Metal complexes are currently playing a tremendous role in medicine. For example, the platinum complex cisplatin and its derivatives oxaliplatin and carboplatin are employed in more than 50% of the treatment regimes for patients suffering from cancer! Despite their high potency and tremendous success, however, these platinum compounds suffer from three main disadvantages: they are inefficient against platinum-resistant tumors, they are non-specific and they often have severe side effects such as nephrotoxicity. As such, alternative drug candidates or novel treatment techniques are still desperately sought. Over the last years, our research group focused its attention on the development of novel metal complexes as imaging and therapeutic agents against cancer. During this talk, I will present our latest results on these topics.