RNA processing lies in the hearth of gene expression because each newly transcribed messenger RNA in the nucleus needs to undergo many processing steps before it can serve as a template for protein synthesis in the cytoplasm. The RNA processing and development laboratory is especially investigating the functions of SR proteins, a family of essential splicing factors, during early development and in the maintenance of cellular homeostasis in the adult. Gene expression programs dictate the development of a single pluripotent cell into a complex organism with hundreds of different cell types. Little is known about the role of SR proteins in the regulation of gene expression during development. In pluripotent cells and during development, RNA processing may be a particularly important mechanism of gene expression regulation because it allows for fine-tuning and plasticity of gene expression. Furthermore, our work has identified that SR proteins are not just an essential genes during early development, but also as cell type specific regulators of gene expression in the adult. The puzzling question is how general, ubiquitously expressed factors can have such specificity.

Research Projects
1. Splicing factors as novel regulators of cellular reprogramming
2. RNA processing during zebrafish development and in stem cells
3. Regulation of stem cells by RNA processing factors

Selected significant publications: