



Secteur des Sciences
et Technologies

Invitation à la soutenance publique de thèse de
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Master en Sciences chimiques à finalité approfondie

Pour l'obtention du grade de Docteur en sciences

« Synthesis and study of Ru(II) and Ir(III) complexes targeting G-
quadruplex DNA »

qui se déroulera
le **lundi 16 décembre 2019 à 14h**
Auditoire LAVO 51
Place Louis Pasteur, 1
1348 Louvain-la-Neuve

Jury members:

Prof. Benjamin Elias (UCLouvain), supervisor
Prof. Eric Defrancq (UGA, France), supervisor
Prof. Jean-François Gohy (UCLouvain), chairperson
Prof. Charles-André Fustin (UCLouvain), secretary
Prof. Annemieke Madder (UGent, Belgium)
Dr. Geneviève Pratviel (UToulouse, France)
Prof. Mathieu Surin (UMons, Belgium)
Prof. Frédérique Loiseau (UGA, France)



Nowadays, cancer represents the major cause of death in developed countries, after cardiovascular diseases. Many studies have highlighted the role of telomeres. These G-rich DNA sequences found at the end of chromosomes are able to fold into four stranded architecture, called G-quadruplex DNA. These structures are involved in the immortality of cancer cells. Therefore, telomeric DNA represents an interesting target in cancer therapy.

In this context, the development of compounds able to selectively target and damage telomeric DNA is promising. Transition metal complexes represent a particularly interesting choice due to their outstanding DNA binding and photochemical properties.

During this Ph.D. thesis, we aimed to design new transition metal complexes of Ru(II) and Ir(III) that will (i) selectively interact with G-quadruplex telomeric DNA and (ii) photoinduce electron transfer with guanine. The mononuclear and dinuclear complexes of ruthenium (II) showed interesting in vitro and in cellulo targeting of telomeric DNA leading to cell mortality. The iridium (III) complexes exhibited interesting photooxidizing properties towards these G-rich DNA sequences.