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Synthesis and characterisation of novel platinum-based drug candidates

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Abstract

One of the most widely used anticancer drugs is cisplatin, (cis-diaminodichloroplatinum(II)). Despite its clinical success, cisplatin still suffers from a number of problems, like generating resistance and high toxicity due to poor selectivity. By molecular design, we are searching for new platinum complexes with different properties and trying to understand their cellular behaviour. We have synthesised derivatives of 1,1'-bis(diphenylphosphino)-ferrocene (dppf) and their corresponding cis-platinum complexes.

These compounds have been tested for their interaction capacity with respect to L-cys, L-met and different oligonucleotides. Comparative kinetic studies reveal that substituents have a significant effect upon the reaction kinetics. The substituted complexes were found to have an increased reactivity. Even compared to cisplatin, the reactivity of dppf containing complexes was found to be significantly enhanced.