorticoid treatment. **Tissue Eng Part A.** 16: 1157-68, 2010.

Portal-Núñez S, Lozano D, Fernández de Castro L, de Gortázar AR, Nogués X, Esbrit P. Alterations of the Wnt/ β -catenin pathway and its target genes for the N- and C-terminal domains of parathyroid hormone-related protein in bone from diabetic mice. **FEBS Lett.** 584:3095-100, 2010.

C.G. Trejo, D. Lozano, M. Manzano, J.C. Doadrio, A.J. Salinas, S. Dapía, E. Gómez-Barrena, M. Vallet-Regí, N. García-Honduvilla, J. Buján, P. Esbrit. The osteoinductive properties of mesoporous silicate coated with osteostatin in a rabbit femur cavity defect model. **Biomaterials** 31: 8564-8573, 2010.

Bosch RJ, Ortega A, Izquierdo A, Arribas I, Bover J, Esbrit P. A transgenic mouse model for studying the role of the parathyroid hormone-related protein system in renal injury. **J Biomed Biotechnol** 290874, 2011.

Lozano D, Fernández-de-Castro L, Portal-Núñez S, López-Herradón A, Dapía S, Gómez-Barrena E, Esbrit P. The C-terminal fragment of parathyroid hormone-related peptide promotes bone formation in diabetic mice with low-turnover osteopaenia. **Br J Pharmacol.** 162: 1424-1438, 2011

Nuche-Berenguer B, Lozano D, Gutiérrez-Rojas I, Moreno P, Mariñoso ML, Esbrit P, Villanueva-Peñacarrillo ML. GLP-1 and exendin-4 can reverse hyperlipidic-related osteopenia. **J Endocrinol.** 2011 Mar 3. [Epub ahead of print]. PMID: 21372151.