Congress Report

The conference named "European Cytoskeletal Forum - Cell Adhesion and Migration" took place in Robinson College Cambridge, United-Kingdom of 20-23 June 2016 (https://www.biochemistry.org/Events/tabid/379/MeetingNo/SA180/view/Conference/Default.aspx). This congress had the aim to gather several scientists that their main field of expertise is to study the dynamic of the cytoskeleton in several types of cells. The project presented at this conference with a poster is titled "Study of Developmental and Molecular Processes Sorbs1 Regulated by using a combination of in vitro and in vivo models" which the authors of this work are Alexandra Veloso, Anouk Bleuart, Maud Martin, Jonathan Bruyr, members of the laboratory Protein Signaling and Interactions, and Franck Dequiedt being the principal investigator.

Olivier Pertz (University of Bern, Switzerland) has demonstrated that theirs a spatio-temporal Rho GTPase signaling regulating fibroblast migration. Rho GTPases, such as Rac1, RhoA and Cdc42 are key regulators of the cytoskeletal dynamics and cell adhesion and migration. Traditional models proposed that the Rac1 had a role in membrane protrusions in cell front, RhoA in tail retraction and Cdc42 in filopodia formation. By using biosensors and FRET technique, Oliver Pertz and his group, have proven that RhoGTPases activation dynamics fluctuate in just few micrometer length and spatio-temporal signaling programs of these members are highly associated with specific morphodynamic behaviors.

Since by inducing a knock-down of the protein we are studying in the laboratory, Sorbs1, we have an effect on some members of RhoGTPases and as consequence on cell migration and adhesion, this presentation was of high interest. The presentation of Olivier Pretz will maybe enable us to explain the link between our zebrafish and cell phenotype (when we induce Sorbs1 knock-down) and the signaling of RhoGTPases which possibly is disrupted.

During Kenneth Yamada presentation, he mainly showed that mechanisms of cell migration and tissue remodeling can be different depending in our choice of using 3D

microenvironments or 2D tissue culture conditions to perform our experiments in vitro, which is very important because during my thesis we use in vitro and in vivo models.

The main differences between 3D matrix and 2D are differences in cell shape, enhanced adhesion, migration and proliferation, differences in integrin receptors required in cell morphology. For example, filaments polymerization and their stiffness in *in vitro* conditions changes with different temperatures of incubation; also, Rac1 signaling depends on 2D/3D assays.

The solution of this laboratory group is 3D tissues models which will enable to diminish the difference of obtained results between 2D and *in vivo*.

Other speakers that uphold my interest were Richard Hodge: “Novel mechanisms to regulate RhoGTPases” and Marios Georgiou: “A gradient of Rac activity determines protrusion form and position in a 3-dimensional epithelial sheet”.