

Post-doctoral position- KU Leuven, Belgium

Fascination with pattern formation in living organisms is millennia old. One of the biological models to investigate this process is the developing limb. Our understanding of limb development has progressed greatly over the last half century. However, the intricate interactions between biochemical (e.g. genes, proteins) and biophysical (e.g. cell-cell interactions) factors become too complex to be understood without the help of computational modeling. In order to successfully continue the quest for a deeper insight into the complex control of genesis of biological structures and functions, further advances in the computational as well as the experimental models are necessary.

Recently, we began MatheMorphosis, an interdisciplinary research project that aims to follow an integrative approach to study the biophysical and biochemical regulation of limb development. We will establish a multiscale, multiphysics model (in silico) of the early stages of limb development, exploring various ways to optimize, validate and question the model and its predictions. Concomitantly, we will develop a robust in vivo (in ovo) platform based on the recombinant limb technique in the chick that allows to incorporate in vitro engineered cell populations and assess their capacity to form complex tissues. This experimental model will provide a dedicated test bed to evaluate specific model predictions and thereby advancing the state-of-the-art in both computational modeling and limb development.

We are searching for a post-doc for the biological part of the project. S(h)e will be responsible in the first instance for the establishment of conditions required for the investigation of the 'recombinant limb technique'. Secondly, s(h)e will investigate the conditions required for stem cell differentiation into limb bud mesenchymal cells using chick and mouse models.

The candidate should have a background in developmental/cell biology and an interest in tissue morphogenesis. Additionally, it is expected from the candidate to be trained in molecular embryology, stem cell biology and/or limb development. Knowledge of osteo-chondrogenic differentiation processes would be advantageous. The candidate should be able to work independently in a team-oriented project. It is expected from the candidate to be fluent in spoken and written English.

We offer a work in a very interdisciplinary dynamic team led by Lies Geris (<http://www.biomech.ulg.ac.be/team/liesbet-geris/>), Bart Smeets (from <https://www.biw.kuleuven.be/biosyst/mebios/particulate-dynamics-group/Particulate-Dynamics-group.html>) and Przemko Tylzanowski (<https://gbiomed.kuleuven.be/english/research/50000640/sberc/developmental-and-stem-cell-biology/index.html>).

The labs are located in the center of KU Leuven Health Sciences Campus (picture below) with over 4000 researchers working under one roof, many core facilities, very well communicated with the main airport as well as key train stations.

The position is available IMMEDIATELY.

For further information, please contact Prof. Przemko Tylzanowski (przemko@kuleuven.be). To apply, please send a motivation letter with names and contact coordinates (email and/or phone) of two referees to the above email address.

University of Leuven is located 20 km from Brussels (Belgium) in a college town of Leuven. Belgium has been ranked top for academic research and innovation consistently over the many years.



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