

## **Early stage researcher PhD position in Controlling Cartilage to Bone Transitions for Improved Treatment of Bone Defects and Osteoarthritis**

CarBon is a Marie Skłodowska-Curie Innovative Training Network (MSCA-ITN) on controlling cartilage to bone transitions for improved treatment of bone defects and osteoarthritis in the Horizon 2020 research and innovation programme of the European Union. In total, 14 Early Stage Researchers (ESRs) will be appointed by the CarBon consortium for 36 months each.

### **CarBon project summary**

Many people suffer from diseases of the locomotor system, such as bone defects or osteoarthritis, for which current treatments are insufficient. Understanding and controlling the dual character of cartilage is pivotal: insufficient transition impairs bone healing, and undesired transition to bone leads to osteoarthritis. In CarBon, state of the art *in vitro*, *in silico* and *in vivo* models will be uniquely combined to elucidate how this transition is orchestrated and how it can be modulated. In a multifactorial approach, a network of 14 young scientists will aim to identify the biological and physical factors that determine the fate of cartilage. Knowledge from the fields of tissue engineering, cartilage and bone developmental biology and pathobiology will be combined with skills from the disciplines of cell biology, computational modelling, biotechnology (bioreactors, biomaterials) and drug discovery.

The consortium consists of partners from both academia and industry with excellent scientific qualifications in multiple disciplines. In total, there are 14 open ESR positions within CarBon. Each ESR will be appointed at one of the consortium partners. During the appointment, secondments will be performed at the premises of other partners to ensure multidisciplinary training and close collaboration. The ESRs will start their projects between January and September 2017.

### **ESR PhD positions**

In the subproject “Extracellular Matrix” (ESR3+4, University of Cologne/Frankfurt, Germany) students should apply system biology approaches to identify novel molecular determinants, which prevent cartilage-to-bone transformation and promote cartilage formation and stabilization. The student will produce selected factors to study their interaction with the extracellular matrix network, but also apply those factors to complex chondrocyte cultures and determine their impact on chondrocyte differentiation and matrix production. A major goal of the students will be to understand the molecular mechanism of action of selected factors on chondrocyte differentiation and matrix formation/degradation within those cultures, but also to define factors, which could improve the fracture healing and prevent osteoarthritis progression *in vivo*. Here, scaffolds should be used to deliver novel molecular determinants to the site of injury in experimental trauma and osteoarthritis models and identify those candidates that can promote cartilage repair.

## **Profile**

An ideal ESR PhD candidate will hold a Master's degree in biology, or molecular life science or biochemistry and have excellent marks from his/her previous studies and courses along with experience in one or more of the relevant fields. Excellent written and oral communication skills are a must.

## **MSCA-ITN eligibility criteria**

There are strict eligibility requirements for the ESR PhD positions in MSCA-ITN . Please ensure that you qualify before applying, as ineligible candidates cannot be considered.

- Applicants should not have resided or performed their main activity (work, studies, etc) in the country of the host institution for more than 12 months in the 3 year period immediately prior to the start date of the PhD research.
- Applicants for the ESR PhD positions should be in the first 4 years (full-time equivalent) of their research careers and not yet have been awarded a doctorate. This 4 year period is measured from the date of obtaining the degree which would formally entitle to embark on a doctorate.

MSCA-ITN offers an attractive salary and working conditions. An unique feature of MSCA-ITN is that during the PhD research, ESR PhD students will be given the opportunity to perform secondments at the facilities of other consortium members. ESR PhD students will benefit from a dedicated training program in the various fields of expertise of the consortium partners. Salary is complemented with a mobility allowance.

For more information on MSCA-ITN, visit [http://ec.europa.eu/research/mariecurieactions/index\\_en.htm](http://ec.europa.eu/research/mariecurieactions/index_en.htm)

## **Application**

To apply for this position, send your CV and motivation letter to [carbonrecruitment@erasmusmc.nl](mailto:carbonrecruitment@erasmusmc.nl). Please state the vacancy reference (CarBon ESR number) in the subject line. If you would like to apply for more than one position, please indicate your first and second choice. Your application will be forwarded to the involved supervisor(s) for further evaluation.

Applicants whose first language is not English may need to meet the English language requirements of the institute. If applicable, further details will be provided when short-listed for interview.