

## **Jean-Pierre Perreault**

*Understanding the folding of RNA molecules and the associated impact on the human transcriptome (particularly cancer biology) and the biochemistry and molecular biology of viroids.*

One of the two internships will participate in the study of G-quadruplex structures. It is an RNA motif that is frequently found in the mRNA and closely associated with maturation, translation and mRNA stability. We believe that the presence of these structures in several distinct mRNAs could help coordinate the action of the latter. For example, these structures could be recognized simultaneously by a given protein and thus ensure that the translation of several genes occur simultaneously, as a transcription factor to DNA. Both approaches of the biochemistry of nucleic acids as molecular biology are used on a daily basis. In addition to allowing us to better understand the rules that dictate the folding of RNA, this project has the potential to help us discover new mechanisms of molecular and cell biology are among others associated with cancer. The second stage will focus on mechanisms associated with small non-coding RNA with siRNAs and microRNAs. We conduct two parallel projects, one of which in plants and the other humans (co-directed with the laboratory of Dr. Gilles Boire). In both cases, we combine the approaches of high-throughput sequencing, bioinformatics and molecular biology to uncover the secrets surrounding the transcriptome and control of gene expression.