

# Loss-of-function insertional mutagenesis with transposons

## Research project summary

Transposons can be harnessed as vehicles for introducing mutations into genes. Our goal is to establish tools based on SB as well as on the piggyBac and Tol2 transposon systems to manipulate vertebrate genomes (transgenesis, genomic screens) in organisms where this technology was not available before. One particular application is based on loss-of-function insertional mutagenesis in rats with the goal of generating knockout animals. The genes inactivated by transposon insertion are "tagged" by the transposon, which can be used for subsequent cloning of the mutated allele. With the goal of knocking out genes implicated in disease, we carried out a pilot screen in rat spermatogonial stem cells. The project has enormous potential to develop powerful genomic tools for rat that is the preferred model organism of cardiovascular, as well as toxicology and behavioral studies.