

Synthesis and characterization of rhenium dicarbonyl nitrosyl and rhenium tricarbonyl complexes of medical interest

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Due to their interesting and advantageous properties such as high stability, low toxicity, structural diversity, rich spectroscopic properties and different modes of action, rhenium tricarbonyl complexes have gained a lot of interest as possible organometallic anti-cancer agents. Recently reported compounds including ReL1 showed high activity against cancer cells in zebrafish models and therefore in this master thesis, a small library of complexes of similar structure (ReL1-13) was synthesized. The interaction of these compounds with small biomolecules was probed and we confirmed the interaction with Lysine and Cysteine (ReL14-16). In the second part of the master thesis work, the chemistry of rhenium dicarbonyl nitrosyl complexes was studied and interesting results such as the development of a general procedure for the preparation of these compounds and their properties to act as possible PhotoCORMs were investigated. All complexes were synthesized with the intention to study their potential as biologically active molecules and the developed compounds are fully characterized. Furthermore, the interesting spectroscopic properties of tricarbonyl and dicarbonyl nitrosyl complexes are explored in this master thesis and their characteristics are compared to each other.

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