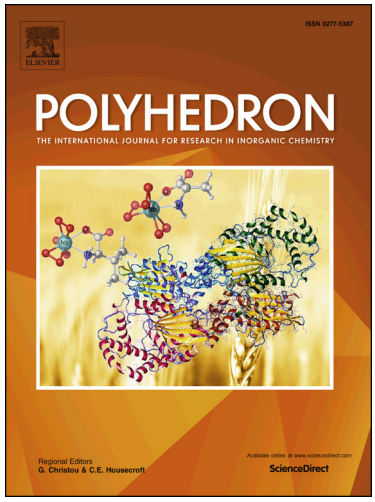

Platinum(II)-azoimidazole drugs against TB and cancer: structural studies, cytotoxicity and anti-mycobacterial activity

Chandana Sen, Chiranjit Patra, Sudipa Mondol, Amitabha Datta, Debashis Mallick, Tapan Kumar Mondal, Tulin Askun, Pinar Celikboyun, Zerrin Cantürk, Chittaranjan Sinha

PII: S0277-5387(18)30344-9
DOI: https://doi.org/10.1016/j.poly.2018.05.062
Reference: POLY 13235

To appear in: *Polyhedron*

Received Date: 14 February 2018
Accepted Date: 31 May 2018

Please cite this article as: C. Sen, C. Patra, S. Mondol, A. Datta, D. Mallick, T.K. Mondal, T. Askun, P. Celikboyun, Z. Cantürk, C. Sinha, Platinum(II)-azoimidazole drugs against TB and cancer: structural studies, cytotoxicity and anti-mycobacterial activity, *Polyhedron* (2018), doi: https://doi.org/10.1016/j.poly.2018.05.062

Platinum(II)-azoimidazole drugs against TB and cancer: structural studies, cytotoxicity and anti-mycobacterial activity

Chandana Sen[a†], Chiranjit Patra[a], Sudipa Mondol[a¥], Amitabha Datta[b], Debashis Mallick[c], Tapan Kumar Mondal[a], Tulin Askun[d], Pinar Celikboyun[d], Zerrin Cantürk[e], Chittaranjan Sinha[a]*

[a]Department of Chemistry, Jadavpur University, Kolkata – 700 032, West Bengal, India;

[b]Institute of Chemistry, Academia Sinica, Nankang, Taipei 115, Taiwan;

[c]Department of Chemistry, Mrinalini Datta Mahavidyapith, Birati, Kolkata – 700 051, India;

[d]Department of Biology, Faculty of Sciences and Arts, University of Balikesir, Cagis Campus, 10145, Balikesir, Turkey;

[e]Department of Pharmaceutical Microbiology, Pharmacy Faculty, Anadolu University, Yunusemre Campus, 26470, Eskisehir, Turkey.

Abstract: 1-Alkyl-2-(arylazo)imidazoles (Haai-C_4H_9 (**1**), Haai-$C_{10}H_{21}$ (**2**)) and their Pt(II) complexes, [Pt(Haai-C_4H_9)Cl_2] (**3**) and [Pt(Haai-$C_{10}H_{21}$)Cl_2] (**4**) were synthesized and characterized by different spectroscopic studies and structural confirmation has been achieved in the case of complex **3** by single crystal X-ray diffraction analysis. Complexes **3** and **4** were evaluated for their *in vitro* anti-mycobacterial activity against *Mycobacterium tuberculosis* H_{37}Ra (ATCC 25177) and H_{37}Rv (ATCC 25618) strains, as well as against two clinical strains. Their cytotoxic effects on three cancer cell lines, A549 (human lung carcinoma), MCF-7 (human breast cancer) and Caco-2 (colorectal adenocarcinoma line), and one normal cell line, 3T3 (mouse normal fibroblast) were examined. The DNA interaction of the complexes shows that the intrinsic binding constant (K_b) decreases with the increasing molecular dimension and the chain length of the 1-alkyl group. The longer 1-alkyl chain