

We are interesting in understanding what make cells to take decisions, for example how they “decide” to move to a new location, how this processes are activated or stopped at the molecular (genetic) level. While most differentiated cells become rather quiescent, do not move or proliferate, under some conditions some cells are able to regain more embryonic characteristics and for example start dividing. Such genetic “flexibility” plays important roles during development, as cells need to migrate to form all the different organs in our bodies, or when an injury takes place and a tissue needs to be repaired. Cells have encoded signals that tell them when to start a process and when to stop it.

On the other hand, tumour cells (cancer) can use these signals to their benefit and start abnormally proliferating or migrating, and they evolve resistance to the “stop” signals. Thus, the understanding of the “on” and “off” signals is essential to for us to unravel how these processes work in health and disease.

Our work will hopefully bring new light into the phenomena of cell migration and cell differentiation. We are studying the very genes that regulate this “switch”, and we are trying to learn how to regulate them.