[MS38-P12] Novel Palladium Complexes for Catalysis and Biomedical Applications. Janusz Lipkowski [a], Kazem Karami [b] and Mahboube H. Kharat [b],

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Palladium(II) complexes are intriguing alternative candidates for metallo-antitumor drugs due to their structural and thermodynamic similarities to platinum(II) complexes [1,2]. Several studies demonstrate that palladium derivates exhibit a noticeable cytotoxic activity, similarly to standard platinum-based drugs used as reference, and show fewer side effects relative to other heavy metal anticancer compounds [3]. They show ligandexchange kinetics 10^5 times greater than the Pt(II) analogs [4], which may facilitate the hydrolysis of the leaving groups that dissociate readily in solution, before the complex reaches the pharmacological target [5,6]. To overcome their high lability, chelating ligands have been used to afford high thermodynamically stable and kinetically inert Pd(II) complexes. In particular, palladacycles are nowadays attracting attention as potential anticancer agents [7,8]. The present work reports on x-ray structure of six novel Pd(II) complexes, of which three are cyclopalladates showing antitumor activity comparable to that of cis-platinum, the other three being the substrates for synthesis of cyclometallated products. The ligands used are chelating Nbenzylethylamine (coordinated via aromatic C and amine N), pyridine, di-or three-phenylphosphine and diazaphenantrene. Chloride, acetate and tetrafluoroborate were used as anionic ligands. The cyclopalladate rings display square planar geometry with only small deviations from planarity (Pd deviates by approximately 0.05 Å). The bond distances and angles observed are similar to those found in the literature but a significant trans-effect was observed for interaction between P and N atoms from phosphine and amine moieties, respectively. Also, the sterically demanding benzyl groups at nitrogen atoms tend to increase the Pd-N coordination bond. The structural data will be of importance for the ongoing analysis of the possible binding to DNA by means of intercalative or coordinate interactions; the effect being suggested in the literature of the subject [9]. An example of a binuclear Pd(II) complex bridged by ethylene (from the phosphine ligand) and a pair of enantiomeric cyclopalladates will also be presented.

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