UNIVERSITAT DE BARCELONA

Predoctoral research position in bone biology and therapy

The Cell Signalling and Bone Biology laboratory at the University of Barcelona is seeking to recruit a highly motivated predoctoral candidate interested in performing a PhD Thesis in biomedical research. The project will cover the implementation of the proof of concept that inhibitors of PI3K are therapeutically efficient to block bone formation in patients suffering from FOP (Fibrodysplasia ossificans progressiva). The PhD student will also be involved in additional projects that may arise during his/her PhD thesis (see Valer et al., 2019 and other publications below).

Our group has carried out active research on the molecular and cellular basis of bone biology. We are currently studying several aspects of functional genomics of bone biology including the study of the signal transduction pathways that control bone homeostasis (Smad, NRF2 and PI3-kinase) and the study of gene expression and regulatory elements of the transcription involved in osteoblast differentiation. Cumulative data allowed us to improve strategies for bone tissue engineering from stem cells to regenerate bone structures. It also allowed us to identify relevant pharmacological targets for the treatment of bone pathologies including osteoporosis, heterotopic ossification, and FOP.

More information about us can be found at:

- bonebiology.wixsite.com/venturalab

Applicants should have:

- Degree and master in a discipline with strong background in molecular and cellular biology. Those who are enrolled in a master's degree are welcomed to apply.
- Willingness to work with mouse models.
- Good academic record (>8).
- Fluency in English.
- (Desired) Accredited certificate of Animal Research Experimentation.

We offer an exciting opportunity to start a PhD in biomedical sciences researching in the field of bone biology and its alterations linked to human pathologies. The selected candidate will join a dynamic and multidisciplinary group with a wide range of *in vitro* and *in vivo* techniques. The selected candidate will participate in the ongoing research of the laboratory and advance in his/her own research projects with a translational approach.

Interested applicants should send a request by email (including a CV, academic record, and a cover letter with your research interests) to Dr. Francesc Ventura (fventura@ub.edu).

Relevant publications:

Ventura F, Williams E, Ikeya M, Bullock AN, Ten Dijke P, Goumans MJ, Sanchez-Duffhues G. Challenges and Opportunities for Drug Repositioning in Fibrodysplasia Ossificans Progressiva Biomedicines 9 (2) pp 213 (2021)

Sánchez-de-Diego C, Pedrazza L, Pimenta-Lopes C, Martinez-Martinez A, Dahdah N, Valer JA, Garcia-Roves P, Rosa JL, Ventura F. NRF2 function in osteocytes is required for bone homeostasis and drives osteocytic gene expression. Redox Biology 40, pp 101845 (2021).

Valer, J.A.; Sánchez-de-Diego, C.; Gámez, B.; Mishina, Y.; Rosa J.L.; Ventura, F. Inhibition of phosphatidylinositol 3-kinase α (PI3Kα) prevents heterotopic ossification. EMBO Molecular Medicine. e10567. (2019)

Sánchez-de-Diego, C.; Artigas, N.; Pimenta-Lopes, C.; Valer, J.A.; Torrejón, B.; Gama-Pérez, P.; Villena, J.A.; García-Roves, P.M.; Rosa, J.L.; Ventura, F. Glucose Restriction Promotes Osteocyte Specification by Activating a PGC-1α-Dependent Transcriptional Program. iScience. 15 (31), pp 79 - 94. (2019)

Valer, J.A.; Sánchez-de-Diego, C.; Pimenta-Lopes, C.; Rosa, J.L.; Ventura, F. ACVR1 function in health and disease. Cells. 8-11, pp. 1366. (2019)

Sánchez-de-Diego, C.; Valer, J.A.; Pimenta-Lopes, C.; Rosa, J.L.; Ventura, F. Interplay between BMPs and Reactive Oxygen Species in Cell Signaling and Pathology. Biomolecules. 9 (10): pp. 534 (2019)

Artigas, N.; Gámez, B.; Cubillos-Rojas, M.; Sánchez-de Diego, C.; Valer; J.A.; Pons, G.; Rosa, J.L.; Ventura, F. p53 inhibits SP7/Osterix activity in the transcriptional program of osteoblast differentiation. Cell Death and Differentiation. pp. 2022-2031. (2017)

Aquino-Martinez, R.; Angelo, A. P.; Ventura, F. Calcium-containing scaffolds induce bone regeneration by regulating mesenchymal stem cell differentiation and migration. Stem Cell Research & Therapy. 8, pp. 265. (2017)