Pluripotency is the remarkable ability that certain stem cells have of giving rise to all cell types of the body. The molecular regulation of pluripotency is a fundamental basic biology question with important potential implications in Regenerative Medicine, Reproductive Biology and Cancer. We are investigating how the chromatin state and the transcriptional program for pluripotency are maintained in pluripotent stem cells and how they can be revived during reprogramming, in both mouse and human cells. We study the epigenetic regulation of stem cell pluripotency in vivo using mouse models, focusing on early embryonic development and the germline. We use approaches from mouse genetics and embryology, stem cell biology, reprogramming, functional genomics, epigenetics and bioinformatics.