

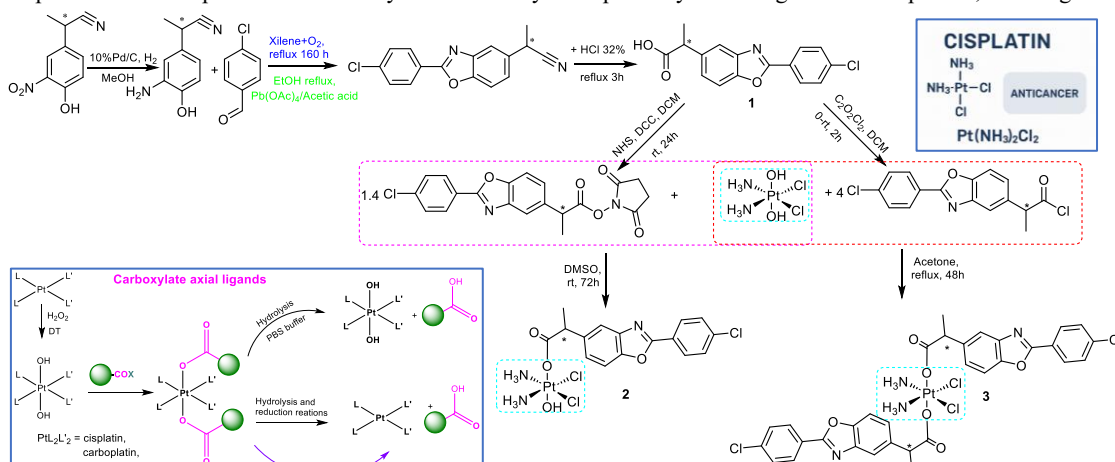
Development of Dual acting Platinum(IV)-based Anti-Tumour Agents Carrying Anti inflammatory Moieties

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ABSTRACT: The development of novel anti-cancer therapies remains a critical area of research, particularly in addressing challenges such as drug resistance and systemic toxicity associated with conventional platinum-based chemotherapy. Here, we describe the synthesis of new platinum(IV) prodrugs that combine cisplatin with one or two axially coordinated molecules of non-steroidal anti-inflammatory cancer-selective drug. The results suggest that these Pt(IV) complexes exhibit mechanisms of action typical for Pt(II) complex and NSAID, simultaneously. The presence of NSAID ligand(s) in the Pt(IV) complexes promotes the antiproliferative activity and selectivity of cisplatin by inhibiting lactate transporters, resulting in blockage of the glycolytic process and impairment of mitochondrial potential.



Scheme 1. The synthesis of the Platinum(IV)-Benoxaprofen complexes

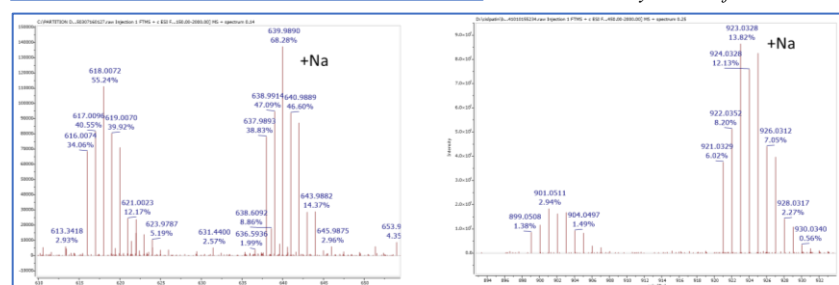


Figure 2. HRMS (ESI+) spectra of Platinum(IV)-Benoxaprofen complexes (2, left; 3, right)

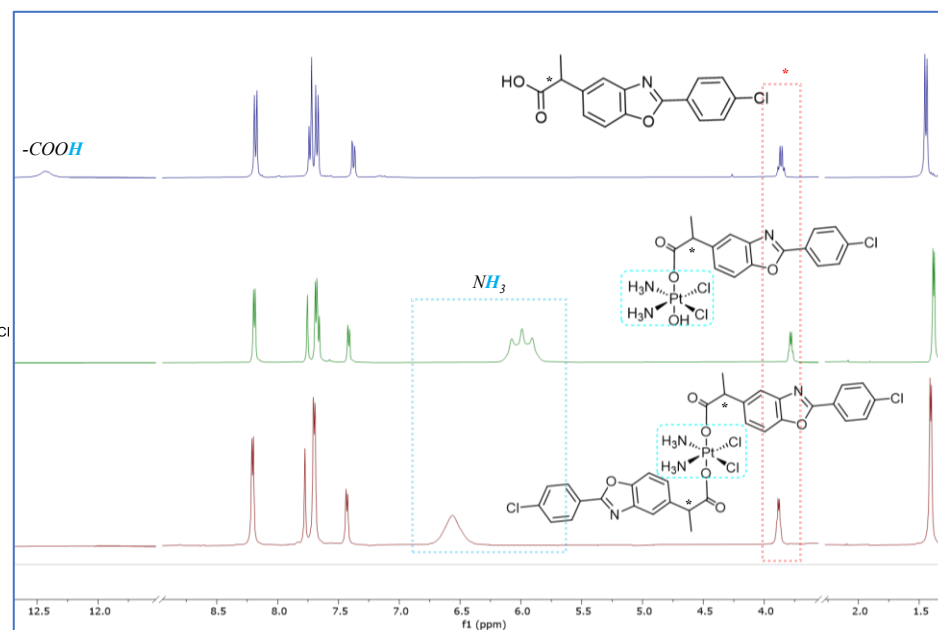


Figure 1. ¹H-NMR spectra of compounds (1, 2, 3) (DMSO-d₆, 600 MHz)



Equipments:

Bruker ASCEND 600/400 MHz NMR spectrometer;
Bruker FT-IR Vector 22 spectrophotometer;
Shimadzu QP-2010 PLUS mass spectrometer;
HRMS Thermo Scientific LTQ Orbitrap XL

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